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Communication from the Commission on a review of the implementation and performance of the RTD Programme "Telematic Systems in Areas of General Interest" (1991-1994)

(In conformance with art. 4.1 of the Council Decision 91/353/EEC of 7th June 91)

Communication from the Commission on a review of the implementation and performance of the RTD Programme, Telematic Systems in Areas of General Interest (1991-1994)

Introduction

1. The specific 1991-94 RTD programme "Telematic Systems in Areas of General Interest" (commonly known and hereafter referred to as the "TELEMATICS" programme) was launched via the Council Decision 91/353/EEC of 7th June 1991. Its total budget amounts to 430 MECU to be committed over the three years 1992-94. It brought together seven Sectors[1], some of which had previously been the subject of exploratory actions or studies. Whilst these areas cover a diversity of domains, the common factors in the solutions to the issues they cover warranted a single programme within which experience could be shared and common elements identified and addressed. Following the Council decision a call for proposals was launched in the latter half of 1991 with successful projects starting their work in 1992.

2. Article 4.1 of the Council Decision requires the Commission to review the programme in its second year of implementation and to send a report to Council and Parliament with proposals for any amendments required.

3. This review was launched in 1993, at a suitable mid-term juncture. To assist the review process, the Commission decided to set-up a board of high-level independent experts, known as the Telematics Mid Term Review Board, to make an assessment. The Board[2], under the chairmanship of Mr. B. W. Oakley C.B.E., conducted its review between April 1993 and July 1993.

4. The review board formed sub-groups to address the different sectors by means of interviews, meetings and mailed questionnaires. Overall, a substantial proportion of the programme's major participants were in contact or open to the Board members. The findings from this investigation were discussed and summarised at a series of five full meetings of the Board.

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[1] The seven areas are:

Area		*RTD budget (MECU)*	*No. projects*
Networks between Administrations	(ENS)	41.64	14
Telematic systems for Transport Services	(DRIVE)	125.42	57
Telematic systems for Health Care	(AIM)	97.8	42
Telematic systems for Flexible And Distance Learning	(DELTA)	54.95	31
Telematic systems for Rural Areas	(ORA)	14.11	16
Linguistics Research and Engineering	(LRE)	22.69	25
Telematic systems for Libraries		22.69	29

[2] The composition of the Board is given in annex 1

5. The main objectives of the review were:

   - to assess the extent to which the TELEMATICS programme was fulfilling its objectives, as outlined in the Council Decision for the Programme and in meeting the broader objectives of the Third Framework Programme. In particular the Review looked at the issues of economic and social cohesion and the competitiveness of European industry.

   - to determine the effects and impact of the programme.

   - to assess the need for any adjustments or modifications to the TELEMATICS programme or future telematics-related activities in Community programmes.

6. The Telematics Management Committee (TMC) was consulted both on the membership of the Review Board, at its March 1993 meeting, and on the contents and conclusions of the Report at its September and November 1993 meetings. On each occasion, the TMC confirmed its overall positive opinion on the TELEMATICS programme, as mentioned in its report of March 2nd 1993 to the "Comité de la Recherche Scientifique et Technique" (CREST).

7. The Executive Summary of the recoomendations of the Mid Term Review Board report may be found at Annex 1.

Preliminary Remarks by the Commission

8. Following the first success of the Information and Communication Technologies (ICT) programmes in achieving European collaboration in developing basic ICT technologies, the European Community faced an important challenge at the end of the eighties: how to accelerate the uptake of the new ICT technologies by users? The setting-up of a new specific programme in the Third Framework Programme (1991-94) was the answer to that challenge.

9. This TELEMATICS programme was designed to be user-driven and based on collaboration and communication between the users and the ICT industries and services. This was a new and not an easy task. The report of the Board shows that the TELEMATICS programme has, in general, achieved this goal of involving users in its RTD activities and that it was at its best when this involvement of users and industries was the strongest. Indeed, the first results emerging from the programme show that telematics applications can both provide adequate solutions to answer user needs and contribute to the effectiveness of national and European policies in areas of general interest. Furthermore, this programme has also succeeded in stimulating a more co-ordinated and integrated approach to research on telematics applications across Europe.

10. The long-term implications of this joint user-supplier work can be measured in terms of the benefits arising for the application areas. For example, the work being done on transport telematics to provide early warning of traffic congestion, and to introduce automatic tariffing should be of great economic benefit to companies and social benefit to travellers and inhabitants of cities. The provision of training and continuing education should be made easier thanks to the availability of pooled education services accessible via the telematics networks. Telematics should also help free financial resources by reducing the costs of administration of health care. It will improve the competitivity of medical equipment on world markets, and assist the medical professions in their daily activity.

11. The vast scale of the domains concerned, health, education, transport, administrations, rural areas, is an indication of the possibilities for increased employment in the supply sectors. The importance of a Community funded RTD programme is to make a contribution to these job creation possibilities staying with European firms.

12. In terms of the broader Community policies, industry will be able to use the telematics services under development to increase competitivity through the production of better products at lower cost. The training and up-dating of employees will be cheaper and more effective. These benefits will be vital to industry if it is to beat-off overseas competition. The Review board noted the interest of both the ICT industry and SMEs in the various parts of the Programme. The bringing together of users and suppliers throughout the European Union, the development of trans-European telematics services and the Programme's intense concertation and diffusion activities, will assist in the cohesion process, allowing all European citizens to benefit.

13. The need for a telematics infrastructure, usable for a number of applications in different sectors, has been recognised by several of Europe's competitors. Europe needs to stay abreast of these developments. The TELEMATICS programme is acting to stimulate the interest and research required for this and it has taken that crucial step away from the research laboratory towards the workplace and the marketplace. This work is, however, only beginning and the next 5 or 6 years will be instrumental in the realisation of telematics-based products and services on a mass scale. For this reason, the Commission noted the Board's recommendation for a substantial increase in the budget for telematics activities in the Fourth Framework programme, but the overall budgetary framework sets close limits for the implementation of this recommendation.

14. The overall recommendations of the Review board, and their specific comments on the seven sectors of the TELEMATICS programme were timely in their influence on the preparation for the Fourth Framework programme, as could be seen in the Commission's working document COM (93) 459 final of October 6th 1993, concerning the scientific and

technological content of the specific programmes implementing the Fourth Framework programme. They will also allow an improvement of the management of the present programme in its third and last year of implementation.

General Conclusions of the Review Board and Commission's comments

15. The report of the Mid Term Review Board is particularly welcome in that it highlights a number of areas where some fine-tuning will further improve the performance and results of the work. The need to focus the work in order to achieve a greater coherence and awareness of the users is perhaps the key recommendation of the report of the Review Board. The various measures that can be taken as early as 1994 will be undertaken as far as possible as recommended by the Review Board. These steps will include consideration on how to improve the concertation and co-ordination between projects and how to best assure cross-sector activity and generic work on infrastructures.

16. For both the remainder of the current programme and in the planning and execution of any successor activities, the need to, on the one hand, adopt a long-term strategic view and, on the other hand, co-ordinate and link with other research activities and the policy DGs of the Commission will be an increasingly important feature of the management of the TELEMATICS programme. The recommendation involving the sectoral DGs in the planning will be implemented for the telematics activities in the Fourth Framework programme.

17. The Mid Term Review report recognises a high level of efficiency and commitment amongst the DGXIII staff who manage the programme. The problems highlighted on payment and contract signature delays have been noted and are being addressed. Similarly, the other advice given on how to streamline the administration and management process will be taken into account in the general review of programme management currently in progress.

Achievements with regard to the objectives of the Third Framework Programme

18. The Third Framework Programme specifies a set of general objectives for all specific Programmes. These objectives are the basis for justifying Community RTD. This part of the Communication outlines the achievements and impact of the RTD work in the Telematics Programme in the context of these general objectives.

19. The RTD being undertaken under the Telematics Programme both bases itself on the objectives of the Third Framework Programme and contributes to the aims expressed in the Treaty in a number of European Union policy areas by developing applications which are founded on user needs and which have potential for long-term use. The Programme's main focus is on RTD work to utilise advanced telematics technology in areas of importance to major Community policies.

20. A principal objective of the Third Framework Programme is the strengthening of the scientific & technological basis of European industry, especially SMEs. This communication has dealt with this issue in some detail, showing the positive effects the Programme will have for industry in terms of competitivity and employment. The joint research being done is already leading to new telematics-based systems and services. There are some 1500 partners involved in the Programme who will directly benefit and other companies and organisations will see the utility and advantage of the telematics systems demonstrated in practical pilot projects. The partners include on the one side major Information and Communications Technology companies and on the other a large number of SMEs from throughout the Community.

21. The specific criteria mentioned in Annex III of the Third Framework Programme are listed below with a comment on how the Telematics Programme has so far met them.

22. *Contribution to economic and social cohesion*

A key role of the Programme's work is to ensure that the application of telematics becomes both feasible and accepted by industry and user organisations alike. To achieve this the programme plays the fundamental role of engendering co-operation between vendors and users across the Union. The comprehensive choice of topic areas for RTD in telematics will markedly contribute both to the development of a market for telematics and to the use of telematics in all regions of the Union. This and the increased co-operation between the Programme partners, industry, major public services and government bodies, will help to successfully implement the results of this work.

The resulting services will have enormous potential for improving both economic and social cohesion. The work on providing the means to access training throughout the European Union, the improvement of the infrastructures and services in rural areas, a safer, more efficient transport network within and across borders, and a European-wide instant access to medical care skills are examples of the possibilities being created by the Programme.

23. *Research on a large scale which would be difficult to finance at Member State level*

Whilst the scale of funding and nature of the Programme precludes any large-scale projects, the larger-scale pilot projects, particularly in Transport Telematics, would not be possible without the Programme which brings together city and local administrations from different countries in pilot projects on traffic systems.

24. *Joint execution of research which offers financial benefits*

Telematics is about using the enormous potential inherent in telecommunications networks and computer products in such a way that companies and organisations can introduce new

systems, develop and sell new products and services, increase the efficiency and quality of their work and to cut administration costs. Throughout the Union, user organisations face the same problems: to define their telematics support requirements, to select the right technologies to satisfy them, to validate the solution and to re-engineer their own internal processes on the basis of advanced telematics systems. The Telematics Programme has led to a new form of co-operation on the user-side to collaborate to solve problems which are commonly faced by their organisations in all Member States. The Telematics Programme has also shown the value of giving users the necessary hands-on experience and technical briefing they require to define and articulate needs for advanced telematics services. The producers and operators of such services, working in tandem with the users, are thus better able to develop solutions which are wanted and immediately usable. They can then be assured of a more sound basis for investment decisions and long-term marketing strategies.

25. *Research which complements national actions on problems whose solution requires large scale research and which will lead to significant results in the Community as a whole.*

In all areas there are national actions underway and the Telematics Programme has made use of concerted actions to increase the co-operation between national and European projects. Those problems which require trans-national solutions, such as exchange of data between administrations based in different countries, road traffic information systems on international road corridors, and access to medical records, actually require co-operative research at European Union level. This will simultaneously accelerate the creation of larger, more homogenous, markets throughout the Union.

26. *Research which contributes to the achievement of the common market and unification of the European scientific and technical area, and research leading to standards.*

The development of networks between administrations will greatly assist in implementing the single market as it will facilitate rapid exchange of information between authorities, for example between tax, social security and immigration officials. Standards are being addressed in all areas, Medical telematics RTD for example was instrumental in setting-up activities in CEN(TC251) and EWOS with working groups on issues such as medical records, data protection and security, medical image and related data interchange formats, electro-cardiography interchange formats and protocols, and information content of patient data cards. In Transport Telematics a framework for standards in road traffic systems has been developed, with work in the CEN (TC 278) committee on road transport and traffic telematics and co-operation with CEN (TC 224) on machine readable cards and CENELEC TC 114 on surface transport electro-technical systems equipment. In the Libraries area projects contribute to work on various OSI standards such as the ILL protocol and standards

for machine-readable bibliographical data. In the Programme as a whole, more emphasis will be put in future on the acceptance of standards and development of infrastructures.

Sector Conclusions of the Review Board and Commission's comments

27. The Mid Term Review report contains much useful material which deserve scrutiny and follow-up. For each of the seven Areas, the Review board based its assessment on the objectives outlined in Annex 1 of the Telematics Council Decision. The following paragraphs highlight the main conclusions.

28. *Networks between Administrations (ENS).* This action aims to define common requirements for information exchange and examine the need for inter-operability between electronic information networks in Member States. It also aims to carry out work to define and establish trans-European telematic services networks essential to national administrations for the completion of the single market. 13 projects of a 2 year duration began in 1992 and a further project began this year for 12 months. The Area has a budget of 41.6 MECU for RTD work.

29. The Review report underlines that ENS has been particularly successful in bringing its users together and in having a direct impact on some of the barriers to a single market. Already, it is evident that economic value may accrue both to the administrations themselves in the form of cheaper, timely and efficient communications, and to the information and communication industries who can benefit from both a large customer-base and from the lower investment in the common equipment required for ENS-type applications.

30. The Commission will look at how best to implement the recommendations of the Mid Term Review to put greater emphasis on generalisation of best practices and the need for close links with implementation actions to be covered by the Interchange of Data between the Administrative (IDA) programme that was proposed in 1993 by the Commission for a Council decision (COM (93) 69 final of March 12th 1993).

31. *Transport Telematics (DRIVE).* This Area focuses on the application of information and communication technologies to road traffic (advanced transport telematics). Its aims are to improve road safety, maximise road transport efficiency and contribute to environmental improvements. Some 57 projects are currently running with an RTD budget of 125.4 MECU. Following a call in 1993, a further 6 projects will be launched and 1 project will receive additional funding.

32. The core of the Transport Telematics action consists of seven large technical validation pilot projects, involving major cities and road corridors, which aim to validate the RTD work and to increase awareness of and commitment to systems of advanced transport telematics across Europe. Good progress with the demonstrators is reported and there are signs that real economic benefits could ensue from the subsequent implementation work.

33. For the remaining period in the current programme, the Commission will need to place emphasis on activities to take the results of transport telematics to the market through European implementation actions. This issue will also be an important feature for any follow-up Programme which will need a clear vision on how to move from research to the market.

34. The Board's comments concerning a greater focus of RTD work and validation pilots and the need for an assessment of the economic and social consequences of proposed telematics applications as well as a more efficient concertation process are noted and will be addressed.

35. *Health Care (AIM)*. The objective of health care telematics is to stimulate the development of harmonised telematics applications both to improve the management of health care and to assist the medical community in its professional activities. Some 37 projects of a 3 year duration, supported by some concerted actions, are running with an RTD budget of 97.8 MECU. Following a further Call in 1993, a further 12 actions will be started and 14 projects given supplementary funding.

36. The Review report underlines that the enormous latent social and economic benefits in the health care informatics sector have been particularly difficult to realise. However, health care telematics is thus an important long-term action which will have a crucial role in developing systems and building coherent markets across Europe. The Commission was indeed confronted with the difficulty that the nature of the domain means that a homogeneous user environment takes time to build. However, despite the complexities of the sector there is evidence of an increasing awareness of the possible benefits of telematics systems in the medical community.

37. More than other areas in the TELEMATICS programme, health care telematics has a high element of actual research, as opposed to demonstrators and pilots. It can also become the lead market for generic technologies, such as multimedia workstations. The Commission acknowledges the concern of the Review board on the economic impact of the programme in its original form, especially for large Information Technology industry, and notes the recommendation to involve it more strongly in future strategic planning. Yet, it also welcomes the good participation of SMEs and finds that RTD in health telematics addresses some major socio-economic issues of the member states. The recommendation to focus the actions and to assure user involvement to increase the likelihood of penetration into the market has been addressed through integrating new actions into existing projects. This approach will be a key theme in the proposal for health telematics under the Fourth Framework programme. The specific recommendation to develop the market for patient data cards will be followed-up more vigorously by an EC-wide strategic action to analyse requirements, options and opportunities.

38. *Flexible and Distance Learning (DELTA).* This area aims to improve the access to and performance of learning services in Europe based on the optimum use of information and communication technologies. It also has as a goal the improvement of market competitiveness of the training related industries. 23 RTD projects were launched in 1992 and these have been supplemented by several concerted actions. Following a further call this year, a further 8 actions have been launched and 8 projects have received supplementary funding.

39. The review report acknowledged that some high quality work is being done in flexible and distance learning telematics which will serve as a basis for new services in education and training. The area has succeeded in involving a high level of core-users in its technical validation pilot projects and there is evidence that some projects have concrete plans to exploit the results of their work. This area will need to focus on industrial training and the training of skilled professionals. The economic benefits, to employers and employees, as well as to the budget of the public education sector from the establishment of telematics education and training services warrant further, substantial, RTD in this sector.

40. The Board's recommendations for a greater emphasis on pilot projects and end-user involvement reflect the growing maturity of this sector and the high potential for further work.

41. *Rural Areas (ORA).* This area aims to develop a better understanding of the common needs and opportunities for and impact of telematic services in rural areas and to prepare the way for the introduction of harmonised telematics services infrastructures in rural areas. In 1992 16 projects were launched with a 2 year duration. The RTD budget available is 14.1 MECU and it is due to this limited funding that only around half of the tasks specified in the workplan could be addressed.

42. The review reports good progress in a number of projects, particularly those which have fully involved 'real' rural area users. These projects will have an impact on the development of telematic systems in rural areas. The use of demonstrators is particularly important for ORA as they will act to increase both awareness and expectations amongst businesses and public services who operate outside the cities.

43. In future activities, the use of demonstrators and technical validation pilots, based on a more focused workplan will be encouraged, with a greater concentration on the potential for the creation of a telematic market for products and services especially for SMEs.

44. *Linguistics Research and Engineering (LRE).* This area aims to develop a basic linguistics technology which can be incorporated into a large number of computer and communications applications where natural language is an essential ingredient. It aims to accommodate or overcome the limitations or inefficiency caused by the use of different natural languages.

Following two calls for proposals in 1992, 25 projects have been launched with an overall RTD budget of 22.7 MECU.

45. Linguistics is an area of major importance in both economic and social terms and the advances in this technology are clearly important for the success of many Community policies and the single market. Linguistics, being common to all activity, has an impact right across and beyond the TELEMATICS programme. There is a need to devote more attention to assessing and reacting to the economic significance of the area.

46. The integration of written and spoken language research under one language action with proper co-ordination with sister activities, with an initial focus on a limited number of applications areas and further work on linguistic resources, documentation of grammar rules, performance measurement, standards and training should be important elements of future activities in this area.

47. *Libraries*. This area aims to facilitate user access to library resources through the optimum use of telematics systems, thus modernising many libraries and encouraging the development of a market for products and services in the sector. Following two calls, some 29 projects have been retained. A third call is currently being planned. The RTD budget for the area is 22.7 MECU.

48. The libraries sector is new to Community funded research programmes and this has been reflected in the response to the calls. However, the potential of the Sector in economic terms (some 75000 libraries in the Community), their key social value and the indisputable potential for telematics to open up information and library resources at a European level means that this is an important sector for continuing RTD. Progress in some member states shows that libraries are already beginning to respond to the uptake of telematics.

49. The Mid Term Review Board's suggestion of a change in approach will help re-focus the work and the suggestions for a training/awareness action and more imaginative methods of funding to meet the specific needs and capabilities of researchers in the field will be taken on board for future activities.

Final remarks

50. The full text of the report of the Board is available on request from the European Commission of the European Communities, DG XIII-C, Rue de la Loi 200 (Bu29), 1049 Brussels (Fax +32 2 296 8398) or via e-mail from ahuy@dg13.cec.be.

Annex 1

Executive Summary of the Report of the 'Telematics Mid-Term Review' and Chairman's Preface

Composition of the Telematics Mid-Term Review Board

Mr. Brian Oakley C.B.E.Director, Logica.

Mr. George Wanet, Executive Committee, Belgacom.

Dr. Hans-Detlef Schulz, Head of Telematics Services, Danet GmbH.

Prof. Dr. Van Eimeren, Director, GSF Medis Institut.

Mr. Jose Guerra, Managing Director International Development, Eritel.

Mr. Didier Thibault, Directeur adjoint, Compagnie de Suez.

Prof. Dr. Chris Vissers, Scientific Director, Telematics Research Centre.

Mr. Raul Junqueiro, Chairman of Board of Directors, Finacom Telecomunicacoes.

Dr. Nico Hazewindus, Director Corporate Product Development Co-ordination, Philips International BV.

Mr. Piero Torrigiani, Finsiel.

Chairman's Preface

The Telematics Programme is, at first sight, a difficult one to review, because it contains seven different Sectors whose only common feature at first sight appears to be the involvement of Information and Telecommunications Technology. However, on closer inspection, the Board found that there were other common facets. One of these is that the Sector programmes are all, or almost all, concerned with applications, and with Application Systems Engineering. This means that user involvement is not just desirable, it is essential if successful exploitation is to be achieved. This ensures that the work is embedded in the reality of working to a very real market requirement, not just a hypothetical one. It is this factor that seems to give the whole Programme an added lustre, an air of excitement, the feeling of working towards something that is, self-evidently, both very important for the end-users and for the industries that are involved.

Where the user involvement is strong, and the users themselves know what they want and are prepared to co-operate to achieve it, the Programme is at its best. It must be amongst the very best of the Communities Programmes for that spirit of striving jointly to achieve a common end is very tangible. The probability of the work leading on to exploitation must then be as high as it can be in a programme of this type. Where the user involvement is not so strong, or as is more likely in this Programme, where the users do not form a common position, the Commission's staff are faced with a fresh challenge. It is not enough to be able to manage and administer an R&D programme; they must also have the skills to bring the users together to form a coherent pressure to steer towards a real market. Though a strange task for a programme manager, it is not an unusual role for their colleagues in other parts of the Commission. Where they meet the challenge, they will have helped the Programme to perform a most valuable service for the economic and social development of the Community.

The Board enjoyed its difficult task, perhaps because we were constantly finding work that was so clearly of potential value. The task was made more enjoyable for us by the willing, enthusiastic and long-suffering staff of the Commission. It is our hope and intention that our Report will help them in their difficult but important work.

Brian Oakley
Chairman, Telematics Mid Term Review Board

July 1993

1.1 Main Conclusions

1. *Achievement.* The Board found a very general welcome for the Telematics Programme, and a most encouraging degree of enthusiasm from the staff running the Programme and from project participants. In particular, where users are fully and properly involved, the Programme is achieving the objectives of preparing the ground for implementation of application systems. (4.1.1).

2. *Strategic Vision.* There is a lack of strategic vision underlying and focusing the Programme and project selection. (4.1.2).

   R4.1 ***Attention should be given to creating and applying a strategic vision for the Programme. That vision should target the user community, and in particular, the telematics service providers. This requires a 10 year time horizon for the Programme, even if the programme authorisation has to be achieved through the shorter Framework Programme steps.***

3. *Application Systems Engineering.* The Sectors of the Programme share attributes which distinguish Application Systems Engineering:

   - All are concerned with the application of Telematics.
   - All are concerned with Application Systems Engineering.
   - All share the need for strong user involvement, and for the creation of coherent user communities.
   - Most Sectors are concerned with systems development and market research, rather than technology research (4.3.1).

   R4.2 ***There is a strong case for keeping the running of the Programme in the hands of a single team, and the Board welcomes the way the Sectors have been brought together in a single programme by the Commission.***

4. *Creating coherence amongst the users.* One of the major roles of the Telematics Programme is the creation of a coherent user community. (4.4.1)

   R.4.5 ***The Commission should renew its efforts to get effective user involvement in all Sectors of the Programme, and to create cohesion between the user bodies.***

   R4.6 ***Appropriate training should be given to the teams running the Programmes, in particular in the approach and skills needed to stimulate and improve coherence in a diverse community.***

5. *Infrastructure.* Infrastructure developments underlie much of the work of the Programme. It is highly desirable that the common or generic aspects of these infrastructure developments be gathered together to be handled in an integrated way across the Programme. (4.7.1)

R4.10 ***The whole Programme should be so organised as to maximise the development and use of common generic components, approaches and services. This will require a new, common, sub-programme using a matrix approach with all the Sectors.***

6. *Inappropriate mechanisms.* There are occasions in the Programme when a fully-funded systems engineering programme would have been more appropriate. There are other situations in which it would be better to mount an awareness or training action to ensure that the communities know what existing technology could do for them, how to obtain it and deploy it (4.8).

R4.16 ***There should be a systematic examination of the work throughout the Programme to find those fields where the conventional consortium, cost-shared, R&D project is not appropriate. Fully-funded studies and system development projects may be more appropriate in certain circumstances and training and awareness programmes may be more effective in parts of certain Sectors.***

7. *The Future.* In a programme like Telematics, the systems development work is likely to lead very directly to exploitation. The Board considers that a substantially larger share of the Community IT&T RTD budget should go to Applications Systems Engineering Programmes, of which the prime example is Telematics (7.1.2).

R7.1 ***The Board recommends a very substantial increase in the budget for the Telematics Programme, both in absolute terms and in relation to other IT&T support programmes that are not so directly involved with the creation of a European market.***

1.2 General Issues (see Chapter 4)

8. *The three-layer model.* The Board saw the Telematics Programme as the prime example of the middle Application Systems Engineering layer of a three layer model of Community sponsored work, lying between Technology R&D (like ESPRIT) and an implementation layer (like IDA). (4.2.1 - 4.2.2)

9. *Importance of users.* Applications Systems Engineering will only be successful if users are fully involved, as they are in the best of the Programme. (4.2.3)

10. *Is Telematics a coherent Programme*? There could be considerable synergy given the strong similarities between the various Sectors of the Programme. (4.3.1)

11. *The Matrix Model.* The Board recommends that the running of the Programme be kept together in the hands of a single team, but recognises the need to achieve strong involvement from other parts of the Commission. A matrix approach to the management and supervision of the Programme is required. Named staff from the other parts of the Commission should be given a proper part to play in the running of the Programme, with real responsibility and accountability extending beyond their liaison responsibilities. (4.3.4 - 4.3.10)

R4.3 ***It is recommended that a planning conference be held to plan the involvement of the 'other interests' in the Programme, involving senior representatives of the various DGs.***

R4.4 ***An on-going, independent monitoring of the running and involvement of the 'other interests' is required.***

12. *The Board's view on Sector priorities.* Taking into account the IT industries' view of the relative importance of the Sectors, the value to other industries, the social significance of the work, and the likelihood of successful exploitation as evinced by the enthusiasm of the users and their coherence as shown in the Sector Programmes, the Board considered the budget allocation to the Sectors. The main trend in thinking was for a significant increase in ENS, favoured by all Board members. There was also considerable support for DRIVE at or near the top of the table. Most members would like to see an increase in the funding for ORA, but at the other end of the table, there was very little support for the Libraries Programme as it is. AIM and DELTA were seen as important with both strengths and weaknesses, maintaining their positions in the table. The Language Engineering Programme was seen as a very important Programme for Europe, but not fitting easily into the pattern of the Telematics Programme. Ideally, it should be treated as a separate line in the Framework Programme, but it would be reasonable to house it within the Telematics Programme for the time being. The TIDE Programme was seen as important for social reasons, but again it did not fit neatly within a Telematics framework, though this is not important providing its objectives are not distorted. A new common sub-programme should address the infrastructure central to Sectors and key to telematics dissemination and exploitation in Europe (4.6.1 - 4.6.9 , 4.7).

13. *Cross Sector Projects.* (4.6.11)

R4.7 ***Horizontal cross-Sector activities in the Programme deserve priority attention, with appropriate staffing and ear-marked funding.***

14. *Focus.* (4.6.12)

R4.9 ***The Board felt that the work of the Sectors would be improved if there was a greater degree of focus in the work plans, with fewer, more tightly defined, objectives.***

15. *Infrastructure.* (4.7)

R4.10 ***The whole Programme should be so organised as to maximise the development and use of common generic components, approaches and services. This will require a new, common sub-programme using a matrix approach with all the Sectors.***

R4.11 ***In all project proposals across the Programme, the infrastructure elements of proposals should be analysed to see to what extent they will use and provide generic***

services and components. Proposals that contain infrastructure work leading to generic components, etc, should be given priority.

R4. 12 ***In order to improve the quality of telematics systems, a well understood and well-designed set of design structuring concepts, forming a design model, should be developed for use in the Programme.***

R4.13 ***Infrastructure developments should adhere to Open Systems standards wherever possible, in order to facilitate the development of competitive products for future exploitation. Projects that do not follow Open Systems principles should have low priority.***

R4.14 ***To underpin the generic infrastructure systems development, an R&D programme is much required, covering technical, economic and legislative aspects for enabling technology development.***

16. *SMEs.* While it is always desirable to have SMEs involved in the Programme, the heavy overhead of working in consortia under a traditional Commission type programme makes this an unsuitable mechanism for support of SMEs. Consideration should be given to a 'Craft' type of programme for SMEs, for example in parts of the ORA, TIDE and Libraries Sectors. (4.8.3)

17. *Real user involvement.* An excellent, distinctive, feature of the Telematics Programme is the involvement of users; those Sectors where there is strong involvement of 'real' users are the best, and the ones most likely to have successful exploitation of the work. (4.9.1)

18. *Creating a European Market.* The most valuable role the Commission can play for the European supply industries is to create a coherent and informed market out of the sometimes incoherent mass of users and to ensure that European firms are involved with the users in this process. (4.9.2)

19. *Standards.* The production of widely agreed standards, specifications, protocols, etc., is an important part of the work in creating coherent markets. Expecting industry to pay half the costs of standards work is inappropriate, except in those cases where the firm will receive a direct benefit from the work. (4.9.4, 4.9.5)

R4.17 ***The development of standards and specifications is an important activity in the Telematics Programme and should have high priority. Where actions are being taken to encourage this, these are to be welcomed, and steps should be taken to encourage them elsewhere.***

R4.18 ***In order to focus the standardisation work in the Programme, some increased selectivity and cross-project co-operation is required to reduce the number of separate actions.***

20. *Concertation and co-ordination.* Concertation is a major activity of the Programme, and rightly so. However, the overhead in time and cost of these meetings is very considerable. Some Sectors could learn from others how best to approach the running of concertation to reduce the cost and to increase the efficiency. Concertation requires clear objectives if it is to be effective and efficient. The involvement of good project leaders and other individuals in the planning and running of the process should be encouraged. (4.10)

R4.19 ***The Board recognises the value of the Concertation process, but considers it could be run more cost effectively. We recommend that some suitably qualified and experienced person be commissioned to undertaken a study of the process across all the Sectors of the Programme, making recommendations to improve the process as is appropriate to the circumstances of the individual Sectors. This study might usefully be extended to embrace the steps that are being taken to create cohesion of the users, creation of a market, in each Sector.***

1.3 Administrative Issues (see Chapter 5)

21. *Administration of the Programme.* Despite the issues raised in this section, it would be wrong to gain the impression that there was overwhelming criticism of the running of the Programme; far from it. (5.1.3)

22. *Project application process.* The Board recognises that much experience has gone into the current application procedure, but a real problem remains in the burden of completing project application forms etc., when the prospect of success is low. This should be addressed. (5.3)

R5.1 ***The Board recommends that a study should be carried out, based on current experience, to see if ways can be found to reduce the project application preparation workload, in particular by a two-stage application process.***

R5.2 ***The Board recommends that the Commission should continue to develop a computer-based aid to project application, taking care to ensure that it is user-friendly and adequately tested before it is deployed on a large scale.***

23. *Project selection.* There is remarkably little criticism of the project selection and peer review process. The need to ensure the peer review process results in a selection reflecting the priorities of the Programme should be observed. (5.4.1)

R5.3 ***A final round of consideration of the promising projects by all the reviewers / evaluators is recommended.***

24. *Peer reviewers.* It is particularly important for all the Telematics Programme that industry and users are well represented on the peer review panels. (5.4.2)

R5.4 ***Renewed attention should be given to the balance of membership of peer review panels, in particular to ensure that industry and user bodies are given clear prominence in the composition of panels.***

25. *Merged projects.*

R5.4 ***Merged projects, against the wishes of the prime project partners, are rarely successful. The Commission staff should resist the temptation to apply pressure on project teams to merge.***

26. *Technical Audit.* This process came in for considerable criticism. Project teams should feel that the process is there to help them to improve their management and collaboration. The process should not start until projects have been running for some time, say 18 months. It is important that the panel members should command the respect of the project teams. It is important that where a 'red flag' procedure is being initiated, privacy should be maintained in the early stages. (5.6)

27. *Contractual matters.* Delays in the contract signing process were the most frequent cause of complaint amongst the projects. The change in administrative procedures in recent years has increased delays with no obvious gains in decision making. (5.7.1)

R5.5 ***The Commission should take urgent steps to reduce the contract signing delays.***

R5.6 ***A study or workshop should be undertaken to determine the appropriate property rights regime for Applications Systems Engineering of the Telematics type.***

28. *Project duration.* Two years is too short for most serious project work, with three to five years being most appropriate, in general. (5.7.3)

R5.7 ***The Commission should strive to establish a funding regime in which projects of 3, 4 or 5 years can be established, where appropriate, in a 10 year programme perspective.***

29. *Payment delays.* Payment delays seem to have risen in recent years with some serious consequences. (5.8)

R5.8 ***Steps should be taken to return to the previous, acceptable, payment situation. If payment delays have become an inevitable feature of Community work, the Commission should consider paying interest on the outstanding payments beyond, say, a 60 day delay, if only to preserve the good name of the Commission.***

30. *Staff.* The staff are distinguished by their hard work and enthusiasm for their programmes, often in difficult circumstances. Training is needed in the rather difficult tasks they are required to undertake, especially those related to creating coherence in the users. Rotation of staff between the sectors is desirable. (5.9)

R5.9 ***A programme of staff training in the special duties they have to perform should be instituted, together with staff rotations between the Sectors.***

1.4 Individual Sector Issues (see Chapter 6)

31 There are a considerable number of detailed conclusions and recommendations in each of the seven Sector reports, too many to list here. The reader interested in a particular Sector is referred to that Sector report in Chapter 6.

1.5 The Future (see Chapter 7)

32. *The Budget.* System development is an expensive process compared with enabling technology research. Yet, in a programme like Telematics, the system development work is likely to lead very directly to exploitation. The Board considers that a substantially larger share of the Community IT&T R&D budget should go to Applications Engineering Programmes like Telematics. (7.1.2)

R7.1 ***The Board recommends a very substantial increase in the budget for the Telematics Programme, both in absolute terms and in relation to other IT&T support programmes that are not so directly involved with the creation of a European market.***

33. The Board has recommended the virtue of focusing on priority actions and within each Sector of the Programme. (7.1.3)

R7.2 ***If budget increases are not available, the argument for focusing on priority actions and sectors becomes vital if the Programme is to achieve significant impact. The focus should be on projects that have a major potential for European use.***

34. *New Sectors Priorities.* A mechanism is required to determine what new sectors might with advantage be added to the Programme. The Board has called for strategic studies to determine priorities (see 4.1.2, 4.6.10 and R4.1). The work on new sectors would form a natural part of that process. (7.2.1)

R7.3 ***The Board recommends that a mechanism be established to examine possible new Sectors, and to ascribe priorities to them. This could, with advantage, be linked to the strategic thinking needed to give goals for the entire Programme.***

35. *New Sector Proposals.* The Board considered that new Sectors would take relatively little resources during their early years. The work on Research Networks, being carried out by the Commission, would fall naturally within the scope of the Telematics Programme, being very relevant to the ENS Sector and Infrastructures work. The Board also made suggestions for a number of other new Sectors, or major projects within the existing Sectors for consideration within the priority determination work referred to in R7.3 above. (7.2.2 - 7.2.3)

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