

Communication Technologies and Applications in Areas of General interest

Research and Technology Development
Programmes and Plans



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**COMMUNICATION TECHNOLOGIES AND APPLICATIONS IN
AREAS OF GENERAL INTEREST**

DG XIII, Direction F Programmes and Plans

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Introduction and overview

Information and its communication has been of crucial importance throughout human history. In the last decade, major changes have occurred, but those ahead may be even greater. Desk-top supercomputers, direct satellite broadcasting, digital mobile radio-telephones, integrated broadband communications and other new applications of technologies will provide the means for low-cost, mobile, world-wide, high-performance communication on an unprecedented scale.

Individual, corporate and national wealth is increasingly in information. The growth and performance of over 60% of the economy relies on manufacturing or services heavily dependent on information technology, telecommunications and broadcasting. It depends critically on the accuracy, security and "trustworthiness" of information.

These developments are bound to have a profound impact on the international trade and European prosperity. They provide unique new opportunities to those able to grasp them. Europe is well equipped to meet this challenge, but it will need a concerted effort by the industrial sectors concerned, National Governments and by the European Community's institutions.

The developments in communication are of special importance for the European Community since they provide the means to advance European cooperation and cohesion, while at the same time sustaining international competitiveness. The European Commission has been working together with the sector actors and national administrations in the definition and implementation of the actions which require or benefit from collaboration at the Community level.

The strategic context of the actions and plans

In telecommunications, there is a very close relationship between policies, regulations, service provision, standardisation and technology. Social, political, regulatory, economic and technological factors are inextricably interlinked: Industry can only provide what is economically and technologically feasible; service providers can only maintain services which are attractive to the user, and Governments can only impose regulations with the technical means to enforce them. For this reason, progress in communications calls for a careful mix of evolution, innovation and verification involving all sector actors. The actions described in this document are part of a coherent set of Community policies: telecommunications regulation, standardisation, information market development and internal market policies.

This applies particularly to the work addressing social and economic priorities such as health care, transport, flexible training and rural development. Research on ways of using technology has to be carried out with the sector actors directly concerned. Actions such as AIM, DELTA, DRIVE and ORA play such a role.

Finding the right balance between specificity and commonality

Communications implies by its nature a common service infrastructure. Many of the requirements are common to all users. However, there are sectorial differences which need to be addressed to draw the full benefit from advanced communications. Correspondingly, a mix of actions has been defined which addresses what is common as well as what requires specific sectorial consideration.

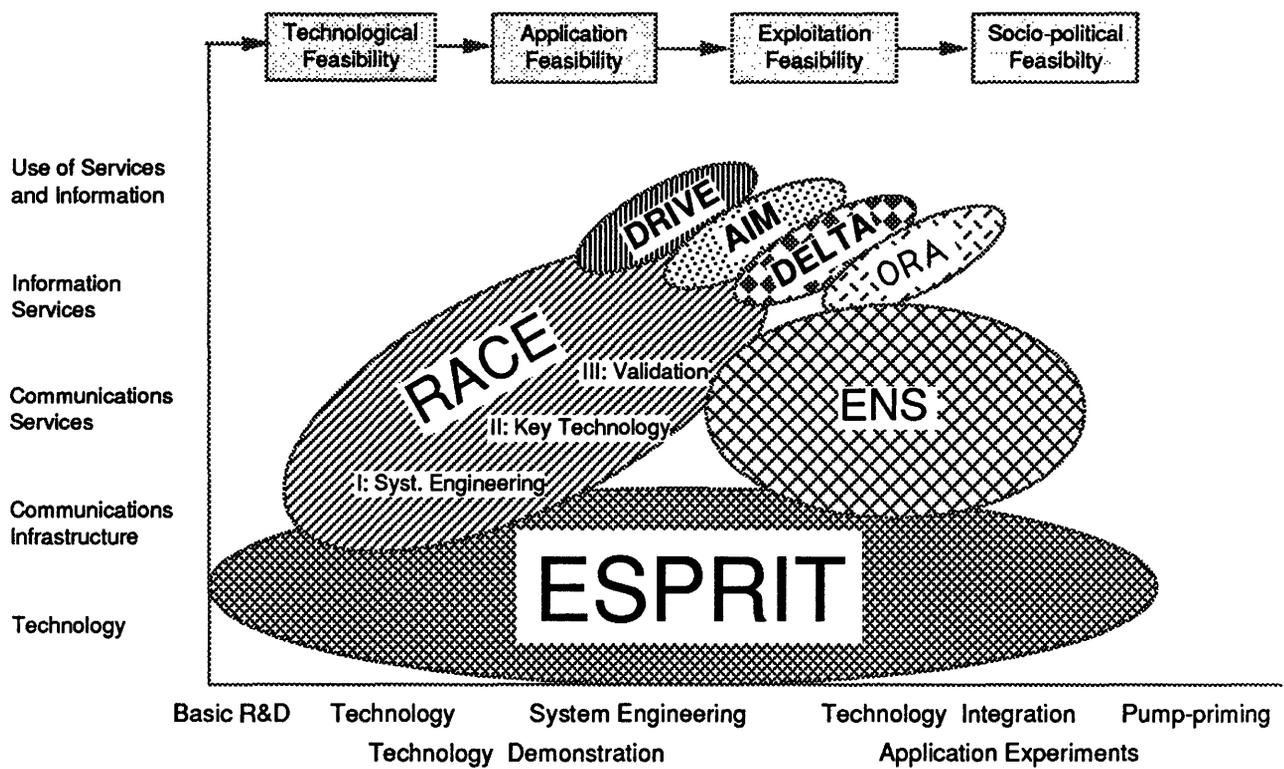
The diagram, on page 5, shows all the programmes and indicates their focus. On the right side of the diagram, the actions need to link to structural and industrial policy instruments.

Criteria for selection and implementation of actions

The conception and implementation of the actions are guided by a set of criteria:

- *Those relating to Community policy objectives:*
 - the contribution to the establishment of a single market and the convergence of the economic policies of the Member States;
 - the contribution to strengthening the international competitiveness of the sector actors (industry, operators, service providers and users).
 - The contribution to regional development and to social and economic cohesion;
- *Criteria related to subsidiarity:*
 - the strategic importance for Europe's economic and social development;
 - the added value of transnational cooperation;
 - the commitment of sector actors and support of national administrations;
 - the ability of the Commission to establish consensus on credible actions; and
 - the ability of the Commission to assure professional implementation.

Relation between R&D actions in IT&T



Note : The size of the areas is indicative of the scope and not of the finance volume

- *Criteria related to implementation of collaborative research*
 - the cooperation of the sector actors in the definition of the action;
 - the value of open competition for the realisation of the work;
 - the value of horizontal and vertical collaboration;
 - the value of sharing of R&D work and results.

Following the Council decisions on the RACE, DRIVE, DELTA and AIM Programmes in 1987 and 1988, Directorate F in DG XIII has the mandate to manage these programmes and to assist the Member States of the Community in identifying requirements for technology to advance the use and benefit of communications and their applications in the 1990s. A Management Audit in 1989 confirmed the effectiveness of the programme management arrangements put in place.

The two specific programmes in the third Framework programme, on communication technologies and telematic systems of General Interest, will ensure the continuity of this research and will extend its scope to other areas of social and economic importance: development of a European Nervous System linking administrations in the European Community; ensuring easier access to the wealth of information in European libraries, overcoming the problems of the linguistic diversity of the Community and addressing the specific needs of rural areas.

There is need to keep requirements under review, in the light of changing needs and technological progress. Part of the periodic re-focusing of the efforts will include a critical examination of the methods of collaboration, including the role of the Commission in this process.

All programmes are carefully co-ordinated to take maximum advantage of the synergies between them and all involve a large number of key industrial and sector actors.

1. Research and development on advanced communications in Europe

The first phase of RACE (1988-1992)

Background

Effective and cheap communication services are vital to economic performance and are therefore crucial to Europe's economic and social development. Already, more than half the jobs in Europe are related to information and services and involve the use of telecommunications in all its forms. Advanced infrastructures for information exchange and services will be as dominant in the latter part of the 20th Century as canal, rail and road transport infrastructures were in the 18th, 19th and mid-20th centuries.

Development of digital electronic and optical technologies opens the way to greatly improved and economic voice, data and image communication. New technological developments include high-definition television, digital recording and transmission of sound and pictures, optical fibres for very fast transmission of information, super-fast computers and satellite broadcasting. These will allow telephone and data transmission services to be brought together with video services to meet a large variety of needs.

Development of the RACE programme

A RACE Definition phase was set up in 1985 to plan a major programme of consultation, standards and technology R&D.

The first phase of the main RACE programme was launched in 1988. It is focused on the development of Integrated Broadband Communications (IBC) and the development of technology for introduction of commercial IBC Services in 1995.

The Aims and objectives are:

- to prepare for the introduction of Integrated Broadband Communications (IBC), taking into account the evolving Integrated Services Digital Network (ISDN) and national strategies, proceeding to Community-wide services by 1995;
- to promote the Community's telecommunications industry; to enable European network operators to complete under the best possible conditions; to enable a critical number of Member States to introduce commercially viable IBC Services by 1995; to offer opportunities to service providers to improve cost performance and introduce new services; to make new services available at a cost and on a timetable at least as favourable as elsewhere; to support the formation of a single European market for all IBC equipment and services, and to contribute to regional development within the Community by allowing less-developed regions to benefit fully from telecommunications developments.

The RACE effort lies between basic research and market-oriented development. It creates opportunities for innovation in product design, development and manufacture, and reflects the realities of telecommunications operations, equipment manufacture, the need for evolution from current systems and the importance of cost. It is also concerned with the usability of equipment and services, and makes full use of the Community's intellectual resources in assessing requirements and in developing pilot applications.

Formal decisions

The RACE programme, which is part of the 2nd EC Framework Programmes (1987-1991), was adopted by the Council of Ministers in December 1987 and work started in January 1988. It is a five year programme, running from January 1988 to December 1992. Details of the Programme are given in "RACE '91", available from the RACE central office.

The total cost of the programme is over ECU 1.1 billion. Costs are shared equally between the participants in projects and the Community.

The current situation

Two general Calls for Proposals have been made, in July 1987 and July 1988, and a restricted call was issued in April 1988. 86 contracts have been engaged and all available funding has been committed. 330 Organisations are involved. Within the EEC, 11 telecommunications administrations, 91 universities and research organizations and over 230 companies, 90 of them small companies, are already involved in international consortia. Organizations from 11 of the 12 EEC countries are represented, and major U.S companies established in Europe, such as IBM and AT&T, participate.

Organizations from other countries in the European Free Trade Association (EFTA) are also involved. Thirty-two organizations from Austria, Finland, Norway, Sweden and Switzerland participate in 39 consortia and 13% of the work.

Progress and results

Over 1000 reports and specifications have been produced so far. Common functional specifications have been published for 44 different aspects of IBC systems and over 330 contributions have been made to the work of standardisation bodies. Opto-electronic technologies that will make possible widespread use of optical fibres have been developed and 21 patents have been registered. A much better understanding of the requirements for advanced communication equipment and terminals has emerged and new communities of service providers and users have been drawn into the programme through the Application Pilots.

Three independent Technical Audits of project activities have been completed and a Strategic Audit of the situation in Europe related to development of advanced communications has been carried out: It confirmed that the establishment of effective advanced communications in Europe is essential for the competitiveness of European business in the 1990s and for the prosperity of Europe. The participants identified key issues in the establishment of advanced communications in Europe and formulated a set of recommendations for action by Governments, the European Commission, telecommunication administrations, European industries, telecommunication service-providers and standardisation organisations. The set of recommendations constitutes the first comprehensive strategic plan for the establishment of advanced communications in Europe and will provide the basis for debate on the very important and wide-ranging issues related to regulatory frameworks, investment strategies, and technical options.

Impact assessments and forecasts

Assessments and forecasts of the potential impacts of advanced communications are an essential complement to the research activities in the RACE programme. They support the development of a common understanding of the trends and opportunities in Europe, the USA and Japan, and therefore contribute to reducing the R&D and investment risks for all the sector actors. They also serve as a basis for the strategic orientation of the RACE programme and provide a regularly updated reference to both technical and regulatory developments in Europe, the USA and Japan.

During 1990, these assessments and forecasts were carried out under contract to the European Commission by a team of independent consultants. The conclusions and recommendations are in the Summary report and more detailed reference material is in a further seven volumes: All reports are available from Direction F on request.

2. Dedicated Road Infrastructure for Vehicle safety in Europe - DRIVE (1989-1991)

Background

There is still rapid growth of car ownership in Europe, but the development of the road infrastructure is now slow. This situation has given rise to three problems: congestion, costing the Community an estimated ECU 150 Billion per year; road safety problems, with 55,000 people killed on the roads each year, and environmental damage.

The DRIVE programme seeks to alleviate these problems through the R&D on the application of advanced information technology and telecommunications. It focuses on the requirements for common infrastructure technology and operational issues of concern to public authorities. It complements the cooperative efforts in which industry is already engaged. It looks into harmonizing industrial and infrastructural priorities to advance the pre-normative work needed for the introduction of an Integrated Road Transport Environment (IRTE) throughout Europe.

Development of the DRIVE programme

The DRIVE programme was planned in 1985 and 1986 in consultation with industry and transport administrations.

Formal Decisions

The Council of Ministers decided (88/416/EEC) on 29 June 1988 on a "Community Programme in the field of Road Transport Informatics and Telecommunications (DRIVE)" for a 3 year period and with a budget of ECU 60 million.

The Current Situation

As a result of 2 Calls for Proposals in 1988 and 1989, 214 proposals were received. 750 different organizations proposed a total effort of 56,000 man-months; nearly 6 times the resources available to the DRIVE programme.

As a result of independent evaluations, 72 projects were successfully negotiated representing over 1000 man-years of effort by 480 participants. The projects involve leading-edge users and industry (Automobile and IT&T) collaborating with research establishment, transport, telecommunication and broadcasting operators. 61 projects started in January 1989 and 11 in October 1989. All the funds available under the Council decision are committed.

Regular concertation meetings are organised to keep continuous technical control of the programme and to allow all projects to exchange information.

A Strategic Consultative Committee (SCC) has been set up. It consists of personalities from the main industrial sectors that use road transport, acting in a personal capacity. It provides a strategic perspective on the Programme, policy advice on Road Transport Informatics, and a high-level forum for industry/operators/users to exchange views and develop strategic plans for future developments and exploitation of the results of research.

Coordination with other European Activities

All the main actors in EUREKA activities are involved in DRIVE. In addition, a specific DRIVE project involves Prometheus, Europolis, Carminat (EUREKA projects) and the IT&T industry, the Telecoms industry and users. Its objectives include consensus formation and development of an overall plan for an Integrated Transport Environment in Europe. This project brings together all European activities in this domain.

DRIVE Programme Audits

As for RACE, all DRIVE projects has been audited in each year. Nearly half the projects finished in 1990 and only 41 continued into 1991.

A Strategic Audit assessed and evaluated the performance of the DRIVE Programme as a whole with respect to the strategic and policy objectives of the Community. The work was reviewed both with respect to the evolving demand and to new technological developments. It was carried out by experienced advisers from different backgrounds, acting in a personal capacity. The Auditors found that a breakthrough in road safety, a major improvement in road transport efficiency and a significant reduction in pollution could be achieved through the DRIVE work. Moreover, they concluded that the programme strengthens the economic and social cohesion of the Community, can contribute to the establishment of European norms and standards, addresses problems on the appropriate geographical scale and enables saving to be made through the transnational cooperation. The participants identified key issues in the establishment of Road Transport Informatics in Europe and came up with a set of recommendations for the European Commission, national governments, industry and the other actors in the sector of road transport. The report of their findings was published in November 1989.

3. Developing European Learning Through Technological Advance - The DELTA exploratory action (1989-1990)

Background

In the European Community, 22% of the population of the Community is in some sort of full-time education or training at any one time. In addition, 10 million people receive part-time training each year.

Flexible and distance learning systems already play a major part in meeting the demand for specialised education and training.

The DELTA exploratory action has addressed the use of newly emerging technologies for learning (ie. training, re-training and education), not only information technology, but perhaps even more importantly telecommunications and broadcasting technologies. The aim was to prepare the way for more effective use to be made of training material by reducing the cost of production of quality software and support mechanisms.

Development of the DELTA action

The programme was developed through a careful study of the situation in Europe, vis-a-vis the USA and Japan and other countries, and via a peer group representing all actors in the domain; the IT industry, PTTs, media publishers and academic/pedagogic organisations.

Formal Decisions

The DELTA action was approved by the Council on the 29th June 1988. 20 MECU was allocated to an "Exploratory Action" during 24 months.

The current situation

A Call for Proposals in 1988 generated a substantial response. Over 170 proposals were received. Technical evaluation of proposals was followed by the successful negotiation of 30 contracts. These started in July 1988 and finished between July 1990 and February 1991.

There was close collaboration with ESPRIT (primarily on software development and user interfaces), with RACE (for telecommunications) and with COMETT (on the training contents and services).

All projects underwent a Technical audit in 1989 and 1990. Other accompanying measures included workshops and conferences. A Strategic Review Board also identified strategies and priorities for future work. Its report was completed in March 1990.

Results

A final assessment of the results of the exploratory action has been made by a team of independent evaluators. It concludes that the exploratory action has fulfilled its function of identifying the most promising areas for collaborative development work and by fostering a spirit of co-operation amongst the organisations involved in distance learning in Europe.

Initial results support the extension and reinforcement of DELTA, with a shift of emphasis towards pilot experiments and development of technologies and systems suited to user needs. This will support the emergence of telematic services and infrastructures for flexible and distance learning and will promote the emergence of services. It will make possible the emergence of an Electronic University in Europe; a concept developed in the exploratory action.

A complete description of the results of the exploratory action is available in the final report on the action, and in the summary of technical findings, both available from DG XIII, Direction F.

4. Advanced Informatics in Medicine

The AIM exploratory action (1989-1990)

Background

Recent decades have seen a rapid rise in the use of new technologies in medicine and health care, and the expectations of European populations reflect the capabilities of these technologies. However, new methods of health care are expensive and there are conflicts between the expectations of people and the service that can be widely provided.

The new challenge is to provide improvements in the quality of health care and to improve cost/efficiency and transparency.

Development of the AIM programme

A Planning Exercise called BICEPS-EUROAIM started in 1986. It was a joint initiative of DG XII and DG XIII to formulate a mid- to long-term strategy for Europe in bio- and medical informatics. An international team reported on the clinical and infrastructure needs in late 1986. There was a strong support from industry, academia and health care professionals in all the Member States.

Formal Decisions

The Commission Proposal for a Council Regulation on a Community Action in the field of Information Technology and Telecommunications applied to health care" AIM (Advanced Informatics in Medicine) was adopted by decision of the Council of Ministers on November 4th 1988.

The exploratory action ran for 24 months from June 1988, with a Community contribution to cost-shared actions of ECU 20 million.

The exploratory action

As a result of a Call for Proposals in late 1988, most of the work defined by the Decision for the Exploratory Action was taken up. 42 AIM projects started in 1989. They involved some 250 independent partners. Half of them are Universities and Research Institutes, 25 % represent industry (information and communications industry, pharmaceutical industry and others) and 25 % represent hospitals, medical practitioners and others users.

All AIM projects were completed by the end of 1990. The Technical Report "AIM 89/90" describes the work undertaken in relation to the objectives and context of work specified in the Decision of the Council.

A Technical Audit was carried out in February 1990 and a Strategic Audit has been completed. And the auditors concluded that the objectives of AIM remain valid and have recommended a continuation and reinforcement of the efforts.

Results

The AIM Exploratory Action has succeeded in creating a sense of common purpose in European activities related to information and communications technologies applied to Medicine and Health Care. The Call for Proposals had an outstanding response, which highlighted both the needs of the sector actors and their willingness and ability to co-operate in collaborative pre-competitive and pre-normative R&D projects.

The work initiated under the AIM exploratory action is only the first, albeit essential, step towards improved communications and creating better tools for integration in Health Care in Europe. The next step will involve a substantial expansion of the work to consolidate the links which have been established between the health care community, research institutes, universities and industry.

A full description of the results of the exploratory action is in the final report, available from Direction F.

5. Research and technology development in the field of Communication technologies: The second phase of RACE: (1991 to 1994)

The second phase, a specific programme within the third EC Framework Programme for research and technology development, will cover eight priority areas:

- AREA 1** IBC (Integrated Broadband Communications) R&D
- AREA 2** Intelligence in networks/flexible communications resource management
- AREA 3** Mobile and personal communications
- AREA 4** Image and data communications
- AREA 5** Integrated services technologies
- AREA 6** Information security technologies
- AREA 7** Advanced communications experiments
- AREA 8** Test infrastructures and interworking (horizontal R&D area supporting the other priority areas).

The Community contribution to the cost of the work will be 490 million ecu, including the cost of staff and administration. The breakdown of expenditure between these eight areas of work is as set out in Annex II to the Council decision¹⁾.

The work will again be structured into three main parts:

- Development and Implementation and Implementation Strategies for IBC Systems, Services and Applications
- Advanced Communications Technologies; and
- Validation of Standards and common Functional Specifications for IBC

¹⁾Council Decision 91/352/EEC; OJ L192/8 16.7.1991

PART I - Development and Implementation and Implementation Strategies for IBC Systems, Services and Applications

IBC System Design, Architecture and Operation

Integrated Broadband Communications technology forms the backbone for advanced services and largely determines their costs. Key technologies, systems, services and applications are addressed in this part of the programme.

It builds on and extends the work in the first phase of RACE, and in doing so focuses on IBC common functional specifications and consensus management; global reference model development; reference configuration development; system aspects; concepts, interfaces and protocols for IBCN interworking; image network interworking; IBC mobile system architectures, and radio sub-system architectures for mobile access. The work will also involve socio-economic and technological impact assessments and forecasts.

IBC Implementation and Transition Strategies

This work will cover the system engineering required for the implementation of IBC services, including the transition from current services. The results will improve techniques for the efficient interoperability of public and private networks and new services.

The work will involve the development of IBC implementation strategies; assessments of IBC implementation in peripheral and rural areas; monitoring of optical network implementations and their evolution; monitoring of IBC customer-premises network (CPN) and equipment developments in a multi-media, multi-system environment; research on system aspects of CMC technologies, the compatibility of public network protocols with CPN installations, transition to integrated mobile communications, mobile service implementation, mobile cell-planning methods, concepts and architectures for personal communications, open architectures for image communication, user control of communications management and research on service and performance management.

Common Operational Environment

This work will support standardisation efforts, particularly those of the European Telecommunications Standards Institute (ETSI). It will include the dissemination of results of R&D work and the acquisition of other relevant information. Common analytical tools will be developed and used for assessment of implementation and transition strategies. The work will involve active information collection and dissemination and the development of procedures and tools for techno-economic evaluations and prospective demand analyses.

IBC Service Infrastructure Engineering/Modular Standardisation

This research will contribute to the definition of common functional specifications for new communication services and multi-media systems. It will contribute to the harmonisation of specifications for the flexible integration of telematic services under user control. Account will be taken of the trans-national scale of communication needs and the heterogeneous technical environment in Europe. The work will involve the development of systems and architectures for integrated service engineering; research on service and resource management; development of reference configurations for integrated services and a development of a Users Reference Model.

IBC Generic Application Strategies

The research will focus on the identification of "trigger" applications of advanced communications and of the generic applications which will be the basis for a spectrum of future universal services.

The work will involve the development of application strategies for advanced communications, identification of usage and operational requirements, specification of resources needed for applications and consolidation of the technical results of experiments.

Communications Security

The accuracy, security and overall "trustworthiness" of electronic communications are of great importance to private individuals and public administrations, as well as to commerce and industry. Work in this area will ensure that considerations of quality-of-service, security and reliability are taken into account in development and implementation strategies for advanced communications. It will provide validated specifications, guidelines and technologies for practical and effective information security at a pan-European level. The work will be co-ordinated with that carried out in other specific R&D programmes and EC actions.

The work will involve security architecture definition, identification of administrative security requirements; definition of audit processes, services and protocols; research on secure directory management; identification of anonymity requirements and solutions; research on mobile communications security, security attributes, security certification, European identity management and definition of a strategy for the coordination of security demonstrators and pilots.

PART II - Advanced Communications Technologies

Techniques for the Transition to Intelligence in Networks

The research will address the use of new techniques of information transfer, optical communications, and possibly artificial intelligence, for enhanced flexibility, both in the provision of new network services and in network management.

The objective is to enable development of second generation network management systems and to contribute to standardisation and the definition of interconnection protocols. The work will involve research on virtual private network management, services management on Metropolitan Area networks and on management of personal communications.

Mobile Communications

The work will contribute to the development of a third generation of integrated mobile communication systems, aiming at mobile broadband services and universal personal communications of voice, data and images. It will focus on the development of advanced functionalities for the integrated use of IBC and radio networks (e.g. interconnection standards and mobility management) and the miniaturisation of terminal technology. Attention will be given to the needs of different kinds of users and to the requirements of pan-European access.

The research will focus on propagation studies in mobile system design, radio technologies for fixed and mobile users, and on speech and image coding for mobile communications.

Image and Data Communications

The research will involve the development of the technologies needed for exploitation of advanced, low-cost and flexible image and data communication services, for both domestic and business needs. It will build on the foundations established in the first phase of RACE, addressing in particular the impact of new transfer modes (such as ATM). The work will concentrate on digital HDTV and will include coding and presentation techniques for still, moving and three-dimensional images. It will cover interworking between IBC and the other interactive and distributive networks with which it will co-exist.

The research will address image transcoding between different formats in customer premises networks; high-quality still-picture coding for display on domestic HDTV receivers; bandwidth-efficient coding and modulation for bandwidth-limited media; image synthesis technologies; 3D picture capture, coding and presentation, and advanced image communication scenarios.

Techniques for Basic IBC System Functions

This work will cover switching systems, integrated optical systems and networks, IBC customer systems and IBC software infrastructures. The research will focus on techniques enabling the transition to connectionless services between CPNs; ATM technology evolution for provision of high-speed services; signalling; communications management in a broadband customer-premises network; upgrading of first generation CAC Systems, second generation broadband CAC systems of enhanced performance, applications of optical amplification and photonic switching; advanced concepts in optical communications and networks layout; IBC programming support and implementation options for communications management systems.

Integrated Service Technologies

This research will build on system engineering activities, and the results will contribute to service specification and harmonisation work. It will address user interface technologies, and service management systems. The work will involve research on techniques for service creation, user-service interactions, user control, intelligent communication agents, services for people with special needs, and the acceptability of security mechanisms.

Techniques for Advanced Communications Experiments

The technology and techniques necessary for experimentation with advanced applications will be developed. Three themes have been identified: identification of technologies to support the development of the service infrastructures; development of resource packages; and development of techniques to support the elicitation of user requirements. The development of resource packages will cover service and product elements, network capabilities (transport, switching and management) and terminal facilities. Large-scale field experiments will be complemented by simulation techniques. Presentation techniques, such as animation and graphics, will be used to complement technical reporting.

The work will involve the development of a general framework for resource package definition and development of resource packages for:

- distributed case handling,
- interpersonal communications,
- remote delivery of expertise,
- distributed collaborative decision-making,
- distributed learning/training,
- monitoring and surveillance,
- telemarketing,
- entertainment/leisure service distribution,
- multimedia interpersonal messaging and information assembly,
- distributed collaborative design,
- prototyping and validation.

Information Security Technologies

Technologies for information security and technologies for the integration of secure systems will be investigated, especially for distributed systems. The work will involve security information consolidation; research on encipherment, malicious software control, generic security servers design, trusted network interface modules, management software for distributed security facilities, security protocols, multimedia security, the resilience of IBC Infrastructures, the development of prototype security architectures, secure directory management, end-user payments and conditional access, real-time security auditing in distributed systems, development of security policy and tools to establish confidence in services, products and systems.

It will also be concerned with international security gateways, mobile communication security, and formal methods applied to advanced secure communications.

PART III - Validation of Standards and common Functional Specifications for IBC

Integration of IBC Demonstrators

The integration and interoperability of "technology demonstrators" will be proven, with business and residential subscribers involvement in both urban and rural areas. The research will validate the application feasibility of new technology. It will support standardisation and provide the basis for the evaluation of the economic performance of systems and services. It will cover the integration of access, transport and switching functions as well as control, management and signalling functions. Demonstrators of IBC terminals, as well as terminals developed elsewhere, will be connected in order to illustrate the large variety of services and applications that can be efficiently supported.

The research will concern digital HDTV service verification, development of CPNs for HDTV production, demonstration and integration of communications management systems, prototype IBC network integration, mobile sub-system integration and validation of Customer premises systems.

Verification of Integrated Services Environment Concepts

This research will involve the development of prototype facilities for flexible integration of services responding to the requirements of operators, service providers and users. The work will address applications of Integrated service engineering by the service creation industry.

Information Security Verification

The security of any system can only be as good as its weakest link. The systems required are complex and need to be checked. Strategies, specifications and technologies developed in the specific programme will therefore be verified by building a series of small-scale demonstrators. The work will involve integration and verification of the security architectures and security in end-user pilot applications.

Advanced Communications Application Experiments

The technical and operational feasibility of applications of advanced communications will be established in a process of structured and coordinated experiments. They will identify, describe, model and define generic applications of advanced communications that cross business sectors and functions. Pre-competitive prototype resource packages (including service and product elements) will be developed for generic applications, allowing sector-specific application experiments to be undertaken.

The work will involve advanced communications experiments in both urban and rural areas, the development of server and workplace module kits and development of a network management system for usage and performance measurement.

Test Infrastructure and Interworking

The successful introduction of IBC services in Europe needs to be preceded by experimentation and trials. A test infrastructure is necessary to validate standards and functional specifications. The provision and operation of this infrastructure is expected to be done by network network operators, in collaboration and co-operation when necessary for interconnection and inter-operation. The work will involve the planning and coordination of test network implementation.

Verification Tools

Tools will be developed to verify functional specifications and interoperability in IBC systems. They will consist of formalized procedures and facilities for physical verification of service quality, protocols and optical networks.

6. Research and technology development in the field of Telematic systems of General Interest (1991-1994).

The Specific Programme of research and technology development in the field of Telematic Systems of General Interest was adopted by the Council of Ministers in 1991²⁾. It will address 7 areas of work:

Area 1: Support for the establishment of transeuropean networks between administrations

Area 2: Transport services (DRIVE);

Area 3: Health-care (AIM);

Area 4: Flexible and distance learning (DELTA)

Area 5: Libraries

Area 6: Linguistic research and engineering

Area 7: Telematic systems for rural areas

Work in five of these areas is managed by DG XIII, Direction F. That in areas 5 and 6 is managed by DG XIII, Direction B in Luxembourg. This report deals only with the five areas under the responsibility of Direction F.

The Community contribution to the cost of the work in this Specific Programme will be 380 million ecu, including the cost of staff and administration. Of this about 41 Mecu will be devoted to Area 1; about 124 Mecu to area 2; 97 Mecu to area 3; 54.5 Mecu to area 4, and 14 Mecu to area 7. A first Call for proposals has been published in 1991 and a second will address those areas and topics not covered by projects established following the first Call.

This research to be undertaken is described in the following sections.

²⁾Council Decision 91/353/EEC; OJ L192/18 16.7.1991

6.1 Research and technology development on Transnational Telematic Systems for Administrations.

The completion of the single European market in 1992 will create new needs for information exchanges between Member States of the European Community and it will be important to find new ways of providing the services necessary to the free movement of persons, goods, services and capital and for increasing economic and social cohesion in the Community.

For example, with the elimination of frontiers within the Community, it will no longer be possible to monitor goods in transit at national frontier posts. Information will need to be exchanged between the country in which the goods enter or leave Community territory and the country of destination or origin of the goods.

Similarly, freedom of movement of persons cannot be achieved without a sustained, two-way flow of information between the various administrations responsible for social services. Telecommunications interconnection between these administrations will help to provide social services for people, wherever they are in the Community. The setting-up of transeuropean telematic services could help to do this, by ensuring rapid and secure information exchange, guaranteeing the compatibility of the operational procedures while respecting citizens' rights, and promoting international coordination.

The interconnection and interoperability of already existing statistical tools will allow the implementation of a European system of statistical information.

The objectives

The objectives are:

- to define common requirements for information exchange and examine the need for interoperability between electronic information networks within Member States;
- to carry out studies and pre-normative research for the definition and subsequent establishment of the transeuropean telematic services networks essential to national administrations for the completion of the single market, the provision of the services necessary to the free movement of persons, goods, services and capital and for increasing economic and social cohesion in the Community.

The priority sub-areas are those most closely linked to the completion of the internal market. In the first instance, work may concern such areas as customs, social services, emergency services, and statistics.

Organisation of the research

The actions will relate to the development of telematic systems for public and private sector administrations in all parts of the Community. They will provide a solid basis of knowledge and experience for subsequent implementation of telematic systems.

The actions will involve a multidisciplinary "systems" approach to solving the technical and practical problems associated with introduction of new telematic systems for administrations.

The R&D will involve work in two sub-areas:

Identification of needs and implementation strategies

Selected areas closely linked to the completion of the single market will be examined in exploratory actions. This will comprise an assessment of the changes in the exchange of electronic information brought about by the completion of the Single European market, an assessment of the needs of the users of this information to accommodate these changes and an assessment of the role of research and development in meeting these needs. The results of this work will enable the relevant administrations of the Member States and the Commission, with the help of hardware and software producers, telecommunications operators, and possibly specialist consultancy firms, to seek a consensus on the functional and technical specifications of the services required and strategies for setting up the transeuropean networks to provide these services.

Preference will be given to systems which are designed to inter-communicate using key elements, particularly those which have been standardized at European or world level. The standards relating to database access, storage and access protocols, languages, etc. will be identified and adapted where necessary. Arrangements must be made to ensure secure services.

Development of the technologies relating to telematic services and validation of common functional specifications

In order to take account of the complexity of these networks of services, the number of parties involved, the variety of information, real-time or batch processing, and capacity requirements, the architectures and the management of these transeuropean networks will have to be thoroughly studied and researched in order to achieve the performance and reliability required to satisfy the specific needs of each administration. These studies and research will have to be carried out jointly by users of dedicated networks, manufacturers of information and communications equipment, telecommunications operators and possibly specialist consultancy firms.

The work will concentrate initially on interoperability, common standards, architectures and functional specifications, user acceptability, data integrity and confidentiality. As a result of this work, a common reference model should be developed for the implementation or adaptation of the telematic systems which are proposed. The results of the exploratory activities in a few sub-areas will be taken into account as work in this area is subsequently broadened.

To obtain the interoperability of computerised service networks, used by the administrations and users, it is important to verify common functional specifications. Special attention will be paid to the quality, reliability, security and ease of use of these services. To this end, a limited number of pilot projects will be carried out where it can be shown that there is a need to verify functional specifications and technology and where there is a general interest to all member states and where this is in keeping with rules on personal data protection.

Where appropriate, these experimental development activities will be carried out in cooperation with the work carried out under the INSIS, CADDIA and TEDIS programmes and certain parts of the ESPRIT and RACE programmes.

6.2 Research and technology development in Advanced Road Transport Telematics (DRIVE)

Economic growth and rising personal incomes within the European Community are leading to increasing road traffic. However, space, environmental and cost considerations are limiting the provision of new road capacity to service the increase in demand, resulting in widespread congestion. These problems are particularly acute in urban areas and on certain motorway stretches. Congestion leads to wasted time and fuel, which in turn imply economic inefficiency and environmental damage. As we approach the Single European Market, an increase in international traffic could accelerate this trend unless action to make more efficient use of the available roads is successful.

Road traffic also carries with it an enormous human cost in terms of death and injuries through road accidents. Approximately one in a hundred deaths in the European Community involves a motor vehicle accident. Over a normal life-span one in three people in the Community can expect to be injured in a motor accident. It is difficult to evaluate the effect of traffic pollution on the health of people exposed to vehicle emissions.

The objective

The objective of the Advanced Road Transport Telematics programme is to contribute to the development of a framework in which advanced information technology and communications can be harnessed to improve efficiency and safety of passenger and goods transport and reduce their impact on the environment. The work will build on the exploratory research in DRIVE under the second framework programme. There will be close liaison with relevant EUREKA projects.

The activities will be divided into three interactive parts: the definition of functional specifications in the context of a strategy for the use of technology and telematics systems for communication and traffic control, the development of new technologies and experimental systems, and particularly validation work through pilot projects.

Work already done in DRIVE and relevant EUREKA projects has enabled road transport needs and the technologies available to be identified and evaluated. Based on this work, a strategy for using these technologies will be sought in co-operation with transport users, business, providers of transport related services and the administrations concerned. Systems engineering work will continue on an integrated transport environment addressing development and implementation strategies. It will help to draw up the functional specifications in terms of equipment, services and operating procedures and to make recommendations to standard setting authorities such as CEN/CENELEC and ETSI.

This area of work will take account of the technologies emerging in information and communications and the results of research carried out in DRIVE and other research programmes. Technologies and experimental systems for managing transport and controlling road traffic will be developed and evaluated for both passenger and goods transport. Safety and communications systems will concentrate on helping drivers. The research will focus on on-board safety systems and equipment able to detect warnings and incidents and communicate with the new fixed infrastructure equipment. In the field of public transport, work on monitoring and control will continue to evaluate the cost effectiveness of opportunities for on-line monitoring, scheduling and control for users and providers of services and to establish the necessary functional specifications.

Special attention will be given to existing and emerging systems in the areas of satellites and digital cellular communication networks. Of particular importance is the potential of new systems to provide incident protection and provide usable information to network managers and road users through effective road vehicle communications. The multi-modal aspects of the information systems will be given particular attention.

In order for the new systems and devices to be accepted by the general public and relevant authorities they must be of proven performance and reliability. Their impact on the environment must also be assessed. This will require full scale pilot experimentation. This experimentation will be orientated towards the integration of multiple subsystems, functions and services requiring strong pre-standardization efforts. These experiments will cover areas including integrated urban traffic control; monitoring of air pollution; integrated motorway traffic control; vehicle roadside communications; driver information; driver support and cooperative driving; transport demand management; public transport; freight transport and trip planning. The need for rigorous evaluation should be a prime requirement in selection and design of pilot projects. This may mean that the pilot projects will be established on an incremental basis. These projects should also evaluate technologies and systems of wide applicability.

The Areas of Interest

The objective of the work is to contribute to the development in the field of transport, of integrated trans-European services using advanced IT and communications to improve the performance (safety and efficiency) of passenger and goods transport services, and at the same time reduce the impact of transport on the environment.

As a means of achieving this objective, seven areas of major interest, where work has to be carried out, have been identified. They are:

Travel and Traffic Information

Travel and traffic information is a kernel area supporting most of the other areas of interest. It shall include static and dynamic (i.e time or event related) information provided to the road transport user. In addition it shall address the computer processing of this information to offer innovative services such as traveller information, trip planning, route guidance and tourist information in a multi-modal environment.

Integrated Urban Traffic Management

Integrated Urban Traffic Management is intended to improve and integrate systems in use in cities. Particular attention shall be given to traffic control, trip planning and parking management and systems for the emergency services and their management.

Integrated Interurban Traffic Management

Interurban (or largely motorway) travel presents different challenges. Incident detection (such as accidents or congestion) is important. Road condition monitoring shall be investigated because of the higher speeds involved. Traffic control using predictions of traffic flow is becoming important as capacity limits are reached. Automatic no-stop toll payment systems will reduce delays

Driver Assistance and Cooperative Driving

Systems shall be developed to assist the driver and to communicate information between vehicles. These systems will increase driver comfort as well as enabling vehicles to maintain distances from other vehicles resulting in reduced likelihood of accident. In the event of an accident emergency services can be immediately informed. Attention to man-machine interaction techniques will improve the effectiveness of systems

Freight and Fleet Management

As the single market approaches efficient freight transport is of great importance. Freight and logistic management systems shall be developed to enable inter-modal transport planning, reduction of paperwork and delays, route planning and scheduling, fleet monitoring as well as monitoring the movement of hazardous and special goods.

Public Transport Management

The attractiveness of public transport is proportional to its efficiency. Planning and scheduling systems shall enable best use of fleets. Links to traffic control shall enable buses and trams to have priority at intersections. Information systems shall keep the user informed at home, while waiting at stops and in the vehicle and automatic payment systems shall reduce delays and increase the flexibility of pricing policy.

Demand Management

This area covers the use of technology in helping transport authorities to strike an efficient balance between travellers' demand and preferences and the capacity of the road and rail network. This implies controlling the use of road space and the provision and pricing of parking, and complementary investment in public transport. It may include direct pricing for the use of the road and will also require effective measures for policing and enforcement.

A detailed specification of research tasks is available from the DRIVE central office.

6.3 Research and technology development on Telematic Systems in Health care: (AIM).

There are 337 million people in the European Community, 15 thousand hospitals, 3 million hospital beds and 850.000 physicians. Europeans visit their doctor 5-6 times a year and 1.500 Ecu is spent per person on health care each year. A typical 700 bed hospital manages more information per day than the London stock exchange.

Health care is the largest public sector in Europe. It already accounts for more than 7 % of GNP and with an annual increase in expenditure of 10 %. The cost of health care is a major economic concern and one of Europe's principal challenges for the 1990s.

The demands of patients are increasing and Europe has an aging population. All those concerned (patients, health-care professionals, administrations and industrialists) are conscious of the necessity to tackle the complex problems associated with professional and financial constraints and the need for improving the quality of care. New information and telecommunication technologies offer an essential tool in resolving these problems.

The objective

The objective is:

to stimulate the development of harmonized applications of information and communication technologies in health-care and the development of a European health-care information infrastructure, taking into account the needs of users and technological opportunities.

The activities will depend on the needs of users and on the requirements of transnational exchange of electronic information. They will concentrate on interoperability of national systems, the establishment of standards, user acceptability, data integrity and confidentiality. The selection of activities will depend on strategic options within both the European health-care sector and European telematics sector.

The work will be carried out along three main lines, making use of the exploratory work of the AIM programme (Advanced Informatics in Medicine) and in close co-operation with other Community programmes.

Strategies for the use of technologies, telematic systems and services and contribution to the definition of common functional specifications

The activities will depend to a large extent on user needs and on the transnational nature of the information infrastructure required. This transnational aspect requires compliance with three principles: integration (notably the emergence of standards); modularity, to facilitate adaptation to different types of needs, and data security. The research and technological development activities will depend on the assessment of technological needs in the light of the main factors affecting the development of health-care. They will also depend on the strategic options for European telematic services in the sector. Essential problems such as confidentiality and data protection will be given high priority.

Development of telematic technology applied to medicine

Activities are expected to fall into one or more of the following 11 domains:

- alphanumeric data and text coding standards;
- images and biosignals with coding standards;
- integrated medical instrumentation and devices;
- knowledge based and decision support systems;
- medical use of multi-media workstations;
- health care communication systems;
- telemedical systems and archiving systems;
- modularity and integration of medical and health information systems;
- regulatory tools and incentives (medical, legal, ethical, economic and social);
- technologies and services for the handicapped and elderly;
- inter-hospital telematics for increased security in distance care and improved management of staff and specialized equipment.

Validation and integration

Pilot applications will be set up to demonstrate and evaluate innovative uses of telematics in this area. Tests of the applicability of the research and development results and the interoperability of telemedicine services will be conducted.

The research tasks

A detailed specification of research tasks is available from the AIM central office.

6.4 Research and technology development on Telematic Systems for Flexible and Distance Learning

Research on telematic Systems for flexible and distance Learning is part of the research in the field of telematic systems of general interest. It will contribute to both the successful completion of the internal market and to the improvement of the public services facing the challenge of European integration. Learning technologies and systems will be a key asset of the Community in the future: the development of skills and 'know-how' will be crucial to the maintenance of economic growth and employment in the Community.

On the basis of the exploratory work of the DELTA programme, and in close co-operation with other Community activities such as COMETT and EUROTECHNET, its follow-up will also be pre-competitive and pre-normative and will concentrate on providing opportunities for interoperability between national systems, defining standards, architectures and functional specifications

The aim will be to establish trans-European flexible and distance learning services based on telematic systems. These will make a major contribution to solving the problems posed by Europe's growing training needs in terms of:

Flexibility - by increasing adaptability to different needs, learning patterns and settings, and media combinations

Accessibility - by promoting the ability to learn when and wherever necessary

Learning support - by ensuring the development of infrastructures to assist learners, trainers and course producers

Pilot projects will be supported to verify the technology, to test concepts and to demonstrate interoperability.

Synergy will be sought with other areas of research within the Framework Programme. In particular the research on information and communication technologies (ESPRIT and RACE) will provide a basis for the development of the technologies and systems needed. Close cooperation will be established with other European Community programmes dealing with training (COMETT and EUROTECHNET).

The areas of research

Work will be supported in three interrelated sub-areas:

- Development of implementation strategies.
- Development of technologies and systems.
- Validation and integration of services.

Within this framework, six topics of major operational interest have been identified, each one involving work in the three sub-areas. They are: the common Training Architectures, Workbenches for production of learning materials, facilities and services for training information systems, remote delivery of education and training, learner support tools, telecommunications for interactivity in distance and flexible learning. To a greater or lesser extent, each of these major operational topics will vertically integrate each of the tasks listed below:

Part I - Strategies for the use of technologies, telematic systems and services and contribution to the definition of common functional specifications

The work will involve the development of strategies for the use of technologies, telematic systems and services. It will contribute to the definition of common functional specifications, identification of common requirements and appropriate uses of information technology and telecommunications. Specific attention will be given to the interests of the various categories of users (trainees, industry, SMEs etc) and the potential offered by developments in technology.

The development of a common framework for evaluation and assessment of technology-based learning will be a major aspect of this work.

Systems engineering work will involve market analysis and implementation planning of telematic services for flexible and distance learning; assessment and evaluation of learning technologies, and information dissemination.

In all aspects of the activities, the setting-up of human networks will support technical developments, raising awareness of potential users, building consensus and disseminating information.

Part II - Development of systems and technologies

The development of telematic systems and technologies for flexible and distance learning which are interoperable, effective and modular, will be addressed. By harnessing and harmonising existing and emerging technologies and telematic services, the objective is to reduce costs and improve the performance of technology for flexible and distance learning, and to provide for adequate mechanisms for learning.

The work will integrate and adapt information and communications technologies, hardware configurations and protocols for educational and training applications, and ensure the compatibility and portability of the various systems developed for potential users, whether they be students, authors, tutors, producers etc

It will exploit emerging technologies and adapt their ever-increasing capabilities to courseware design and production, information systems, training services, learner support tools. It will involve development of common functional specifications and a common training architecture. This will be an open design allowing a similarity of 'look and feel' of learning technology products to emerge. It would thus enable designers, distributors and learners to use technologies more efficiently in the creation, transmission and use of high quality courseware, contributing to economies of scale.

It will involve work on common training architectures; design and production of learning material; multimedia integrated simulation systems for learning; training information systems; training delivery systems and services; learner and teacher support tools, and advanced interactive communications systems for distance learning;

Part III - Experiments on the validation and integration of services

Part III will set up a range of pilot projects to permit the assessment of the cost effectiveness and pedagogical efficiency of telematic systems for flexible and distance learning.

The work will contribute to assessment of the feasibility of establishing trans-European electronic services for flexible and distance learning. It will involve validation of methodologies and integration of technologies in different contexts: course design and production; course delivery; tutoring and monitoring, and remote access to learning resources.

The performance of the various possible services and technical configurations will be evaluated within a coherent framework, taking into account the technological approach, the logical and managerial implications, the applicability and efficiency of the didactic approach, the applicability and efficiency of the technology, and costs.

Experiments in the 'real world' will allow the testing and interconnection of various systems. They will establish the comparative advantages and cost-performance of various configurations of systems for different categories of users.

The research tasks include work on systems for joint course development and production; systems for delivery of learning services, and systems for remote access to learning resources.

Research task specifications

A detailed specification of research tasks is available from the DELTA central office.

6.5 Research and technology development on Telematic Systems for Rural Areas.

Half the European population still lives outside major cities and towns. However, rural areas have experienced a steady decline in employment and training opportunities, and in the provision of health-care and commercial services. Restraints on agricultural production and increases in agricultural productivity make the creation of new employment opportunities in rural areas of vital importance.

The decline in traditional manufacturing employment in Europe has been accompanied by a growth in new industries dependent on information services and communications. This trend gives rural areas an opportunity to compete on an equal basis for new employment opportunities, provided the necessary telematic systems are developed. Such systems can stimulate economic growth in rural areas by allowing new forms of employment to be located in rural communities. They can allow jobs to be moved to people, relieving pressures for people to commute ever increasing distances to jobs in urban centres. Small firms will be able to expand in their original locations without the need to relocate. Telematic systems can also enable more cost-effective support and services to be provided to dispersed small firms, farms and households.

Telematic systems will emerge rapidly in the 1990s in urban centres because of their density of population and the greater unity and strength of the market for information and communications equipment and services. However, rural areas will need comparable systems. Positive steps must be taken if the opportunities for rural revitalisation through applications of telematic systems are not to be delayed or lost. The introduction of telematic systems in rural areas will be a gradual process; the investments required will be large, and the systems installed will have a lifetime of some decades. It is therefore essential that the right decisions are taken on telematic system configurations. The degree to which rural areas will be integrated into the socio-economic and cultural life of Europe in the 21st Century depends on decisions that need to be taken in the early 1990s.

The objectives

The objectives are:

- to create the conditions for geographically dispersed small businesses to provide more diverse employment opportunities and a more balanced economic activity in rural areas;
- to establish a basis for provision of improved commercial, social, educational and health services to dispersed and isolated populations;
- to raise the level of awareness of the potential of information and communications technologies and to contribute to raising the level of information and communications technology skills in rural areas;
- to encourage manufacturers and service providers to make equipment and services easier to use by rural communities
- to prepare the way for the harmonised planning and introduction of advanced communications infrastructures in rural areas.
- to ensure that the applications of information and communications technologies in rural areas do not contribute to further centralisation of business and administrative activities and a loss of the cultural and economic diversity of rural areas in Europe.

Organisation of the research

The actions will relate to rural areas in **all** parts of the Community. They will provide a solid basis of knowledge and experience for subsequent implementation of telematic systems in specific rural areas, whether through private sector initiatives or with national or regional Government support.

The objectives of the European Community R&D will be to develop a better understanding of common needs and opportunities for telematic services; to establish a common understanding of network configuration and telematic service requirements, and to prepare the way for harmonised planning and introduction of telematic service infrastructures in rural areas.

The actions will involve a multidisciplinary "systems" approach to solving the technical, socio-economic, practical and market development problems associated with introduction of new telematic systems in rural areas. It will reinforce the existing Community research and development actions related to information and communications technologies and will be co-ordinated with other initiatives sponsored by the Commission of the European Communities, national Government and regional development organisations.

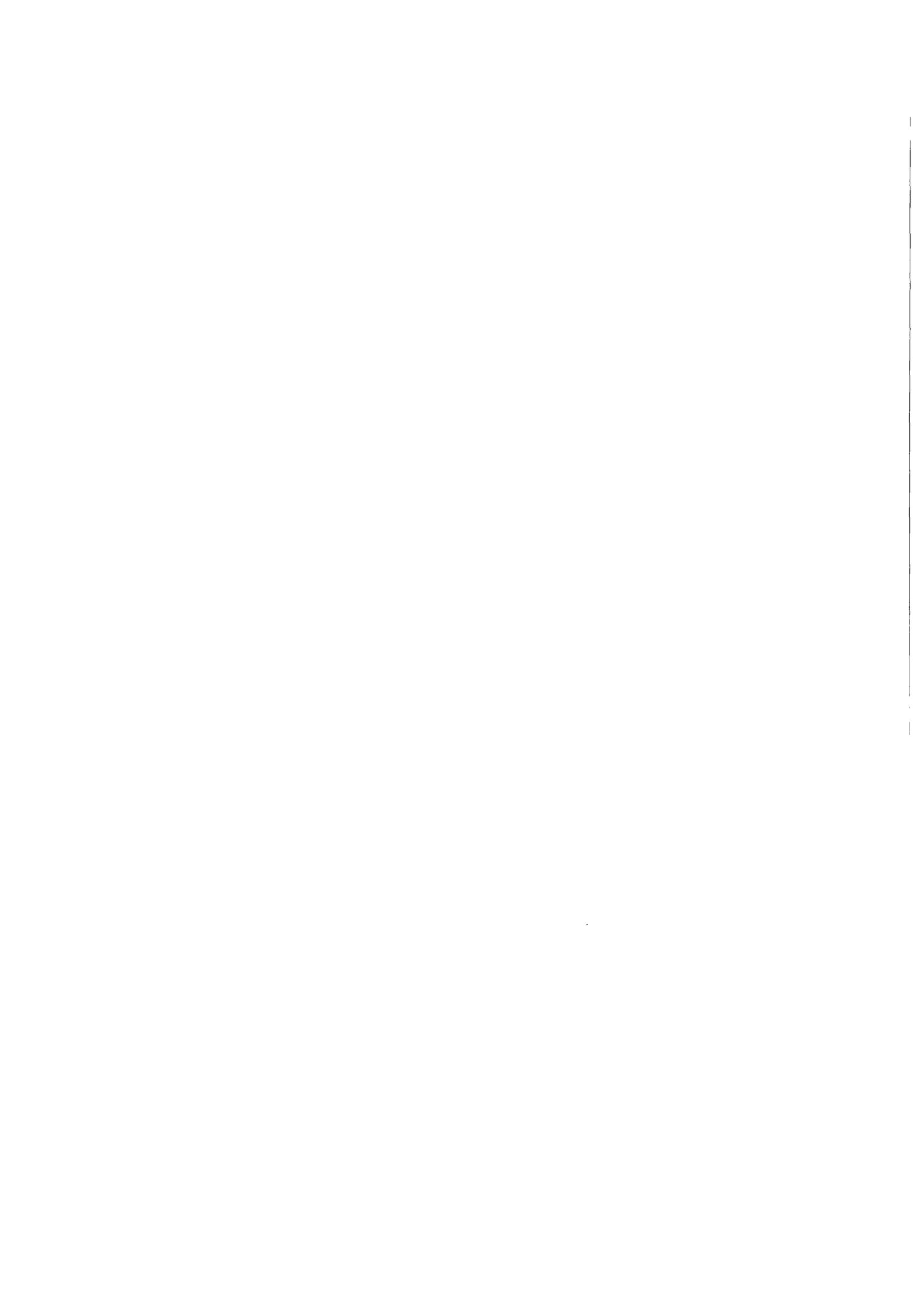
The actions will be implemented in 5 parts:

- Co-ordination and consensus development with industry and rural development agencies;
- Identification of needs and opportunities for telematics services and assessment of their impacts;
- Specification of service and technology requirements and pilot development of systems;
- Technology development and pilot applications, and
- Research on infrastructure planning and implementation strategies.

In a first stage, priority will be given to consensus development, identification of needs and opportunities and specification of service and technology requirements.

Research tasks

The first phase will be carried out over a two-year period commencing in January 1992 and a detailed specification of research tasks is available from the ORA central office.



7. Participation in the programmes

Organisations established in the European Community or EFTA countries are eligible to participate in the programme: Industrial firms, including small and medium-sized companies; telecommunication network operators; users of telematic systems; universities and other research organisations may be involved.

Participation in research projects is through cost-shared contracts with the Commission of the European Communities. The Community financial participation will not normally be more than 50%. To encourage collaboration between different types of organisations and between different Community countries, at least two partners must participate in projects. They must be independent and established in different EC Member States. Accompanying measures, such as the organisation of concertation activities, information exchange and project co-ordination are the subject of contracts established by the Commission with appropriate organisations. All contracts are normally let following an open tendering procedure and independent evaluation of proposals. Calls for proposals are published in the Official Journal of the European Communities.

Organisations established in EFTA countries are eligible to participate. However, they must contribute to general administrative costs.

Overall co-ordination and management is the responsibility of the European Commission, assisted by Management Committees of Member States' representatives.

The workplans for all programmes, except for those related to libraries and linguistic research, and information related to calls for proposals are available on request from:

CEC DG XIII, Directorate F
Rue de la Loi 200
B - 1049 Brussels
Belgium.

8. Related activities

8.1 Information security (INFOSEC)

A common approach to Information security is of great importance for socio-economic development of the European Community and the completion of the Internal Market in 1992. A consistent approach at European level will be essential to an increasing confidence in the use of new information technology and telecommunication services and it will help to avoid the formation of new barriers between the individual Member States and with other countries. Therefore, there is an urgent need to address requirements and options for action at Community level in close collaboration with sector actors and Member States. Any action must take into account both national and international commercial, legal and technical developments. Because Information Security is involved in the protection not just of property and people, but also of society itself, Member States regard it as a topic which touches upon national sovereignty.

Development of a harmonised approach to information security is an integral part of the Community policies related to the strengthening of the European Community socio-economic performances, international competitiveness and the completion of the internal market. The key issue is to provide effective and practical security for information held in an electronic form to the general users, administrations and the business community without compromising the interests of the public at large.

The strong interests of Member States in this domain requires close collaboration with senior officials of the Member States. In consequence, in 1990 the Commission proposed an action plan in the field of information security (INFOSEC) for a period of 24 months.

It is designed to help Member States develop a global strategy providing the users of electronically stored, processed or transmitted information with protection of information and information systems against accidental or deliberate threats. It will take into account and support the evolving European and world-wide standardisation activities in the field.

The action includes preparatory work on the following action lines

- Development of an information security strategy framework
- Information security requirements
- Solutions for immediate and interim needs
- Specifications, standardisation and verification of information security
- Technological and operational developments for information security
- Information security provision.

It is implemented by the Commission in collaboration with the organisations and enterprises concerned and in close association with the Member States. In this, the Commission consults as necessary a Senior Officials Group on Information Security (SOG-IS). This group consists of two representatives of each Member State and of the Commission.

8.2 Support for rural telecommunications developments in Poland under the PHARE programme

Background

Rural telecommunications in Poland are very poor; there are only 2.1 telephones per 100 inhabitants for over half the Polish population; only 10% of Polish subscribers are in rural areas and 45% of switching in rural areas is manual. 5000 villages have no telephone service and a further 7000 have only one line available in the post office open from 8 am to 3pm, 5 days per week.

One of the major challenges in Poland is to improve agricultural productivity and the retail and distribution network. The role that efficient telecommunications can play in this and in other sectors of the economy has already been demonstrated in other countries. With the democratisation of the country and the building of a market economy, small and medium sized enterprises (in building trades, garages, local shops, restaurants etc.) will need telephone services, especially in the rural areas. A dramatic improvement in rural telecommunications will be essential in order to avoid further concentration of economic activity in major towns with all the social problems such concentration generates. It will be necessary to offer new enterprises in rural areas appropriate telecommunications facilities to allow their continuing growth.

Development of the programme

In the framework of actions to support restructuring and economic development in Poland and Hungary, DG XIII-F provides technical assistance on rural telecommunications actions to the PHARE programme management unit in DG I. A fact finding mission was carried out in Poland in May 1990. A technical advisory group then prepared technical specifications for a programme of actions including development of three telecommunication demonstrations in rural areas.

The objective of this programme is to:

- * establish a few locally-based telecommunication operator companies in selected rural regions. The actions will demonstrate the contribution telecommunications can make to economic development of rural communities;
- * set up and equip a development centre for rural telecommunications and train the staff; the development centre will provide technical, organisational and legal support for local "telephonisation Committees"; assist local operator companies in developing strategies for network and services development; assist the Ministry of Communications and other Polish regulatory bodies in developing strategies, policy and regulations for rural telecommunications, and evaluate the performance of the demonstrations.

Formal decisions

In December 1990, the PHARE Management Committee agreed to a contribution of 6 Mecu\$ for the proposed actions. A financing memorandum has been signed between the Commission and Government of the republic of Poland. The programme will have a duration of 18 months. A call for proposals was published in January 1991 and closed in April 91. More than 40 proposals were received. Proposals have been evaluated and work will get underway during 1991.

CONTACTS

RACE

Development and implementation strategies for advanced communications;
Roger GOURVES; Tel 236 34 51

Telecommunications technologies;
Spiros KONIDARIS; Tel 236 34 64

Integration of services and telecommunications system engineering;
Franco BIGI; Tel 236 34 93

R&D on Telematic systems of General Interest

Telematic networks for administrations (ENS);
Barry O'SHEA; Tel 236 35 51

Telematic systems for transport services (DRIVE);
Fotis KARAMITSOS; Tel 236 34 61

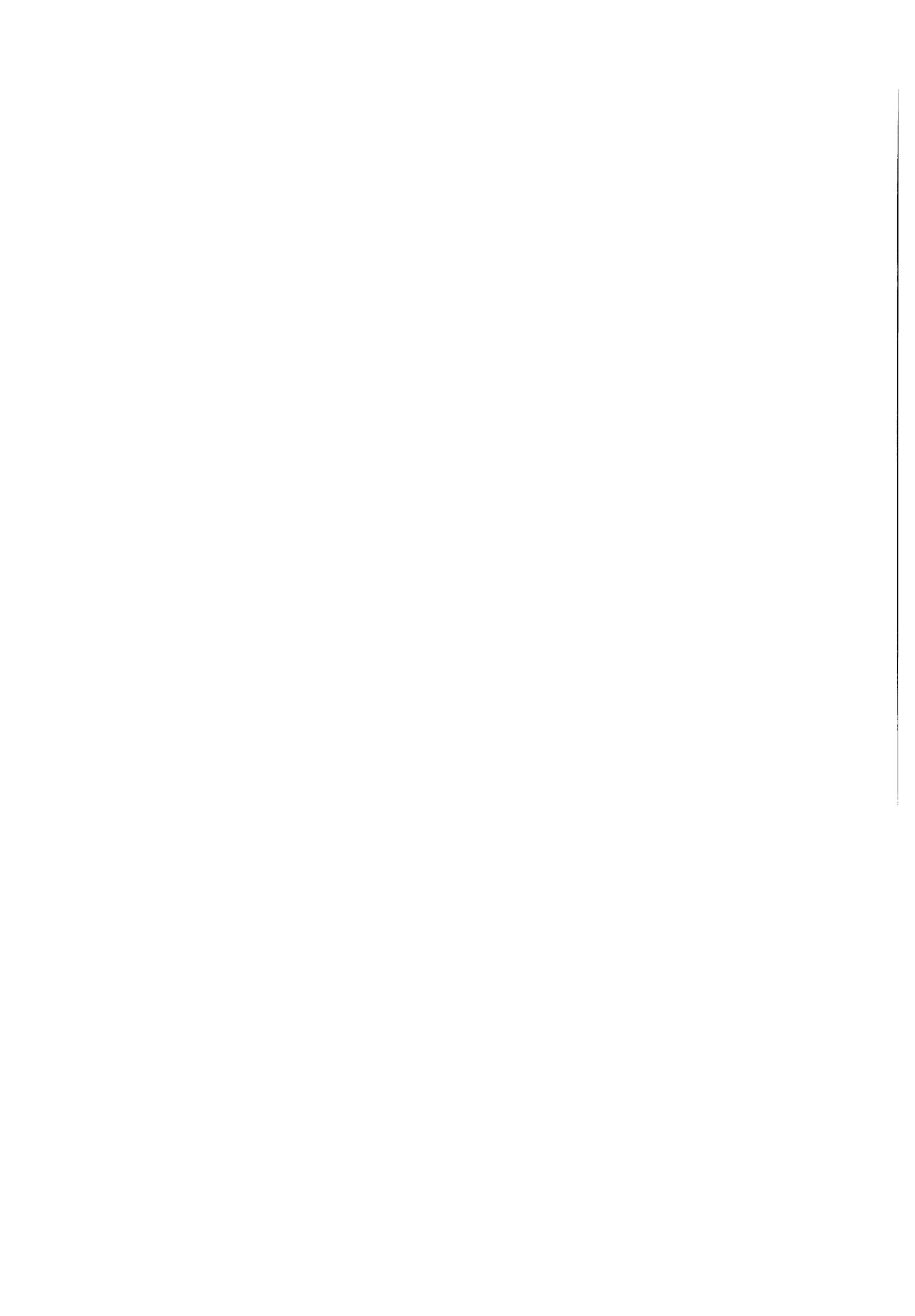
Telematic systems for health-care (AIM);
Niels ROSSING; Tel 236 35 06

Telematic systems for flexible and distance learning (DELTA);
Luis RODRIGUEZ-ROSELLO; Tel 236 34 06

Telematic systems for rural areas (ORA);
Peter JOHNSTON; Tel 236 34 60

Information security activities
Roland HUBER; Tel 236 34 56

PHARE actions for rural telecommunications in Poland
Jacques AGNIEL; Tel 236 34 00



Commission
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Directorate General XIII
Telecommunications,
Information Industries
and Innovation
Directorate F
Race Programme and
Development of
Advanced Telematics Services

200, Rue de la Loi
B-1049 Brussels
Belgium