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MID-TERM REVIEW OF THE EURET PROGRAMME

A specific research and technological development programme
in the field of transport

(presented by the Commission)

INDEX

Introduction

By Decision of 21 December 1990, the Council adopted a specific research and technological development programme EURET for a period of three years (*OJ n° L8 - 11 January 1991*).

EURET is the first specific research and technological development programme in the field of transport.

By Article 4 of the same decision, the Council required the Commission to review the progress of Euret and send a report to the Parliament and the Council, accompanied, where necessary, by proposals for amendment or extension of the programme.

It is in fulfilment of this requirement that this report is submitted.

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Foreword

The objectives given by the Commission in the development and execution of the EURET research programme aim to support the Common Transport policy with the necessary technical means to increase competitiveness, interoperability, safety of the Community transport system and its compatibility with the environment.

Formally, EURET is a sectorial application from the 2nd Framework Programme for Community actions for research and technological development (1987-1991), of which heading 2.3 specifically foresees research in transport. It was adopted by the Council on 21 December 1990, amongst the last decisions taken for the 2nd F.P., with a budget of 25 MECU and a 3 year duration (OJ n° L8 of 11.1.1991). In the early stages of the programme preparation a one month call for expression of interest' (OJ n° C146 of 15.6.1990) was launched in view to help interested organizations to find partners all over Europe for future partnership. During this short period, 600 expressions of interest were received by the Commission and led to the publication of a document (collection of expression of interest July 1990).

On 15 January 1991, the Commission launched a three months' call for proposal under the EURET programme (J.O. n° C9 Jan. 1991). This call covered only the topics of research to be implemented by share-cost contracts. Among the 42 valid proposals received, involving 300 organisations and representing an amount of 138 MECU, 9 were selected for Community support, representing an EC contribution of 19,4 MECU.

From the operational point of view, EURET is structured in 3 subprogrammes, which correspond to objectives common to all the modes of transport, necessary to ensure that the Community transport system fulfils fully its role in the completion of the single internal market, namely, the optimization of the use of the transport networks, the optimization of logistics and the reduction of the harmful external effects.

Within the framework of the carrying out of this programme, the strict budgetary limits imposed on EURET in relation to the needs for R&D of all the modes of transport, forced the Commission to perform a rigorous selection of the priority research topics.

In particular, it is appropriate to stress that budgetary considerations on the one hand and the fact that road transport was already treated by other Community programmes on the other hand, justify the small place given to road research within EURET.
In the same way, the apparent weakness of the development of the 3rd subprogramme, devoted to the reduction of the harmful external effects, can be explained by the fact that the 'safety and environment' aspects are taken into account by the other research topics of the first two subprogrammes.

In a first attempt to review the mid-term results of the various EURET research contracts during these first 18 months of activity it is appropriate to underline the following elements:

A. As regards the optimization of the use of the transport networks:

i. The concerted action "Cost-benefit and multi-criteria analysis for new road construction" has the objective to measure the feasibility of establishing a Europe-wide system of reference for analyzing and establishing a coordinated method for evaluating road construction projects Phases I & II, ('review of existing methods' and 'review of measurement methods for existing criteria') has been completed. The on-going Phases III & IV ('study of range of criteria to be employed in the European approach' and 'study of methods to be employed in the European approach') are scheduled for December 1993.

In accordance with the Maastricht Treaty, which increased the importance of this coordinated evaluation method, the Commission has accelerated the research in this field and has proposed to extend it to other modes of transport, in particular railways, inland waterways, modal centres of goods and modal centres of passengers and in parallel, to start a study with a multi-modal approach, industry concepts as interoperability of networks.

ii. In the railway field, the only research topic selected was the project of the common study of new management systems of the rail traffic, including in particular rail traffic control.
Given the total incompatibility of the current national signalling systems, the definition of a common system represents the precondition for any interoperability of the railway networks of the Member States and, in particular, with the development of the European high-speed train network. The work carried out so far has allowed the definition of three modular phases of the solutions which will make it possible to develop a global European system able to ensure the interoperability and the interconnection of the networks. More particularly, in the short term an on-board system will have to be defined to translate the various national signalling systems into a common language. In the medium term, common solutions for a European beacon and for a common radio system have to ensure the compatibility of the intermittent systems and of the continuous signalling systems. The financial resources available made it possible to start research for the definition of the design of a European rail traffic management system and to start the development of these principal components : Eurocab, Eurobalise and Euroradio, with the technical assistance of the Community of

European Railways with the task to define the functional specifications of each component and of the system.

It will be one of the tasks of a future research programme to complete the development of the components and procedures, its testing and the establishment of the common system.

iii. In the Air Transport domain only the Air Traffic Management (ATM) portion has been covered for the budget constrains referred to above. The subjects of ATM comprised in EURET were defined in close collaboration with EUROCONTROL and form and integral part of the Programme for Harmonized Research in EUROCONTROL (PHARE). The aim of PHARE being that of proving and demonstrating the feasibility and merits of a future air-ground integrated ATM System in all phases of flight, requiring contributions from the Air Traffic Control and Aeronautical sides.

The two specific topics in the ATM domain that are covered by EURET consist of "Trials in automated air/ground data exchange for ATM" and "Study on the controller working position".

The first topic is covered by two consortia EURATN (European Aeronautical Telecommunication Network), having the scope of contributing to the early validation of the ICAO ATN concepts, and AEGIS (ATM European Group for Improvement of Scenarios) which aims at refining some future ATM scenarios for the European context.

For the second topic the SWIFT consortium has been selected (Specification for the Working positions In Future air traffic control), of which the objective is to combine medium and long term operational evolutionary definition of the Controller Working Position (CWP) and its basic components.

iv. In the Maritime Transport domain the objective was to address the "Design and Assessment of a Vessel Traffic Management System". The chosen approach identified two key areas to be developed : the improvement of "Vessel Traffic Services" (VTS) systems and the development of a European traffic information system. For the first area, actions should concentrate on the assessment of feasibility and cost-benefit of tools designed to improve the efficiency and cost-effectiveness of existing and planned VTS systems. For the second area, research should address the feasibility and the interoperability requirements to allow for existing and planned VTS to form a general maritime traffic transport service providing global traffic information in European waters.

To allow for better focus in each key area, two proposals were retained : RTIS on the development of a Regional Traffic Information Service (with a European dimension) and TAIE on the development of tools to assess vessel traffic systems and to increase the efficiency of VTS. To exploit synergies and to avoid duplication, a specifically designed coordination system was set up. The coordinated effort will allow for the development of a regional system with improved efficiency and cost-effectiveness impacts on both safety and commercial aspects of Maritime Traffic in European waters.

Mid-term research results indicate that a Regional Traffic Information service is feasible and that cost-effective tools may be developed to increase the efficiency and safety of VTS systems.
The integrated results achieved so far by RTIS and TAIE have aroused the interest of both Ports and Maritime Administrations as they are expected to contribute to the improvement of maritime Traffic Management performances. Further achievements on the short-term are still expected namely as it concerns the improvement of human resources involved in vessel traffic management and on casualty and contingency planning as well as on the improvement of maritime operations in Europe both from the safety, protection of the environment and efficiency view points.

In the medium term further development will be required to integrate the tools produced by both projects. The follow-up should include the validation of fully interoperable and interconnected European systems to contribute to increased safety, protection of the environment and efficiency of the Maritime Traffic in Europe.

B. As regards the second subprogramme 'optimization of logistics':

i. In the Maritime Transport domain, two topics were covered : "The Optimization of manpower in maritime transport" and "Taking human factors into consideration in the man/ship system".

For the first topic the project ATOMOS (Advanced Technology to Optimize Manpower On board Ships) has as its main goal the improvement of the competitiveness of the Community's Maritime Transport Sector, through the application and integration of advanced technologies with suitable management systems, optimum crew composition and operational strategies.

For the second topic the project MASIS (Human factors in the Man/Ship System for the European fleet) is addressing the key role of the human operator (human error is considered to contribute to 80% of all causes of accidents) with a special emphasis on ships with an high technology work environment.

The complementarity of both projects required the setting up of a coordination system whereby achievements in both projects are cross-checked to improve synergies and prevent duplication.

The objectives of these projects and the results achieved so far are in line with recent positions of both the Council and the European Parliament over the matter (e.g. the Parliament resolution of January 1993 on the BRAER accident and the conclusions of the extraordinary Council Environment/Transport of January 1993 concerning maritime transport).

In the short term further achievements are expected both from the technological and the human element areas of the projects. Expected results are likely to produce positive impacts on the commercial operations of European shipping as well as on the safety and environmental protection in Europe.

In the medium term further development leading to system validation and demonstration would be required to produce operational tools to be used for implementation.

ii. For combined transport, SIMET is trying to develop on the technological front and the organization of European solutions to improve the interoperability and the profitability of the rapid trans-shipment. Currently, the first three phases of the study are completed, namely, the definition 'of transport requirements', 'inventory of the currently most technically promising solutions' and the 'design and assessment of the efficient methods of rapid on-loading and re-loading'.
The 'definition of model equipment' will be finished next Spring in the foreseen timescale.

It will be the task of future research to carry out the checking and the common solution validation proposed to real scale.

In conclusion, a first assessment of the mid-term results reached by EURET in the first 18 months, can briefly be summarized by three following considerations :

- The work completed showed the interest and the need for a global integrated approach to transport research drawing on EURET R & D as well as on other Community R & D activities relevant to transport (e.g. programmes such as Joule, BRITE/EURAM, ESPRIT and DRIVE). Furthermore, the challenges posed for Community R & D on Transport require a synergetic and multi-sectoral approach involving industry, operators, regulatory authorities and the scientific community. The bringing together and into perspective of all of these relevant inputs should certainly enhance the Community effort in the field.

- The participation in EURET work by national and international transport organizations such as Eurocontrol and the Community of European Railways, was largely positive and allowed, for the first time, these organisations to participate actively on common objectives.

- Lastly, the interest that EURET aroused among the transport sector operators regarding the will to take part in common research confirmed the usefulness and interest for the Community to devote an increasing part of its financial resources for transport-relevant research, taking into account the significant part of transport in the Community economic activities.

In concrete terms, this result in a need to ensure the continuity of R&D activities in transport, in the next framework programme.

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Chapter 1

1.1 The EURET programme

1. The aim of the EURET is to make available to the Common Transport Policy the most efficient technical means for increasing its competitiveness, safety, quality of service and compatibility with the environment.

The EURET programme covers the area of transport research specified in the 2nd framework programme for Community research and technological development (1987 to 1992), under the line 2.3 "New services of common interest (including transport)".

EURET breaks down into three sub-programmes, corresponding to the three main objectives, common to all modes of transport, designed to enable the Community transport system to properly fulfil its role in achieving the single internal market.

- optimizing transport network exploitation,
- optimizing logistics,
- reducing harmful externalities.

The proposed budget for the programme, which is to last three years, is 25 MECU which increased to 26.8 MECU by the Parliament in the course of the programme implementation.

The limited budget, given to the R&D requirements for all modes of transport, has compelled the Commission to chose very carefully among priority topics.

The budgetary considerations, and the fact that road transport was already treated by other Community programmes, explains the little consideration given to this sector within the EURET programme. The apparent modesty of the third sub-programme is explained by the fact that the safety and environment aspects are also taken into account in the research topics of the first two sub-programmes, and hence appear there.

Therefore the EURET R&D activities can only be considered as a first and limited step in contributing to the solution of some major transport issues.

2. The content of the programme has been defined on the basis of consultations and detailed discussions, in particular with an ad-hoc working party appointed by CREST and made up of national experts.

The preparation of the content of the programme was defined in close cooperation with European and International Transport bodies such as EUROCONTROL, the Community of European Railways and in consultation with IALA, BIC, and others.

The conclusions and recommendations of the working party were approved by CREST and are fully reflected in this programme.

It has been stressed, in particular, that - in view of the financial constraints imposed by the Framework Programme - the proposed transport R&D programme should concentrate on priority or exploratory research topics.

This does not mean that other research topics have not been identified or are not considered important ; it is simply that financial constraints forced this choice upon the Member States.

3. In the early stage of programme's preparation, a one month call for expression of interest *(OJ n° C 146 - 15 June 1990)* was launched in view to help interested organizations to find partners all over Europe for future Consortia. During this short period 600 expressions of interest were received by the Commission. These were published in a document *(Collection of expressions of interest - July 1990).*

On 15 January 1991, the Commission launched a three month's call for proposals under the EURET programme *(OJ n° C 9 - 15 January 1991).* This call for proposals covered only the topics of research to be implemented by shared-cost contracts. From the 42 valid proposals received, involving 300 organizations and representing a total cost of about 138 Million ECUs, 9 proposals were selected for Community support representing around 110 organizations (see table following).

The total cost of the selected projects represents more or less 37 Million ECUs, of which more than 22 Million ECUs is being funded through the Community.

The success of this first call for proposals for all modes of transport can be measured through the large variety and high-calibre of the partnerships, as well as through the important level of European collaboration achieved in spite of the relatively modest funds available.

Taking into consideration the length of the procedure for selecting and negotiating the EURET contracts, the projects have started in February 1992. Most of them will end by mid 1994.

TOPICS		Concerted action / Shared-cost contract
1. Optimum transport network exploitation		
1.1	Cost-benefit and multi-criteria analysis for new road construction	Concerted action
1.2	European rail traffic management system	ERTMS
1.3	Design and assessment of a vessel traffic management system	RTIS TAIE
1.4	Trials in automated air/ground data exchange for air traffic management systems in Europe	AEGIS EURATN
1.5	Study on the controller working position in air traffic management systems in Europe	SWIFT
2. Logistics		
2.1	Economic scenario and demand projections for freight transport of the Community	Concerted action
2.2	Economic and technical research of the transfer of goods	SIMET
2.3	Optimization of manpower in maritime transport	ATOMOS
2.4	Taking human factors into consideration in man/ship system	MASIS
3. Reduction of harmful external effects		
3.1	Improved methods for evaluating the road safety of car and trailer trains	Concerted action
3.2	Assessment of the driving safety of possible truck and trailer combinations	Concerted action

1.2 The programme evaluation

The purpose of the evaluation is to examine each Project in the degree of detail thought appropriate, bearing in mind that no project, by definition, can be more than half complete, and that each may have successes or difficulties that are unique to it alone. It represents in particular an amalgam of the opinions expressed by independent experts in the framework of the mid-term review.

The rationale in performing this evaluation has been to detect those areas where significant improvements were given to the state of the art of the relevant fields and those areas were constraints still exist. Suggestions on how to deal with the latter were sought out.

In accordance with the quality control regime established by the Commission each Project Coordinator must submit, every 6 months, full details of the progress of the work done under his charge to the Commission. Additionally the Council Decision requires a mid-term review and a final evaluation to be performed by the Commission services and independent experts.

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Chapter 2

Air Transport

The EURET programme in air transport covering only Air Traffic Management (ATM) was defined in collaboration with Eurocontrol and it forms an integral part of the Programme of Harmonized Air Traffic Management Research in EUROCONTROL (PHARE).

The objective of the programme is to organise, coordinate and conduct studies and experiments aimed at proving and demonstrating the feasibility and merits of a future air-ground integrated Air Traffic Management (ATM) System in all phases of flight. Such a programme requires contributions from the Air Traffic Control and the Aeronautical side. The results of the programme should help to refine the description of the future Air Traffic System concepts needed to satisfy demand and to give information on the best transition from the current system to the new one. In this concept major emphasis is placed on the air-ground coupling to increase the capacity of the Air Traffic Management system, but this assumption has to be validated by experiments.

The PHARE is executed under an "Instrument of Agreement" which entered into force on 6th of January 1989. It governs cooperation between CAA together with DRA (Bedford and Malvern) in the UK, CENA and STNA in France, DFS and DLR in Germany, LVB and NLR in the Netherlands and the Eurocontrol Agency.

The topics of EURET covering the research on Air Traffic Management (ATM) are two :

A. Trials in automated air/ground data exchange for Air Traffic Management systems

The objective is, within the framework of a future air traffic system in Europe, to define, develop and evaluate the applications, requirements and methods of data exchange between ground and airborne systems and between the pilot and controller as a means of backing up voice communications. The first elements of a programme to investigate the system development and integration aspects have been initiated under PHARE.

B. Study on the controller work station in Air Traffic Management in Europe

The objective is to improve automated support to air traffic controllers resulting from the development of new controller work stations, using up-to-date man/machine interface technologies, in order to help achieve, in the medium term, the increase needed in European air capacity. The programme will require a multidisciplinary approach with the participation of controllers, human-factor experts and engineers.

The Commission participates and supports PHARE in the frame of EURET with the activities performed by the three consortia : AEGIS and EURATN for A and SWIFT for B.

AEGIS - European Air Traffic Management Group for the improvement of scenarios.

Total cost : 2.25 MECU
Community Contribution : 1.23 MECU
Duration : 27 months (February 1992 to May 1994)

1. Objectives

The objective of this project is a global improvement and consolidation of the PHARE Scenario to ensure its consistency based on a consensus between the different participants involved taking into account their respective expertise.

The specific objectives of AEGIS are : to explore new aspects of the problem, taking advantage of the multi-disciplinary origins of the group : to ensure that a common approach is adopted by all the participants, including industry, academics and airlines. An outcome of this study should be the identification of additional research in areas not covered in PHARE, which could include interaction between airlines and Air Traffic Control (ATC) or ground movement problems.

The AEGIS consortium is a multi-disciplinary group consisting of academic and industrial Institutions who have not contributed, until now, to PHARE Scenario elaboration and will bring their knowledge and expertise in specific methods and techniques (for example,HMI - Human Machine Interface), as well as organizations well aware of ATM problems. Some of the latter have participated in PHARE programme elaboration and have been responsible for the complementarity of this programme and the consistency of the whole study.

The activities to be performed by the AEGIS consortium are grouped in 9 tasks :

1 : Critical analysis and comparison of available scenarios
2 : Assessment of available concepts
3 : Define scenario
4 : Consolidation of a "set of scenarios"
5 : Improvement in the environment field
6 : Improvement in the organisation field
7 : Technical requirements and transition feasibility
8 : Cost/benefit analysis
9 : Consolidation of improved scenarios with proper cost/benefit justification

2. Assessment of the Project Management

The AEGIS consortium consists of eight partners; five main contractors and three sub-contractors. Four Member States are represented and it includes industry and universities. Five of the eight partners have specialised knowledge of ATM (Air Traffic Management) matters.

The project management and coordination are handled by ISDEFE of Spain.

All partners of the consortium have been involved in different tasks of the project in accordance with the workplan. The expertise of the members seems to be well used and the evidence of the reports is that the teams are working well together despite being dispersed. The communications between the project coordinator and both the consortium and the Commission are considered by him to be excellent.

The project coordinator has had some problems in coordination of the work, particularly getting a common standard for Task 2 "Assessment of available concepts" but these have been recognised and remedial action has been taken.

In the early part of the project, there has been no coordination between the AEGIS and SWIFT projects but the Commission has taken steps to remedy this and ensure that the work is consistent and does not overlap.

Concerning the breakdown of the work, the method which has been followed is not ideal. It is necessary to clearly define the operational objectives and requirements before concepts can be properly assessed. However, the intention is for these aspects to be dealt with in Task 4 " Consolidation of a "set" of scenarios" which should give time for an input to be made into future work for other tasks of this project, notably Tasks 5, 6 & 7.

3. Evaluation of technical progress

The plan for the project is for the first work packages to be a broad review of the ATM system and for Task 4 to define a core scenario which will lay the foundation of more detailed study of selected areas. This approach is endorsed. In order for this study to be of value alongside others which are being done in parallel and which are larger and which deal with the whole system (such as the EATMS programme from Eurocontrol and the ATLAS study from the Commission), it should focus activities on specific areas where a definite contribution can be made to PHARE. This could be done in liaison with other projects in the Commission and Eurocontrol. It should be done to as much detail as time and funds allow. The topics to be selected will be decided after the workshop which is planned for April but from the reports made so far, the possible candidates are : Airborne Collision Avoidance Systems, human factors, the partitioning of the role of the human/machine in the cockpit and on the ground, communications, the integration of ground and air systems, safety and integrity in the ground computing and air-ground communications. From the progress made by the project on some of the wider issues such as the interactions between ATC and other organisations, it would not seem profitable to give much more time to them.

These are key issues, the solutions are difficult and new thinking could be of value.

The project has not been able to keep to its planned time schedule for the first year. Final Reports on Tasks 1, 2 and 3 should have been finished by the end of 1992. Task 1 was finished 2 months late and Task 2 was finished in January 1993, five months late. The Final Report on Task 3 has been delivered and a draft for Task 4 has been submitted.

However, the Consortium and the Commission have defined a recovery plan for the project which has been in operation since last year and which is expected to bring the project back onto the original schedule.
The work packages have covered the scope that was specified in the contract.

4. Final remarks

It has not been possible to review and report on every detail of the reports in the time available. There are many points which could be made but the general criticism is that there is an uneven level of technical and operational detail in the reports which have been seen. In particular, some of the content of Task 2 is very detailed and authoritative and some is thin but this is known in the consortium and they are making efforts to improve the documents produced by this task.

The project is well on its way to contribute to the establishment of improved scenarios for future ATM systems.

It is recognised that the majority of new ideas and benefits will only be identified during the second phase of the project. This will be critical for the overall success.

EURATN - European Aeronautical Telecommunication Network.

Total cost : 5.92 MECU
Community Contribution : 3.12 MECU
Duration : 27 months (February 1992 to July 1994)

1. Objectives

The objectives of this project are to contribute to the validation of the Aeronautical Telecommunication Network (ATN) concept and to the demonstration of its operation in the European context.

To provide the experimental ATN which is required for the experiments planned by PHARE, the Member State administrations and Research Centres, and industry to precisely define and demonstrate the validity of the Air Traffic Management concept developed by the European aviation community to face the air traffic requirements of the 21st century.

To fulfil the above mentioned objectives, the EURATN project consists of the following:

- the development and procurement of all necessary components of the ATN
- the development and procurement of the software components
- the application of a network management standard and development of related tools
- the performance of specific studies to dimension and evaluate the performances of the EURATN system elements

- the integration and the performance of validation tests of all of the above components
- the definition of a plan of experiments to validate the ATN capabilities
- the development of an EURATN Operation Manual for the Community

The activities to be performed by the EURATN consortium are grouped in 8 tasks :

- 1 "Global requirements and general specifications"
- 2 "Applications and Upper Layers"
- 3 "Network management"
- 4 "Specific Studies"
- 5 "Demonstrator Definition, Integration and Tests"
- 6 "Experiments"
- 7 "Operation"
- 8 "Management and Coordination"

2. Assessment of project management

There are 14 partners in the consortium from seven Member States. They include industry, research centres and universities and more than half have been involved in international work concerning ATM and most have also been involved in other non-ATC programmes from the Community. The expertise of the members is very relevant and seems to be well used and the evidence of the reports is that the teams are working well together despite being dispersed.

The project coordinator is from Sofreavia of France. Progress has been evaluated from the Consolidated Progress Reports produced. All the partners have been involved in different tasks of the programme in accordance with the workplan. The Project Coordinator considers that communications with the consortium and the Commission has been excellent.

This project is a most important piece of work in the development of the next generation of communications in civil aviation. It is a vital stage in the development of both the standards for communication and the understanding of how it may be used by applications. Improved communications is one of the keys to new methods of ATM and this project will lay the foundation for the further study of these in the PHARE project of Eurocontrol.

3. Evaluation of technical progress

The method and approach of the Consortium to this project is admirable. It is well structured in technical terms and in the phasing of the work. There are three cautions to be raised.

The first is the need for detailed planning of the development, testing and integration process. It seemed that perhaps an optimistic view had been taken in planning this and a degree of pessimism is necessary in the project planning.

The second is the dependence on external programmes for vital sub-systems. Adequate management mechanisms with the other agencies must be in place to ensure that their timescales are kept.

The third is that part of the value of the demonstrator in EURATN, and then to PHARE-ATN, is that it should be compliant with the required functionality of the ICAO ATN specification and any relaxation of the specification should be done carefully with a clear view of how the subsequent upgrading will be done. Also, in due course, the VHF sub-network should be considered for inclusion.

The project appears to be in line with the EURATN work plan concerning the first two phases. However, a delay in later stages may result from delays in the delivery of off-the-shelf software and hardware. A better estimate of the situation will be made soon. Otherwise, the project appears to be fully compliant with the contract objectives and the plan for work.

4. Final remarks

The only potential deficiency in the work which has been carried out concerns the reduced specifications for sub-systems which may be implemented, and which have not been considered as critical for the project. This has been done consciously by the Consortium and the Commission but it is worth highlighting as an issue at this stage. Otherwise, it has started well and has every prospect of achieving its technical objectives.

So far an excellent job has been done.

ATN is a critical component of any future of ATM system and a such this work represents a solid contribution to achieve such a system.

SWIFT - Specification for working positions in future Air Traffic Control.

Total Cost : 5.1 MECU
Community Contribution : 2.55 MECU
Duration : 30 months (March 1992 to December 1994)

1. Objectives

The objective of SWIFT is to combine medium and long term operational evolutionary definition and technical studies, in order to design the future control suite and its basic component, the Controllers Working Position (CWP).

The project will produce:

- a set of validated operational scenarios, taking into account the progressive enhancement of the ATM system (1995-2015);
- detailed specifications of the Control Suite and the CWP, which will enable design of products able to meet the requirements of Phase A (1995-2000);
- general specifications for the evolution of the Control Suite and the CWPs in the ATM context of Phase B (2000-2015).

On going results of SWIFT will support EUROCONTROL activity in this field.

The activities to be performed within SWIFT are grouped in 13 tasks :

1 Operational concept
2 Performance requirements
3 Detailed operational scenarios
4 Evaluation of experimental prototypes
5 Experimental validation of scenarios
6 Human factors studies
7 General architecture
8 LAN Manager
9 Graphics interface
10 Specification of human computer interface
11 Functional block definitions & interfaces
12 Specifications of graphics & networks
13 Project management

2. Assessment of project management

The Consortium consists of 10 partners from seven Member States including industry, research centres and universities. Eight have participated in other Member State programmes but not all were ATM-related. At least six have specialised ATM knowledge.

Thomson-CSF is the project coordinator and a comprehensive Project Management Plan was produced. The project coordinator considers that communications with the consortium and the Commission to have been good. However, it seems that some consortium members have had difficulty in attending meetings and this should be investigated carefully. It is important for the good of such a project that relevant meetings are attended, particularly by out-lying members.

In the early part of the project, there has been no coordination between the AEGIS and SWIFT projects but the Commission has taken steps to remedy this and ensure that the work is consistent and does not overlap.

3. Evaluation of technical progress

The method of the Consortium is in principle reasonable but the project has been organised to give more weight to Phase A (1995-2000) than Phase B (2000-2015). This balance inevitably makes a project rather short term and limits the scope of the evaluations. In addition, only limited standardisation will be possible in the nearer time frame.

The objective in Task 10 of specifying the Human-computer Interface in terms of display requirements, hardware devices could to be too task dependent. The danger is that such specifications will be almost entirely dependent on the task/concept definition which is specified. Not a great deal of time is to be spent in this project on such a definition nor will be much time be spent on assessing the concepts which are defined. It would seem sensible

then to back-off from implementation designs for the Controller Working Position and instead try to achieve logical designs for the CWP based on the spectrum of functions which have been identified and (to some extent) evaluated and quantified in the experiments. This may be what is intended in Task 11. This could assist in achieving the goals of interoperability and evolvability.

This work could be a useful complement to the work of COPS (Common Operational Performance Specifications) of Eurocontrol. There is a general desire for future ATM systems and subsystems to be designed to be interoperable and evolvable in time. For both these reasons, it is necessary to find ways of standardizing all aspects including the CWP.

The work appears to be in line with the planned schedule. Task 1 Final Report has been finished and the Intermediate reports on Tasks 2, 3, 4 and 6 have been presented. A delay of three months in Task 2 concerning CWP performance requirements has appeared but it will not have any impact on other parts of the programme. A postponement of some Task 5 experiments is foreseen due to non-availability of air traffic controllers from national administrations who were expected to participate. These experiments are an important part of the project and so it is vital that this is remedied.

4. Final remarks

It has been remarked that the focus of this project is short term. It is recommended that the Commission should consider further work for the Phase B timeframe. More forward looking scenarios which are supportive of the longer term concept studies such as AEGIS, EATMS and ATLAS could then be used. This is also the time frame within which it would be possible to implement common standards.

With respect to the experiment plan, it has not been possible to comment on the worth of the experiments which are planned because there has only been an outline description available.

The general progress of the contract is good and is expected to make a valuable contribution to defining the role of the controller in any future ATM system.

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Chapter 3

Multimodal Transport

For a long time, multimodal transport has received significant political attention in Europe. The reason for this is simple : multimodal transport is seen as alternative transport mode or technique that could absorb part of the increasing transport by road.

This could ease congestion in the road network, reduce pollution and other environmental negative effects of road transport.

Furthermore, it could stimulate the use of rail transport infrastructure.

Waterborne transport, inland waterway transport, ferry transport and coastal shipping, is very explicitly considered as integral part of combined transport. An efficient integration of these modes will also contribute to less environmental damage and greater safety of the transport sector as a whole.

Today multimodal transport has not yet acquired a sufficiently large share of total freight markets to realize these positive contributions, even if one refers to the markets were combined transport generally is considered as a competitive mode of transport (mainly general cargo transport over distances of more than 300 km).

R&D can contribute to the interconnectivity and interoperability of transport infrastructure and modes, thus to the more efficient functioning of the European transport systems.

The topic of EURET concerning the research on multimodal transport is :

Economic and technical research on the transfer of goods - Design and evaluation of rapid transfer systems

The objective is to design and evaluate an innovative and efficient system of rapid loading and unloading of goods between different modes of transport, in particular railways.

The Commission supports this activity with the SIMET project.

SIMET - Smart Inter Modal Transfer.

Total Cost : 4.2 MECU.
E.C. Contribution : 2.36 MECU
Duration : 27 months (February 1992 to January 1994)

1. Objectives

The aims of SIMET will be first the proposal of common standards and second the proposal of particular specifications for each type of yard : terminal (Road,rail,maritime), inland waterway and shunting yards.

Thus SIMET should lead to a global proposal for a common specification able to combine each yard in the Community by a network with the lowest costs of trans-shipment handling.

Due to the limited sum allocated to the scale models, the study will concentrate only on the common specifications that integrate the new proposed concepts using scale models in the Community.(COMMUTOR,ECT,CARGO 2000 etc)

Last it will provide the specification of the management system of a trans-shipment yard (microsystems), and the specification of the management system of all the network using telematics and an automatic identification of loading units and rolling stocks(Macro-system).

The activities of SIMET are divided among five main tasks :

1. Definition of transport requirements mainly based on results of existing studies
2. Inventory of the currently most promising technical solutions to facilitate intermodal transport
3. Design and assessment of the most efficient methods of rapid unloading/reloading
4. Definition of the operation specification for new yards for rapid unloading/reloading operations
5. Definition of model equipment.

2. Assessment of the project management

The Consortium consists of eleven partners coming from seven Member-States. They consist of four Industrial Companies, four Universities, two Small and Medium-Sized Enterprises and one Research Institute. The project Coordinator is Technicatome of France.

The Consortium is behind the initial schedule. Too much time has been spent on the task of data collection for the volume description of European transport flows and the data for the European network description. This has led to a revision of the time-schedule which still allows for executing the project according to the time-limit defined in the contract.

The work done so far is a good statement of the art in combined transport flows and techniques in Europe. But, in some cases, there is a lack of information and so far little is

said of what will be, or should be, the future. This has to be done in the 2nd half of the project.
This is partly due to the fact that the works have not been completed as they were originally scheduled. But the Consortium should stress this aspect in order for the Commission to have a good basis for further developments.

3. Evaluation of technical progress

The major problem has been to collect relevant data on traffic flows in the different countries. Consequently the Consortium has been forced to spend too much time on this. Yet the results so far achieved seem satisfactory even if some dots on the i's and crosses on the t's have to be set.
In particular information should be given concerning :

- maps on network with gauge and speed information are needed. The position of the different terminals is also important.
- some explanations on how to change data with up-to-date information are expected since it will be a good help for the Commission.

The inventory of relevant information systems for Combined Transport, EDI and Automatic Identification, is globally a disappointing one as this Consortium could be expected to have ample knowledge at hand in this field.
The inventory of the currently most promising technical solutions to facilitate intermodal transport has been completed and is of very good quality.
The work on the two modelisations for the assessment of transfer methods are crucial and there is a lot of work needed to achieve the goal of the Consortium. For the moment, since this task is still in progress, the Commission should have only the guidelines and preliminary studies made . At the end, the criteria for optimal combination of modes to go from one point in Europe to another one will have to be fully described.

The work on transfer and storage are insufficiently future oriented.

4. Final remarks

The project and its results are very important for the European Communities especially since it will lead to designing new fast transhipment systems in order to enhance combined transports. The Consortium chosen for SIMET is the best that could have been made and that is why the expectations are so great. Hopefully, the Consortium will not fail to meet these expectations.

Some of the remarks made on different tasks are not too critical for the project. The final works can no doubt correct the few shortcomings made so far.

The data collected and analyzed concerning transport flows and technical solutions facilitating intermodal transport are very important against the background of the concept of European Transport Networks which form the core of the new Common Transport Policy.
Therefore the Commission should ensure that the data bank developed in the SIMET project will find a permanent place in future EC R&D activities.

Chapter 4

Rail Transport

In order to support and facilitate the main task of the locomotive driver, i.e. to drive the train more effective, Automatic Train Control (ATC) systems have been developed over the years. Many complex demands are being made for this connecting link between the moving train and the infrastructure fixed to the ground. Seen from a train operation point of view the very important safety aspects must be taken into account, such as max. speed allowed, traffic density etc. Technically, the Automatic Train Control (ATC) system is closely connected with vehicle control, signal systems, central signalling post and radio communication system. These systems all together offer multiple possibilities for being optimized from a commercial point of view.

In Europe there are not common prevailing standards for Automatic Train Control (ATC), and until recently practically every railway had gone their own way in accordance with the local authorities as well as with the suppliers of material for the railways. These different systems now turn up to be the main impedance for the railway traffic across the borders.

The problem of the international movement of high-speed trains arose for the first time in concrete terms when implementing the PBKA project (Paris-Brussels-Köln-Amsterdam) and the high speed line via the Channel Tunnel. As there is not yet a European Automatic Train Control (ATC) system, it was necessary to fit out the "Transmanche" and "Continental PBKA" High Speed Trains with all national train control equipment that will be met in the area to be served. This solution, of juxtaposition of on-board equipment, is heavy, cumbersome, complicated, weak and expensive. There is no question of allowing this to become a general solution.

As from the beginning of 1990 the Commission has made great efforts to obtain technical harmonisation within the framework of the project for a future high-speed network covering all Europe.

The topic of EURET 1.2 is the first contribution for a European solution of this problem.

<u>European rail traffic management system</u>

The objective is to design a control system for rail traffic, both passenger and goods, to evaluate the location and transmission equipment and develop the main software components of the system.

This is based on a close interaction between infrastructure and the rolling stock, involving ground-to-train communications and of the system whereby trains measure the distance they have travelled.

Only a first phase could be carried out under EURET. However, it is important that the remaining phases of the project, i.e. the development of the hardware components, the establishment of the system, and its experimenting could be started in due time.

ERTMS - European Rail Traffic Management System

Total cost : 12.018 MECU
Community Contribution : 5.727 MECU
Duration : 30 months (February 1992 to August 1994)

1. Objectives

The objective of ERTMS is to capitalize on the present progress of technology, from data processing to wireless transmission, to lay the foundation of a really innovative European control system.

The European control system will comprise in particular the ground set equipment and the on-board equipment in the power unit, as well as the associated regulations, protocols and software.

For budgetary reasons, only a first phase comprising the overall design of the system, the evaluation of the location and communication tools as well as the development of the principal software components necessary for the use of the system, could be carried out under EURET.

But it is equally important that the remaining phases of the project, i.e., the development of the components, the implementation of the system and its prototyping could be started at a later date or in parallel according to the cases.

For this reason, the Commission has moved in this direction by developing on-board safety equipment (EUROCAB), safety equipment for spot and semi-continuous transmission of information between the track and the train (EUROBALISE) and safety equipment for the continuous transmission of information between the ground and the train (EURORADIO).

The activities to be performed by ERTMS are grouped in 5 tasks :

1. Overall design
2. Assessment train locating tools
3. Evaluation of transmission equipment
4. Specification of the main software architecture
5. Safety and interfacing for transmission links

2. Assessment of the project management

The ERTMS Consortium consists of 20 partners; seven main contractors, eight associated contractors and five sub-contractors. Fourteen of these contractors are Industrial Companies working together with the participation of two Universities, three research Institutes and one SME. Seven of these participants are from Member States and two participants are from EFTA countries.

The development of the European rail traffic management system needs a close and permanent cooperation between Commission, Railways and the Consortium.

Concerning collaboration between Railways and the Commission, the Railways agree to assure the role of consultant partner in charge of the technical assistance and monitoring of the research (letter dated 5 February 1991).

On the other side, the Railways (UIC) and the Consortium of Industries concluded a "Memorandum of Understanding" to specify their common objectives and to distribute the tasks (Bern 3 June 1991).

In the framework of the role of the technical consultant, it was agreed that the group A 200 of ERRI of the UIC would establish :

- the specifications of the functional requirements (Functional Requirements Specification (FRS))
- Overall system design specifications

3. Evaluation of technical progress

In the first part of the work, a working methodology has been defined and the main features of the system to be designed have been outlined. This led to a first definition of the functions of the system and of its interfaces (internal, that is between its subsystems and external, that is with the rest of the train). In the same time a closer coordination between the Consortium and A200 group was built.

The results are the following :

- a list of functions and interfaces which will lead to a structured flow chart analysis of the Functional Requirements for the ATC of the ERTMS;
- validation of requirements and functions, through a questionnaire to be forwarded to the Railways;
- new methods developed by the participants which allow a very formalized approach to the definition of the requirements and specifications of a system. A practical result of this work is that a better understanding of the whys and hows of a railway system is reached and can be shared by the user and the supplier.

Since these aspects were difficult to completely split, the work is following a "bottom up" and a "top down" approach. The "bottom up" started from 60 functions list sketched in the first part of the contract, trying to extract the "hidden needs". The "top down" was based on the expertise about Railways operations, and consisted in building a needs hierarchy. These activities were driven independently by task forces, and then combined; this lead to a fairly comprehensive needs structure. On this, the Consortium built the questionnaire to be presented to the Railways.

During the next period, the plans are to complete the building of the model (using the agreed tool Teamwork) and fill it in with the result of the answers from the Railways to the questionnaire. It should be noted that things are lengthier to set in place than foreseen, which is bringing some changes in their organisation. In order to keep the project progressing the Consortium takes some "needs definition" responsibilities, which should rather have come from the Railways. Hence, some precautions have to be taken in the validation of the resulting specifications.

It should also be noted that a close cooperation and coordination between EURET 1.2 and the Eurocab, Eurobalise and Euroradio projects is essential.

4. Final remarks

The ERTMS project is progressing, but much less easily than it had been thought when it has been launched. The first results are very promising. The reason for all this lies in a few simple facts.

The first one is that there was no such thing as a common approach (not to stay a common understanding) of train control all through Europe (thirteen different systems in operation each reflecting a national philosophy of safety, of the driver's role, of signalling, and so on).

The second one is that the motion towards a change of attitude is very recent (it has been motivated by the problems related to the high speed network) and, therefore, has not yet reached full momentum.

The third is related to the present state of system's design (more an art than a real "hard" science) which imposes to be careful in designing a new system, in order to avoid two possible pitfalls that would ruin the credibility of this project: not being enough future oriented, being too much future oriented.

The substitution of a single market for a collection of twelve isolated markets requires a thorough change of the traditions of the buyers (the railways networks) and their suppliers (the industry producing railway equipment).

Continuous success during the next period implies that :

- cooperation is strengthened between the Railways and the Consortium of Industries;
- quicker elaboration of functional specifications by ERRI A200;
- consensus on programme of validation and homologation of the results achieved on the European level.

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Chapter 5

Maritime Transport

Maritime transport is still by far the most important transport tool to serve the Community's international trade. The number and tonnage of the Community's owned and flagged fleet has, however, been declining for years, with serious impact on the safety of operation of the ships calling at Community ports, on the protection of the environment and on several social issues.

The need to improve safety in Community waters where accidents such as the "Torrey Canyon" and "Amoco Cadiz" took place as well as the need to improve the efficiency and competitiveness of the Community's shipping sector led the EURET R&D effort to concentrate on the following three main areas :

A. Design and assessment of a vessel traffic management system

The objective is an assessment of the benefits and feasibility of measures which would make the best use of investment already made or now being made in Vessel Traffic Services System (VTS), and an assessment of the possibility of some of the existing or planned VTS being capable of forming part of one or more general maritime traffic management service in European waters. It should lead to a system providing users with services such as relevant information on the present situation and probable future context in which the traffic is or will be operating, as well as the traffic itself, and in particular on maritime areas with high traffic density.

B. Optimization of manpower in maritime transport: Improvement of competitiveness in Community maritime transport through implementing advanced technology

The objective is to determine the optimum crew composition for different types of vessel and marine transport systems according to different circumstances, taking into account the increased use of advanced technology.

C. Taking human factors into consideration in the man/ship system

The objective is to assess a better match between the vessel (and its equipment) and human behaviour by assessing the tasks assigned to crew members and their behaviour in various operational situations and to develop measures to reduce human error, in particular in ferry transport services.

For the execution of these objectives the Commission has selected four consortia, which represent the following projects :

- for A : RTIS (Regional Traffic Information Services) and TAIE (Design and Assessment of a Vessel Traffic Management System);

- for B : ATOMOS (Optimization of Manpower on Maritime Transport);

- for C : MASIS (Taking Human Factors into consideration on Man/Ship Systems).

Further information on these projects are detailed in the following pages.

RTIS - Regional Traffic Information Service

Total cost : 2.60 MECU
Community Contribution : 1.32 MECU
Duration: 30 months (February 1992 to July 1994)

1. Objectives

RTIS is a pilot project for a Regional Traffic Information Service whose main aim is to reduce the costs of maritime traffic to all those involved in the shore based infrastructure of shipping. The project is focused in the study of the feasibility and if appropriate on the definition of an information service which would provide the participants in maritime traffic with real time information intended to improve their decision making processes. The project is first addressing the Mediterranean area, and it is intended that most features should be transferable to other maritime areas in Europe.

The activities to be performed by the RTIS Consortia are grouped in 28 Tasks :

1. Basic research analysis of vessel traffic
2. Basic research institutional and regulating context
3. Basic research methodology
4. Allocation of space and navigation plans functional problems
5. Allocation of space and navigation plans system functions
6. Allocation of space and navigation plans implementation features
7. Allocation of space and navigation plans scenario
8. Transmission of information functional problems
9. Transmission of information system functions
10. Transmission of information methods of installation
11. Transmission of information scenario
12. Transmission of information feasibility and costs
13. Traffic image scenario
14. Traffic image feasibility and costs
15. A regional system functional problems
16. A regional system system functions

17. A regional system methods of installation
18. A regional system scenario
19. A regional system feasibility and costs
20. Operational procedures scenario
21. Operational procedures feasibility and costs
22. Training scenario
23. Training feasibility and costs
24. Measures impact evaluation of operational benefits
25. Measures impact cost benefit analysis
26. Measures impact scenario compatibility
27. Project management
28. Reports

2. Assessment of the Project Management

RTIS is formed of five partners and ten associated contractors. Seven Member States are represented through six Research Institutes, six Small and Medium-Sized Enterprises, one University and two Industrial Organisations. The project management and the coordination is handled by OPEFORM (F).

There are some aspects of the RTIS project which need to be monitored carefully, due both to its large scope and to its interface with the TAIE project ("Design and assessment of a vessel Traffic Management system"). Coordinator meetings appear to have been held at intervals, and have been used to promote co-operation between RTIS and TAIE.
The Project has it's own organization as a major problem, the technical task of information gathering from large numbers of individuals being relatively simple once the ground rules have been set up. The large numbers of States and potential beneficiaries aggravate this problem, as already stated. There have been very complex problems connected with providing accurate and uniform materials for persons actually carrying out interviews, which have all been conducted on a face to face basis.
The RTIS Project Management "Manual" was constructed in the light of experience gained in the early days of the Project, and has obviously been carefully thought out as a result of experience gained. It states the parameters of the Project in a much clear and concise way. Consortia meetings appear to have been properly minuted, and have produced comprehensive documents.
As far as the overlap with EWTIS (another EC project under the ENS programme) is concerned, a continued monitoring and further coordination meetings is of the essence.

3. Evaluation of Technical Progress

In general, it is felt that it will only be a matter of a limited period of time before the benefits of such a system become obvious to the whole Community, and not just to the Mediterranean area.
Accidents (eg. Shetland Islands and La Coruna) which have occurred within the duration of RTIS are likely to focus attention more sharply on the project, and the associated TAIE project.This must be viewed as an advantage when considering the amount of impact that the results of the project are likely to make.

Some technical documents have been produced including mathematical model.

Additionally, the following points of special interest were noted:-
Tasks 5,6 and 7 have purposes which are closely allied to work that has already been carried out in International Maritime Organisation (IM0). Whilst it is assumed that all concerned have taken the IMO work into account, a strong caveat must be given that to ignore the work of IMO is to risk rejection at the highest International level. Far better to take the work of IMO as a base, and move onwards, if necessary, from that base. In this regard, specific reference is made to the IMO "Standard Ship Reporting System", and Maritime Safety Committee (MSC) circular 578/1993, concerning the training of Vessel Traffic Services (VTS) operators.
Task 8 and Task 10 are considered to be of great importance, since EDI and it's development is having a large and increasing influence on all port and inter-port operations, as well as on communications direct from ship to shore.In this respect, direct contact between the Tasks and INMARSAT is recommended, since many of the communications links envisaged will depend on that organization.
The documents arising from meetings between the Coordinator and the Task Leaders of RTIS are written in a clear and concise manner.
The Project has suffered from a number of unexpected influences which have collectively affected the production of up-to-date mid term reports.Accordingly, the Project Coordinator was consulted on a number of items of mutual interest, to ascertain whether these influences were acceptable, or whether they could be used to produce an even better end result.

The following points emerged:
- Each major study, generally carried out by a group within a particular Mediterranean nation, was to be controlled by a scenario coming from the basic research carried out in the 'First Group of Tasks', involved in defining the state of the art.The first years efforts of the data collection Task Groups was planned to have been finalized by the end of 1992, but data collection was much slower than anticipated.
This delay was caused by three factors : the large (pan Mediterranean) geographic scope, the long list of persons to be interviewed, the long list of identified potential beneficiaries.
- This delay will not produce an overall increase in costs, nor will it affect the final conclusion date. The current running delay is 3 months.
- The Project will be fully back on schedule at the end of the second year, and will have attained by then partial recovery by the 18 month milestone. Task 24 et seq... will be on schedule.
Finally, consideration is also being given to the need to set up demonstrations, at a suitable level, which will assist in "selling" the idea of RTIS to potential users.This has already been commenced under the appropriated Tasks (6,13,14,22 and 23).

4. Final Remarks

Inter-Consortia co-ordination meetings have been used to improve the interface between RTIS and TAIE for which the RTIS Management should be given credit due.
The main tasks of the RTIS project, the examination of the potential benefits to be gained from such a system, and the way that it could possibly be implemented, are of great importance to the future efficiency and safety of the European maritime infrastructure. The

delays endemic to the scale of the project were, perhaps, not sufficiently well understood before it commenced.Nevertheless, these delays should not detract from the importance of the whole.
The possibility of extending the research to North Europe should be given close attention, as should the possibility of arranging a suitable demonstration at a European scale utilizing appropriate VTS Centres.

TAIE - Design and Assessment of a Vessel Traffic Management System

Total cost : 2.05 MECU
Community Contribution : 1.22 MECU
Duration : 30 Months (February 1992 to October 1994)

1. Objectives

The main objective of the project is to provide tools to assess the effects and benefits of marine safety measures (Notably VTS measures) judged against the costs of such measures.
In particular, the project is involved in the study of :
A variety of tools which can assist in the design of an efficient VTS.
The determination of the suitability of new external functions such as shore based pilotage, resource management and contingency planning.
The improvement of operational benefits to be gained by improving the procedures in VTSs.
Improving and harmonizing existing training schemes for VTS operators.
Determine the use of basic traffic information as the basis for marine safety and decision-making, as well as the effect on the environment of vessel traffic.

The activities to be performed by the TAIE Consortia are grouped in 27 Tasks :

1. European traffic database (Task 1.1)
2. Historical data on local traffic (Task 1.2)
3. Casualty databank (Task 1.3)
4. Casualties in a vts (Task 1.4)
5. Institutional and regulatory context (Task 2)
6. Shore based tactical advice (Task 3.1)
7. Resource management (Task 3.2)
8. Contingency planning (Task 3.3)
9. Functional problems (Task 4)
10. Functions of the system (Task 5)
11. Methods of installation (Task 6)
12. Development of scenarios based on previous task achievements (Task 7)
13. Functional problems (Task 8)
14. Functions of the system (Task 9)

15.Methods of introduction (Task 10)
16.Scenarios on methods of introduction (Task 11)
17.Scenarios on networks, hardware and data (Task 13)
18.Feasibility and costs (Task 14)
19.Scenarios on feasibility and training of operators (Task 20)
20.Feasibility on operational procedures on VTS (Task 21)
21.Scenarios for the feasibility study (Task 22)
22.Feasibility study for a European policy on VTS operators' training (Task 23)
23.Evaluation of the operational benefits (Task 24)
24.Cost-benefit analysis (Task 25)
25.Scenario compatibility checks (Task 26)
26.Project management (Task 27)
27.The final report (Task 28)

2. Assessment of the Project Management

This project is formed of four partners and thirteen associated contractors. Four Member States and one EFTA country are represented through three big Manufacturing Companies, eight Research Institutes, three Small and Medium-Sized Enterprises and three Universities. The project management and the coordination are handled by the National Foundation for the Coordination of Maritime Research in the Netherlands, CMO.

The view of independent experts is that TAIE is progressing well.

TAIE has had several difficulties in coming up to its proposed design speed.The principal one has been the difficulties in obtaining actual funds instead of promises from supporting organizations. This problem now appears to be solved.
In particular, some of the sub-tasks have suffered severe set-backs due to financial considerations beyond their control, but all have shown evidence that they will be able to recover from these set-backs, and will be back on time schedule before the end of the project.
Interviews with the project Coordinator produced most positive results, especial assurance being sought and received on the subject of the finances of the sub-groups.
Meetings have been held at regular intervals, and appear to have been very well conducted and minuted. Inter Co-ordination meetings between TAIE and RTIS have also been held at regular intervals in order to ensure the required complementarity. Meetings have been used to iron out the difficulties which have arisen due to overlap between TAIE/RTIS, and another Community project EWTIS for which the coordination of the TAIE project should be applauded.
Finally, the projects' "Manual" gives worksheets of the various tasks in the greatest possible detail, and is excellent in it's concept and execution.

3. Evaluation of Technical Progress

In general, the political value of the programme has not changed significantly since the inception of the project, but the project Coordinator is well aware that recent accidents, notably the "Braer", were likely to focus public and political attention on TAIE and RTIS to a greater extent than was previously thought likely. This was viewed as a bonus.
Satisfactory bar chart diagrams, showing the planned progress of each task, have been inspected, and show all tasks as finishing at their allotted time.
Tasks have been divided into the following groups, some free standing, some dependent on those occurring at the beginning of the project, and some in symbiotic relationship with other Tasks being carried out at the same time. Co-operation between the tasks appears to be good, to the advantage of the Project as a whole. Some consortia are involved in several Tasks at the same time, and this aids the cohesion of the whole Project.
Groups are: Fundamental research; Allocation of space; Transmission of information; Traffic image; A regional system; Operational procedures; Training; Impact of proposed measures; Project co-ordination.

Task 10 has evoked great interest from INMARSAT which can only add to the credence given to the Task and TAIE as a whole.
Reference is made to the work carried out by, and being progressed by, the IALA VTS Technical Committee. This co-operative work is encouraged and applauded, since this Committee is regarded worldwide as being the most progressively thinking international VTS body.
Reference is made to definitions which have been obtained from a variety of sources, and, whilst these are in most cases accurate, they are not always those which have been approved and accepted at the highest international maritime level, that is at IMO. This should be rectified before any documentation is made publically available.
There may appear to be potential overlapping between the tasks and purposes of TAIE and the Project EWTIS under the ENS Programme of the third Framework Programme. It is strongly recommended that close cooperation between the project coordinators is effectively established. This co-operation is hinted at in other documents.

Interviews have been conducted with the Project Coordinator, and satisfactory explanations have been given for all the above workpackage details. It is believed that the work will meet its deadline.

4. Final Remarks

It is believed that this project is very well co-ordinated indeed, and the Coordinator deserves praise for that. Both he and the relevant Task leaders have had severe difficulties in obtaining promised funds, as the European recession bites.Shipping accidents in the European area have, however, served to alter the stance previously maintained by some Governmental agencies, and funds have finally been forthcoming.
The scientific base of each of the tasks, and their agglomeration, is undoubted. If the Tasks are performed at their present standards, there is no doubt that the results will be good.

If the various Task leaders, under the guidance of the Project Coordinator, make full use of all potential that TAIE has, within its tasks, to elicit and use the work that has been started by certain international bodies, then the results could be excellent.

Finally its seems appropriate to highlight the important demonstration potential that arises from the quality tools that are expected to be produced by this project.

ATOMOS - Optimization of Manpower in Maritime Transport; Improvement of Competitiveness in Community Maritime Transport through Implementing Advanced Technology.

Total cost : 5.4 MECU
Community Contribution : 2.99 MECU
Duration : 31 months (February 1992 to August 1994)

1. Objectives

The main objective of ATOMOS is to determine the optimum crew composition for different types of vessel and marine transport systems according to different circumstances, taking into account an increased use of advanced technology.
The aim under this theme is mainly to determine what should be done to improve the competitiveness in the commercial Community maritime fleet, as the Community shipping industry has lost a lot of ground over the past years to fleets operating under third world and flag of convenience countries.

The activities to be performed by the ATOMOS Consortia are grouped in 19 Tasks :

1. Economical Task Analysis
2. Integrated Ship Control (ISC)
3. Voyage Planning and Navigation
4. Damage and Emergency Control (Task 4 & 5)
6. Diagnosis and Alarm Handling
7. Planned Maintenance (Task 7 & 15)
8. Interface Requirements to Machinery and Systems
9. Design Requirements for Ship Control Centre (Bridge)
10. Risk Analysis and Safety Evaluation
11. Requirements to Built-in Test Systems and Fault Diagnostics
12. Requirements to Data Recording and Transmission
13. Requirements to Documentation and Instructions
14. Information and Communication Systems
16. Ship Management
17. Future IMO requirement to Lookout Functions
18. Future Requirements to Education
19. Total Cost Benefit Analysis

2. Assessment of the Project Management

This project is formed of five partners and four associated contractors. Four Member States are represented through three big Manufacturing Companies, two Research Institutes, two Small and Medium-Sized Enterprises and two Universities. The project management and the coordination are handled by the Danish State Railways - Ferry Division (DK).

The deliverables, in general, cover different individual sub-tasks. When the information given is of a general nature, it is extremely detailed. When the information originates from an individual Company, however, the volume of information presented is low.
Another important point is that, so far, there has apparently been no communication between ATOMOS and other related Projects in the EURET programme. Specific mention is made of the MASIS Project and the TAIE Project. It is urgently recommended that this inter-Project communication is organized, because there are strong interdependencies between the Projects mentioned and ATOMOS.

3. Evaluation of Technical Progress

The ATOMOS project is running satisfactorily.
Some of the sub-tasks have missed the appropriate milestone dates, however, evidence is available to indicate that the majority of postponements will be of minor importance, hence the delays may be considered negligible.

Therefore the contract, progress reports and finished deliverables were examined and results are as follows :

TASK 1 : ECONOMICAL TASK ANALYSIS (**Sub-task** : Definition of ship competitiveness criteria)
The deliverable concentrates on the competitiveness of new buildings of different automation standards only. It does not really pin-point the governing facts which render Community ships less competitive than ships flying other flags. Nor does it quantify the cost gap between Community flag and other flag ships. This should be added when carrying out the next revision of this report.
The cost criteria and the service criteria, as defined, can also be met by ships of an entirely different technical standard.
However, the criteria of ship competitiveness as defined will be applicable to the evaluation of different solutions within the ATOMOS project, and thus be in line with the contract workplan statement.

TASK 2 : INTEGRATED SHIP CONTROL (ISC) (**Sub-task :** Analysis of previous "Ship of the future" projects regarding ISC)
The existing ISC systems were supposed to have been analyzed in this document. The authors have concentrated on the Danish "Project Ship", and the operational achievements obtained from it. Other "ship of the Future" ships are dealt with more superficially, despite the availability of service records and experience. In view of the long term operational requirements of any ship, this is considered important, since these other 'ships of the future'

have already been in service for some time, i.e., more than 5 years. Ships are supposed to be operated efficiently for at least 15 years, and, from this point of view, the conclusions given in the deliverable tend to be premature. Furthermore, some more detailed information would have been expected as regards the operating experience and reliability of the existing ISC. On the other hand, the deliverable is considered acceptable from the point of view of the sub-task description given in the contract work plan, general requirements and standards related to ISC concepts and systems.
This report definitely fulfils the contractual co-ordinates, and represents significant progress.

TASK 3 : VOYAGE PLANNING AND NAVIGATION (Sub-task : "State-of-the-Art" study)
The deliverable comprises a thorough review and evaluation of existing systems, and hence fully complies with the task as outlined in the contract workplan.

TASK 6 : DIAGNOSIS AND ALARM HANDLING (Sub-task : Integration requirements and customizing requirements)
Specification for the ATOMOS Diagnostic System. Requirements to functionality. Requirements to customization. Clear definitions of requirements and targets are given, and similar projects being investigated elsewhere are named.
The deliverable clarifies the business relations of the partners involved, and lists the respective responsibilities between them.
Whilst they comply with the contract specifications, the deliverables once again highlight the problems of co-operation partners who would otherwise be competitors. Thus the information given is restricted to a minimum.

TASK 7 : "PLANNED MAINTENANCE" (Sub-task : Elicitation of requirements and specification)
The deliverable focuses on the condition monitoring system (CMS) which is the fundamental element which is necessary to achieve condition-based planned maintenance. It is in full compliance with the contract, shows clear results, names further steps to be taken,and is very well prepared. Unfortunately no information has as yet been included regarding the maintenance and conditions monitoring of the ISC itself. The review of existing maintenance programme packages and diagnostic tools may be considered representative, but, however, is not fully complete. The authors should explain why they have confined their investigations to the 4 programme packages mentioned, and have left out other applications.

TASK 9 : DESIGN REQUIREMENTS FOR SHIP CONTROL CENTRE
(Sub-task : Collation and appraisal of existing standards)
The deliverable comprises a summary of existing rules, regulations and recommendations stemming from IMO and LR.The "State-of-the-Art" of Control Centre (Bridge) lay-out is not presented in depth. Some examples of modern Control Centres, as fitted, should have underlined the fact that the ergonomics viewpoint is of prime importance in modern Control Centre design. It is expected that this requirement will be covered by the remaining deliverables of this task.
This report is basically in compliance with the terms of the contract.

TASK 11: REQUIREMENTS TO BUILT-IN TEST SYSTEM AND FAULT DIAGNOSTICS (Sub-task : Analysis of existing equipment)
This report complies with the revised Technical annex. It represents the foundation for sub-Task 2311 02, where the functions to be fulfilled will be defined. This Task as a whole is one of the centre pieces of ATOMOS. Subtask 11.1 comprises the analysis of existing equipment and the expected faults therein, and their relevance, the structuring of functions and the analysis of operational requirements. The operational requirements have been split into three levels (ship's Officer, service engineer and application engineer). This makes good sense. If these requirements are fully met, the result would represent significant progress.

TASK 12 : REQUIREMENT TO DATA RECORDING AND TRANSMISSION
(Sub-task : Requirements to data transmission and recording)
The deliverable provides the specification of the requirements of the network to be developed within the ATOMOS project. This specification is derived from a reference model. This report fulfils the expectations of the contract task. It also shows high promise of further development potential.

4. Final Remarks

The majority of the reviewed documents cover the "State-of-the-Art".The intention appears to be to establish a common base of understanding between the different Project partners, in order to cope with differences in information and technology levels
Nevertheless, and disregarding the fact that the scientific merits of the tasks vary widely, the results obtained are in compliance with the contract, and they certainly justify the selection of this proposal.

The deliverables, in general, cover different individual sub-tasks. When the information given is of a general nature, it is extremely detailed. When information originates from an individual Company, however, the volume of information presented is low.

It must also be mentioned that there has apparently been no communication between ATOMOS and other related projects in EURET, namely MASIS and TAIE. It is urgently recommended that this communication is organized at once, since there are strong interdependencies between the three projects.

Both from the Project Management and the Technical Progress viewpoints, the ATOMOS project is running well.

MASIS - Human Factors in the Man/Ship System for the European Fleets

Total cost : 1.70 MECU
Commission Contribution : 0.85 MECU
Duration : 26 Months (February 1992 to May 1994)

1. Objectives

The general aim of MASIS is to improve the safety and the efficiency of shipping, not only in terms of reducing loss of life, vessels and cargoes, together with the ecological damage to which these may lead, but also operational costs. This objective cannot be met without consideration of the role of the human operator.

The activities to be performed by the MASIS Consortia are grouped in 10 Tasks :

1. Documentation and links with other EC/COST research schemes
2. Systematic Survey of the work done by crew members
3. Overall analysis of the information obtained from the Survey
4. Specific analysis of the duties of each watch and their reallocation
5. Analysis of behaviour and professional qualifications required for a reduced crew
6. Ergonomics and professional qualifications required for a reduced crew
7. Research into the interference factors arising from the ship/system and affecting crew members
8. Human factors and the psychological and physical efficiency of the crew
9. Proposed remedial actions
10. Cost/benefit analysis of the measure to be taken

2. Assessment of the Project Management

This project is formed of six partners and six associated contractors. Six Member States are represented through three Research Institutes, eight Small and Medium-Sized Enterprises and one University. The project management and the coordination are handled by CETENA (I).

The number of contractors and the complexity of the project increases the responsibility of the Project Management, and makes it rather difficult.
Nevertheless, the project management has until now been successful although with the exception of Task 1.

3. Evaluation of Technical Progress

The breakdown of the project into ten tasks is logical from the standpoints of topics and sequence.

The quality of the report on Task 1 on "Documentation and links with other

Community/COST research schemes" is unsatisfactory, and below the good standard of the reports on Tasks 2 and 3. The two main reasons for the unsatisfactory quality of the report on Task 1 are the authors lack of familiarity with the topic and the allocation of only one man month for the preparation of the report. Three man months and the employment of an expert would have been more appropriate for the production of a satisfactory report. It is therefore considered necessary to completely revise the report on Task 1, and for reasons of time, attend to it in the framework of the present report. However, the unsatisfactory quality of the report on Task 1 has not influenced the quality of the reports on Tasks 2 and 3 and the report of Task 5.

For Task 2 a questionnaire was developed of which 2000 copies were distributed to ship masters (mainly through national master mariner associations) and to ship owners (shipping companies). 433 questionnaires were returned of which 408 were completed for use in the data bank; 345 came from ship masters representing the same number of ships and 63 from shipping companies representing 650 ships. Thus information on the work of crews on 995 ships became available, forming a good basis for the evaluation of the data in Task 3. The questionnaires were well designed for the task and care was taken to include specific parts of Masters and owners. An appropriately selected data base was used.

The conclusions and recommendations of the Task 5 report reflect most of the difficulties with which shipowners who wish to save expenditure by reducing the number of crew are confronted.

Task 7 on "research into the interference factors arising from the ship/system and affecting crew members" appears to be well planned whereas the implementation of Task 8 on "Human factors and the psychological and physical efficiency of the crew" may need further definition.

4. Final Remarks

MASIS is the first comprehensive approach to "Human factors" which, as known, contribute to about 80% of all ship accidents. Considering the size of the research field its complexity and the number of factors on which human performance depends, and their possible interdependence, the first research results already achieved are more important than could have been expected. This does however not mean that they and the following results of the Project will provide for the full use of the human resource potential for the enhancement of safety, efficiency and the protection of the marine environment.

There is a continued need for research after completion of this currently successful project.

MASIS is an excellent beginning and its results and those of follow-up projects will not only have prenormative character for the Community but could probably be used worldwide as a basis for normative action. The recently initiated revision of the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978, could a.o. profit from the outcome of this project.

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Chapter 6

Concerted Actions

The aim of Concerted Actions is to coordinate research in the different countries by holding meetings, arranging consultation with national experts and making information available about the progress and results of the projects. The Commission covers the coordination expenses but does not finance research.

The EURET programme provides 4 Concerted Actions with the following objectives of research :

A. Cost-benefit and multi-criteria analysis for new road construction
The objective is to measure the feasibility of establishing a Europe-wide system of reference for analyzing and establishing a coordinated method for evaluating road construction projects, taking into account the specific characteristics of the peripheral regions of the Community and the transit countries.

B. Economic scenario and demand projections for freight transport in the Community
The objective is to evaluate the extent to which the transport currently available can be adapted to meet the developing demand for freight transport so that the necessary innovations can be introduced in good time including, where appropriate, new transport systems.

C. Improved methods of evaluating the road safety of car and trailer trains
The objective is to assess the scale and significance of the problem at the European level of accidents involving private cars towing trailers and to make recommendations to improve their road safety. The main action could aim at establishing an analytical methodology and completion of statistical studies.

D. Assessment of the driving safety of possible truck and trailer combinations
The objective is to analyze the present type-approved arrangements for truck/trailer combinations and to carry out a technical analysis of a number of different types of road train with a view to drafting new safety regulations.

On request of the Commission, the EURET Management Committee has nominated national experts in view to set up 4 concerted action committees, one for each concerted action of the programme, which start to work early 1991.

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Cost-benefit and multi-criteria analysis for new road construction

The activities to be performed by this Concerted Action are grouped in 4 phases :

I. Review existing methods
II. Review measurement methods for the existing criteria
III. A study of range of criteria to be employed in the European approach
IV. A study of methods to be employed in the European approach

A consultancy firm was selected to elaborate a report of the review of existing methods concerning the first phase and a relevant documentation was provided by Member States. The Committee has approved the report on June 1992 (cfr. doc. EURET/169/92).

The Commission has started discussions on the report that will presumably be approved next June.

The phases III and IV have been subject to a restricted invitation to tender on January 1993. The contract with the selected firm is signed and the reports of phases III and IV have been scheduled for December 1993.

For economy of scale reasons it appears convenient to enlarge the field of the research and have the same type of study for railways, inland waterways, nodal centres of goods and nodal centres of passengers and, in parallel, to start a study with a multi-modal approach, including concepts as interoperability of networks, etc.

Upon proposal of the Commission, the EURET Management Committee has approved in March 1993 this extension of the research in this way and has decided to use the funds from Concerted Actions 3.1 and 3.2, which were abandoned, for realizing this. Consequently, it is requested to extend for one year 1994 the research taking into account that no supplementary funds are necessary.

Economic scenario and demand projections for freight transport in the Community

This concerted action's aim is to evaluate the extend to which the transport system currently available can be adapted to meet the developing demand for freight transport so that the necessary innovations can be produced in good time including, where appropriate, new transport systems.

In spite of the interest in the subject and his importance in Community transport policy, its implementation has encountered some problems .

The first phase of the project was defined as follow:
- gathering of national data;
- evaluation of existing reports and the TASC model;
- additional national sources.

Two consultants have been selected to do this work, one for the northern part of Europe (UK, IRL, B, L, NL, D, DK) and one for the southern part of Europe (F, GR, I, P, E) and they face immediately two series of problems :
- on one hand, the TASC model was not suitable for the work to be done
- on the other hand, the input from the national experts was in some cases insufficient.

This lead to unsatisfactory result for the first stage of this action.

As consequence, it was decided to reduce the scope of the action to the gathering of national data for freight transport and also to gather, where possible, all available national scenarios.

This will be implemented on the basis of bilateral contacts, where necessary, between the Commission and the national experts of the Concerted Committee. As a result it is foreseen to have a report covering all Member States on the same level of details for the end of 1993.

Methods of evaluating the road safety of car and trailer trains

In its early works, the Committee agreed to structure the work according to four themes :

- the normative aspect
- the technical aspect
- the safety aspect
- statistical analysis of the accidents.

With regard to the normative provisions, it was decided to concentrate the research on the comparison and the analysis of the technical and comportemental national standards. For the technical aspects it was agreed to give priority to stability for caravans and cars with trailers. In this context, the group examined the work in progress within the ISO and within the Geneva CEE. At the same time, the President of the European Caravan Federation informed the Committee of the work undertaken by this association, notably the Caravan Towing Code.

For the third aspect affecting the problem of safety requirements relating to the caravans and to the cars plus trailer, the Management Committee took knowledge of the contributions from the delegations and the Commission concerning the problems of the control of the caravans (problem of the driving licence), of the maintenance of the caravans (problem of periodic control), of the speed limits and of the road behaviour standards. It was decided that no more work had to be done in this field.

Finally the statistics of the accidents in which caravans are involved and the initiative of the Commission to gather all information on road accidents in one common database, was examined. After having studied the possibilities of working out common criteria for the information on accidents in which are involved caravans and cars with trailers, the Committee decided to renounce this task because of the low number of accidents that this category comprises.

After careful and deep discussions, the Management Committee decided that it was of little interest to continue this research. With the agreement of the Committee and the EURET Management Committee, the work of this concerted action would stop at the beginning of 1993.

Assessment of the driving safety of possible truck and trailer combinations

To understand the reason why this Concerted Action has not been developed, it is necessary to remember that in the time in which the EURET programme was formulated and proposed, the major concern of the Council and the Commission was to reach an agreement on weight and dimension regulations, in which the major problem was the safety control of possible truck trailer combinations. In particular to arrive on an agreement on allowed maximum length of the articulated vehicles it was necessary to admit at the Community level the short coupling and overcome the reserve relating to the safety of this solution.

The December 1991 Council decision and the French and Dutch legislation relating to the short coupling of 1992 have guaranteed to a certain degree the safety of this type of coupling.

As a consequence, the Committee Management, after having noted the already existing legislation in the Member States for the short coupling and having noted that this legislation would be the subject of examination at the WP29 of the United Nations Commission in Geneva, decided in order to avoid duplication, that it was not necessary to look further into this aspect of the mandate.

The Commission suggested to the Committee Management to explore the possibility of widening the received mandate on three aspects directed towards the study and research of the short and medium term development of the heavy vehicle (maxicode), namely :

- the development of loading surfaces
- the development of the conditions of safety
- the development of the aerodynamics.

Before defining in detail the dimensions of these three research plans, the Committee Management wished to know the opinion of the manufacturers and of the users. The secretariat was instructed to take the necessary initiatives so that the association of the European Car Manufacturers (ACEA) and of the International Union of Road Transport (IRU) could take part in the work.
The little interest shown by Member States and by these two organisations concerning the widening of the received mandate convinced the Committee Management to stop the work at the beginning of 1993. The EURET Management Committee Meeting agreed with this decision.

Chapter 7

Conclusions

The outcome of the mid-term review can be summarized as follows :

- the EURET projects are well under way and are developing along satisfactory lines even if some problems remain to be solved.

- the importance of the projects is clear and in some cases are even enhanced.

- criticism is mainly limited to specific aspects of the individual projects, which are being corrected.

It can be concluded that the objectives and the approach adopted in the EURET programme are set in the right path. Therefore no major modifications are required, with the exception of two concerted actions ('Methods of evaluating the road safety of car and trailer trains' and secondly 'Assessment of the driving safety of possible truck and trailer combinations').

The work done so far shows that the efforts and resources for Transport R&D should be strengthened in order to achieve the further development of European Rail Traffic Management System, a European Air Traffic Management System, a European Vessel Traffic System, and for the integration of Multimodal Transport Systems.
These Traffic management systems are considered an essential element of the realisation of the European transport network. These need further R&D efforts.

This means :

a) Design of a European Rail Traffic Management System

In its resolution of 17 December 1990[1], the Council stressed the need to develop, within the Community, compatible systems of rail command and control. It is within this framework that Theme 1.2 of the EURET programme addresses the design of the management rail traffic (ERTMS) which includes command and control (global conceptual study) and its technological developments : EUROCAB, EUROBALISE and EURORADIO.

The work which had already started in EURET, needs to be completed so that a compatible system for new high speed rail lines can be introduced from 1997 onwards.

b) Development of a European Air Traffic Management

The Council underlined in December 1992 the importance of establishing an efficient Air

[1] Official Journal n° 91/C 33/01

Traffic Management System for the future of civil aviation in Europe and the role that the European Community should play. It also encouraged the Commission to ensure the continuity of the EURET programme, and in particular the ATM component.

It therefore invited the Commission to work towards the establishment of the future ATM system for Europe in close cooperation with ECAC and Eurocontrol.

A close collaboration already exists between the ATM component of the EURET programme and the PHARE programme of Eurocontrol.

The actions to be followed include the integration of the airports in the same context as indicated by the Council in order to accelerate the establishment of the ATM system.

In particular, there is a need to continue the development and testing of the aeronautical telecommunication network (ATN) started by the EURATN project in EURET and in collaboration with Eurocontrol.

The proposed extension of the work started under the SWIFT project (study on the Air Traffic Controller working position) will also be part of the activity. It is proposed in particular to develop the automation tools for the controller for 'en-route', approach, departure, tower and apron.

The AEGIS project will identify research areas to be further investigated as its and some operational and technical concepts as its results. Also similar projects such as ATLAS and EATMS will help to define similar issues. An activity which can be envisaged to follow all of these projects is the assessment of their ideas. This would be part of the process of convergence of their concepts into a consolidated functional architecture, which could include simulation and modelling.

c) New Technologies for the Safety and the Protection of the Environment of Maritime Transport

The aim is to continue further development in the field of Maritime Safety that has been started in EURET. In particular, the objective is to develop the results of RTIS, TAIE (Maritime Traffic Management) and MASIS (Human Factors in Man-Ship Systems) in order to obtain results in line with the requirements set by Environment/Transport Council of the 25 January 1993. More precisely it concerns : the further development and trials of an integrated regional and port network for the management of maritime traffic; the promotion of global technical solutions for maritime safety; the protection of the environment and to find an answer to the problems related to human error on maritime transport.

d) Fast Short-Sea Shipping Transport System

The Commission, in its Communication (COM(92)490 - final) concerning new measures to reinforce the competitiveness of the European Maritime Industries (in the framework of the Maritime Industries Forum), has highlighted the need to develop Short-Sea Shipping namely

through pinpointed research actions amongst which is the development of Fast Waterborne Transport Systems. These systems aim to build an efficient, effective, safe and fast transport system that will integrate Short Sea- Shipping Ports and Inland Waterways that may constitute an alternative to other (more congested) modes of transport.

In this context, particular emphasis should be given to the interoperability of the proposed system with the different modes of transport. That is to say, its integration in a global transport system meeting the objectives highlighted in the Communication of the Commission (COM(92)230 - final).
Finally, the proposed actions will also address the application of advanced technologies, namely of the Fast Trans-shipment Systems that have been developed under the projects ATOMOS and SIMET in the framework of EURET.

e) Development of multimodal transport systems

The future role of combined transport within the trans-European transport network is certainly dependent on fast and appropriate transfer techniques in terminals to cope with the volume and nature of goods being transported. Another important aspect is the development of information and management tools in order to gain full control of the multimodal transport operations at all stages, including the movement between terminals. Further RTD activities should focus on the integration of terminal and transport information and management operations and improved alignment of transport means, loading units and transfer equipment. Given the state of the art in RTD field trials should be envisaged. The activities have to take into account the development of fast short sea shipping, ports and inland waterways as full-fledged parts of the European combined transport network.The importance of the last aspects have been stressed by the Commission in its "White Paper" on the Common Transport Policy, and they will,additionally, contribute to the competitiveness of the European maritime industries.

In addition it appears desirable to extend the EURET concerted action on "cost-benefit and multi-criteria analysis for new road construction" into the field of railways, inland waterways and nodal centres. The results of such a comprehensive approach will be valuable tool for the Members States in the establishment of the common trans-European transport network.

The continuation of the other concerted action "economic scenario and demand projections for freight transport of the Community" is less evident, yet necessary. Notwithstanding the negative experience so far it is clear that there is a need for basic information on transport flows on European level. Recently this has been stressed also by the Industrial Roundtable "IRDAC". The way to accomplish this, however, needs careful reconsideration.

Critical issues for future activities

Even while the progress made so far by the EURET programme can be considered generally satisfying, one should not hide that a number of issues need to be carefully addressed in the future.

Firstly, the starting -up of the programme. There was a gap of more than four years between the Council decision on the second Framework Programme in september 1987 and the signing of contracts on EURET in february 1992.
Of these four years seven months elapsed between agreement on the selection of contractors and finalisation of contract details. This has been clearly much too long.

Secondly, the through-put of documents. Documents such as the individual reports for publication of the projects -from the consortia to the Commission, and from the Commission to the Member States- need to be issued properly.

Thirdly, concerted actions.
The EURET programme has four concerted actions, two of which ended prematurely, a third has been reduced in scope. A number of reasons have led to this among others insufficient definition of the importance as well as the exact contents of these projects, and consequently, lack of active participation. Therefore one has to define more carefully the scope and contents of the R&D as well the contributions of all participants in advance. This will also facilitate the management by the Commission of this project where it is totally dependent on the cooperation of the Member States.

Fourthly, role of procurement organisations.
Most of the EURET projects are executed by qualified consortia which might be considered among the best to be available. Besides the preparation of the railways and aviation projects has been done in close cooperation with the European Railways Organization and EUROCONTROL. In the execution phase both organisations have agreed to assure the role of consultant partner in charge of the technical assistance and monitoring the research. It seems desirable to establish a better defined relationship between the consortia, the Commission and these two organisations as to their responsibilities and tasks vis-à-vis the projects.

Fifthly, time schedule of the projects.
A number of projects have experienced delays at the first phase of the project. For this various reasons have been mentioned such as funding problems, establishing the right cooperation between the consortium partners, defining working methodology. Consequently, these projects risk to run out of time the more so as the second part of their activities demand a very close cooperation and mutual understanding of the partners in analyzing and processing the results of the first year.

Finally, project management.
The mid-term review shows for most projects that the project management so far has not been an easy task and that a number of obstacles had to be overcome to get the projects under way. For the future this implies that the experience of international project management should be a criterium to be weighted carefully in the selection procedure.

Concluding remarks to programme evaluation

EURET has some small problems associated with most large research projects; delays, organizational problems, lack of initial co-operation between units that have previously worked in isolation, and communication between the component Tasks.

Such problems are being overcome as they arise, but show the need for constant vigilance by the Project Coordinators and the Commission itself.

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42