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# *TEN Telecom Guidelines Status Review*

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## Preface

The project Status review of TEN Telecom Guidelines 2001 prepares a revision to the Annex I of the Guidelines, which provides specific guidance for selection of projects, to reflect technical developments and lessons of experience learned to date, since its origin. To assess the future needs and prospects for the TEN Telecom Action and to develop a vision by which to revise its guidelines, RAND Europe and IDC Benelux conducted a technology foresight study examining emergent technological solutions and needs, a survey among sector users, and in-depth interviews with sector members. This document presents a medium-term vision and has been important input to the European Commission in preparation of its proposals for a revision, which has now been agreed with the European Parliament and the EU Member States.

For some readers the technology foresight may be a prime reason to read this document: for others it will be an opportunity to better understand origin and intend of the TEN Telecom Action, now renamed to 'e-TEN'. It also could serve as a case study of a government action to stimulate market development.

The project was conducted by RAND Europe in close collaboration with IDC Benelux, who was responsible for the survey of TEN Telecom stakeholders. RAND Europe is an independent not-for-profit policy research organization that serves the public interest by improving policymaking and informing public debate. Clients are European governments, institutions, and firms with a need for rigorous, impartial, multidisciplinary analysis of the hardest problems they face. This report has been peer-reviewed in accordance with RAND's quality assurance standards (see http://www.rand.org/about/standards/).

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# 1 Executive Summary

## 1.1 Background

The 1992 Maastricht Treaty of the European Community calls for the creation of Trans-European Networks, or TENs, in Transport, Telecommunications, and Energy. The TENs, with a budget of 4.6 billion Euro for 2000-06, support projects of common interest where immediate commercial prospects and benefits are uncertain but that promote interconnection and interoperability of and universal access to national transport, telecommunications, and energy networks.

The European Commission Whitebook on Growth, Competitiveness and Employment in 1993 advocated TENs as a means for the Community to achieve its socio-economic goals, giving particular emphasis to telecommunications, or to a TEN-Telecom Action. In addition to support of infrastructure support as envisioned by the Maastricht Treaty, the Whitebook calls for the development of services and applications so as to attain a critical mass sufficient for further infrastructure investments and for attracting new users adding to the value of a given network. The Whitebook provisions on communication would have been written differently in the wake of the Internet, but its goals remain the same; indeed, the Internet facilitates their implementation.

The Directorate-General Information Society of the European Commission manages the TEN Telecom Action under guidelines adopted in 1997 within the framework of the TEN Financial Regulation. The TEN Telecom Programme has a tentative budget of 275 million Euro for 2000-06. The TEN Telecom Action grants support to projects offering potential social and economic benefit across Europe but which face obstacles to implementation due to uncertain or inadequate financial returns making them unsuitable for strictly private ventures. It also seeks to develop projects for interoperability of national networks that individual national governments may not choose to finance, because their added value comes from additional functions at the European or regional levels.

Article 14 of the TEN Telecom Guidelines requires the Commission in 2001 to revise Annex I of the Guidelines, which provides specific guidance to projects, to reflect technical developments and lessons of experience learned to date. Rapid change in the telecom sector and growth in Internet and mobile phone users have altered the conditions for implementation of new telecom services. The ongoing liberalisation of the telecom market has changed the conditions for competition. Recent auctions of 3G mobile spectrum bandwidths have further drained venture capital sources already depleted by recent devaluation in information and communication technology related stocks.

To assess the future needs and prospects for the TEN Telecom Action and to develop a vision by which to revise its guidelines, RAND Europe and IDC Benelux conducted a technology foresight study examining emergent technological solutions and needs, a survey among sector users, and in-depth interviews with sector members. This analysis also takes into account the European Court of Auditors report on the TEN Telecom Action and the intermediate evaluation of the TEN Telecom implementation undertaken by the Commission as part of the revision process. This document presents a medium-term vision; it is left to the Commission to implement its recommendations in whole or in part via appropriate legal texts.

## 1.2 Observation and Evaluation of TEN Telecom Implementation

### 1.2.1 TEN Telecom and other TEN Projects

TEN Telecom differs from the TENs for Transport and Energy in four ways, including:

- How the sector is described. While TEN Transport and TEN Energy projects are typically concerned with physical infrastructure, the TEN Telecom Action addresses programs at three different levels or layers: basic networks, generic services, and applications.
- The relation of the TEN to private market[1] activities. Historically, most TEN Telecom proposals, and hence most projects, have been market feasibility studies by consortia of telecom suppliers, although there have also been some telecom projects in non-market areas such as the provision of public services. Some of these distinctions may be ending as broader markets evolve, particularly as the energy sector undergoes greater liberalisation.
- The way projects of common interest are specified. Transport and Energy projects tend to be large, unitary and specified in the Guidelines, while the TEN Telecom Action supports a multitude of smaller projects in a range of sectors. More precisely, the TEN Telecom sectors are specified by the Council of the European Union, but the projects are specified by proposals.
- Relatively few TEN Telecom projects have succeeded in developing successful business and financial plans or in progressing to market deployment. The TEN Telecom Action has a modest budget compared to the scope of the challenges it addresses – this must have some effect on the size and success of projects.

### 1.2.2 Common Themes in TEN Telecom Evaluation

Several themes were common to all the evaluations and investigations in this review. These included the need for investment in basic telecom networks, the relationship of TEN to other telecom projects, coordination of TEN Telecom with other activities, developing guidelines for projects to make enduring contributions, targeting TEN initiatives more toward telecom projects, and devising more projects to attain market success.

***Investment in Basic Networks***

The TEN Financial Regulation directs TENs to undertake large infrastructure projects, but the TEN Telecom Action primarily promotes applications and services. This emphasis results from a level of funding for telecom infrastructure that is small compared to its costs. Furthermore, since private investors are willing to fund physical network construction and typically recoup the costs of their investments in telecom infrastructure, provided access is fair and efficient, there is little need or case for public funding. Finally, the time scale of the TEN Telecom Action is longer than the rapid pace of technological change in network infrastructure demands. The Court of Auditors therefore questions whether any emphasis on infrastructure is appropriate for the TEN Telecom Action. The Intermediate Evaluation of the TEN went further, suggesting the "basic network" layer of the TEN Telecom Action for supporting basic infrastructure should be dropped. The technology foresight study predicts future change will be in applications and services, providing further evidence for dropping basic infrastructure as an appropriate area for the TEN Telecom Action. Survey and interview respondents concurred that TEN Telecom is not suitable for infrastructure projects.

[1] The term 'market' has many definitions; as used here, it refers to situations where users and suppliers are paid for goods or services directly. In some circumstances, it carries the further implication that the goods and services are *not* public goods in the strict sense that use by one does not diminish the capability available to serve others *and* where it is not practicable to exclude users.

An emphasis on services and applications can be viewed as consistent with the original TEN objectives. There are two reasons for this view. First, the Whitebook includes services and applications among goals for TEN Telecom. Second, many areas need support here, and TEN Telecom development of all telecom services and applications that the infrastructure can support is essential to developing the full value of a trans-European telecom network.

***Relation to Other Programs***

Both TEN Telecom and RTD programmes (e.g., Advanced Communications Technologies and Services (ACTS), Information Society Technologies (IST), Telematics) include market-testing measures for technologies, applications, and services. Some of these projects have been submitted both to RTD and TEN Telecom for funding – though not at the same time. Survey and interview respondents indicated that many TEN Telecom projects are a continuation of RTD projects rather than new initiatives.

There are clear differences between the programmes. RTD programmes seek to advance knowledge in a relatively closed environment, while TENs aim to promote operational trans-European networks and produce products and services. Overlaps between the two have resulted from implementation. An occasional lack of suitable proposals for TEN Telecom, for example, may have resulted in support being granted to what were effectively continuations of research projects. Part of this lack of proposals may have resulted from a perceived combination of modest resources and cumbersome procedures in the program, further pushing it toward projects oriented to research rather than market development. Initial implementation of TEN Telecom projects appears to have followed the lead of the IST Telematics programme, introducing overlap between the two. The TEN Telecom Action has not embraced many large-scale projects that are appropriate for TEN action. The RTD programmes have not actively encouraged TEN Telecom proposals for market development of RTD-sponsored projects. In other words, the different initiatives could have, but did not, develop a complementarity strengthening the work of each other without overlap. A similar focus on complementarities could be developed with other programmes focused on single sectors such as administration (IDA) or publishing (eContent).

***Coordination with Other Activities***

The overlaps and complementarities between TEN Telecom and other programmes suggests the need for coordination among activities, both at the Community and Member State levels. Such coordination should not be the fixed, *pro forma* requirement it often becomes, but rather a genuine partnership. A lack of clear structure, poor incentives, insufficient shared knowledge, weakness in or lack of common objectives, and political changes have all hampered past efforts at coordination. Other activities can complement TEN Telecom by supporting different phases in the project life cycle or supporting market development in individual nations. TEN Telecom and other activities also may be partial substitutes for each other, offering funding to similar types of project but using different criteria or providing varying mixes of non-financial support. In such cases, coordination involves determining the best match between project and support mechanism.

***Developing and Implementing Guidelines***

While speed is essential to successful innovations in the rapidly changing telecom sector, this does not mean that the general TEN Telecom Guidelines indeed should be revised frequently. In fact, there may be an advantage in revising the general Guidelines less frequently, particularly if this leads to projects that will be of enduring value compared to projects whose value derives from specific sectors or technologies. The difficulty in "picking winners" in this sector, i.e., in identifying projects that, ultimately, will be a commercial success, underscores the need to design guidelines for projects that make enduring contributions rather than those responding to short-term market conditions.

Greater pre-proposal support and continuity among evaluators can speed the proposal evaluation process. The time to submit proposals may vary greatly from project to project, reflecting the need to coordinate trans-European projects with national authorities. The natural pace of change varies between layers of the sector (i.e., infrastructure, services, and applications) and between different markets (with markets for commercial services changing faster than markets for public services), which in turn requires varying timelines for different proposals.

***Targeting Projects***

The European Court of Auditors called for a greater focus in TEN Telecom projects. The Interim Evaluation called for a reduced number of project areas, with projects identifying a strategic set of cross-sectional issues in a revised layer structure (e.g., dropping infrastructure projects) and including end users in specifying and prioritising projects. Survey and interview respondents also suggested greater targeting of TEN Telecom projects, although the suggested focus varied among participants.

This calls into question the role of Annex I of the Guidelines in project selection and approval, in developing connections between TEN Telecom and other policies, and in choosing to rely on guidance from the market or program administrators. At a basic level, the issue is not whether more focus is needed, but on what the Action should focus. This question is reflected in a certain linguistic inconsistency between the terms 'project' and 'area' (or 'sector'). As written, Annex I chooses to focus on areas rather than projects – there is no *a* priori reason to believe that reducing the number of areas will result in fewer projects. An area focus may be appropriate for a research programme, but is arguably less suited to TEN support, where focus is most valuable during implementation – i.e. at the project level.

A second point concerns the question of how, and by whom, the areas are chosen. The areas of interest for potential telecom proposals listed in the Annex appear to be related more to those of a prior program than to those of the TEN Telecom Action. In guiding projects, a balance must be struck between the interests of the market and those of programme administrators. It would be a mistake not to take advantage of the insights of market stakeholders, but their proposals do not represent an unbiased sample of stakeholders or of all those the Telecom Action seeks to help. Programme administrators may sometimes be better positioned to identify broader interests, as well as to offer insight on opportunities for synergy between the Action and other program. In particular, a project focus might prove more effective in ensuring that TEN Telecom resources produce European benefit, particularly concerning delivery of public services. This comes about both through the strong signal delivered by specifying the project in advance and via the sustained engagement between project and Commission staff that a project focus implies.

***Attaining Market Success***

Only a small percentage of TEN Telecom market feasibility studies resulted in completed business and financial plans, much less successful market implementation of sponsored innovations. Several variables affect the prospects of TEN Telecom projects in achieving market success. First, available funding is often much smaller than project need. In this regard, we note that the Financial Regulation stipulates a maximum payment of 10% of allowable costs for deployment projects. This seems very low when one considers that TEN Telecom projects produce European benefit by extending the deployment of proven technologies to a trans- or pan-European scale.

This extension necessarily involves development activities to enable the project to meet the needs of people with different languages, legal systems, public organisations and administrative procedures. These differences are significant in the private sector[2] where

[2] Microsoft estimates that up to 50% of software development cost goes to localization.

globalisation and competitive pressures have already produced a degree of uniformity; thus, the costs of 'going trans-European' are likely to be even higher for public services. This is precisely why TEN Telecom support is necessary to realise European added value, and supports the idea that the 10% ceiling should be raised[3]. Second, TEN Telecom projects, being projects with uncertain commercial prospects, face difficulties in attracting private funding. Third, TEN project proposals, as noted, often fail to include business or financial plans needed for market implementation. Fourth, as survey and interview respondents noted, TEN Telecom projects have only weak incentives for pursuing ultimate market success; in particular, researchers sometimes view TEN Telecom grant support as an end in itself rather than a means to pursue greater market reward. Finally, having a large number of small projects works against a high success rate in a field where a critical mass (in terms of project *scale* and trans-European *scope*) is important for market success.

### 1.3 A Vision for TEN Telecom

The vision for the TEN Telecom Action must balance its original principles with the challenges of a market that has changed radically since the TENs were first conceived. The ultimate TEN Telecom objectives remain the development of trans-European telecommunications networks and of telecom services and applications of common interest in order to support growth, competitiveness, employment, cohesion, and social inclusion. The vision of the program should be on networks of interconnection and communication rather than physical infrastructure.

TEN Telecom support for interconnection network enhancement and extension should seek social benefits that may exceed the private returns on which commercial financing decisions are based, particularly in the early phases of market development for a new technology. Such support does not favour one technology over another. It can be focused on priority areas such as those specified in the e-Europe initiative. It can also realise European benefit by building on existing capabilities, for example by purchasing and aggregating spare transmission capacity on existing satellites, or implementing a common standard for exchanging health information.

In this vision, the TEN Telecom portfolio would include two types of projects:

1. Tier I projects would comprise those similar to other TENs, or large-scale projects across Europe involving either a bottom-up or top-down approach focusing on services of general interest. In the bottom-up approach, TEN Telecom supports development of a common means of connecting existing services – which is necessarily based on those services. In the top-down approach, local users develop systems that can benefit from a TEN Telecom-supported common platform. In either case, exchange of information among local participants would magnify the value of their efforts.
2. Tier II projects would comprise market projects in which both suppliers and consumers help to formulate and conduct projects oriented to different areas or market segments, still on a trans-European basis.

Projects should have both financial and non-financial resources from pre-proposal to market implementation stages, including opportunities for guidance, exchange of information, feedback, and incentives for market success. These opportunities can include partnerships

[3] In addition, the ceiling refers to a ratio of reimbursed costs to total costs. Clarifying the definitions of allowable and allowed costs may change the meaning of the ceiling in practice. Finally, it is worth observing that the deployment projects least likely to be deterred by a 10% reimbursement ratio are precisely those where the European value added component accounting for the additional costs is least important.

between project and Commission staff increasing market relevance and impact while reducing the burden for evaluation and monitoring. Market testing can further reduce the need for conventional evaluation. Conditions for financial support, such as specific project milestones or payment for deliverables, can also help guide projects to achieving greater market success. Within the allowable funding limits, interest support and risk capital support can help to underwrite project finance, leading to more market implementation. Pre-proposal guidance can help in finding proposals suitable for market implementation. Non-financial support can include advice on proposal preparation and consortium formation as well as assistance with business and financial plans and progress evaluations. Conditional funding can strengthen incentives for completing deployment and may even serve to deter proposals not aimed at ultimate deployment.

Ideally, the Guidelines for TEN Telecom would remain at a general level, while a highly specific Annex I would be revised annually to reflect market, technological, policy, and social developments indicated by project evaluation and feedback, forecasts of technological developments, and appropriate consultation. This would be particularly important for Tier I projects chosen by a balanced group of entrepreneurs, technicians, financiers, users, policymakers and public officials. In this case, there may be advantages in having annual Annex I revisions specify appropriate Tier I projects for each year; alternatively, the Council of the European Union could approve selection criteria while leaving the European Commission to issue calls for proposals. Member states and others also may contribute financially to ensure that projects also serve their specific purposes, as in local development or enhancement of common interest applications or project designs.

To provide both flexibility and rigor in project selection and evaluation, there should be rolling calls or continuous submission with periodic (frequent) deadlines and persistent terms of reference for both Tier I and Tier II project proposals to be evaluated by a semi-permanent panel. Rolling calls could allow time for national coordination and related activities, thus facilitating joint funding.

The TEN Telecom vision includes coordination of mutual interests and competencies of the partners. In Annex I revision and specification of Tier I projects, for example, the participation of officials from other support programmes could ensure that projects are well integrated with activities ranging from RTD to final market implementation. RTD staff could also encourage and support TEN Telecom proposals for Tier II projects resulting from RTD projects. In integrated projects or projects where all business, technical and financial planning is complete, other agencies may help in coordinated funding, provided procedural obstacles are overcome.

### 1.4 Recommendations

Our analysis leads to the following specific recommendations:

1. Areas of common interest should be placed in clear market, technological, social, and policy contexts. Basic networks, generic services, and application layers should define the focus for specific projects but not constrain the way they are conceived or implemented.

2. “Market-led” projects, or those that users help formulate and conduct, should be encouraged in order to ensure relevance and viability of the outcome of the project.

3. Projects should focus more on deployment by providing more pre-proposal support, exploring ways to provide more support within the Financial Regulation (e.g., conditional offers of support, increasing the proportion of allowable cost reimbursement for deployment projects) and speeding up decisions.

4. The Guidelines should be expressed in general terms, and Annex I, redrafted each year, should reflect changing policy priorities and sector developments. A rolling call or deadline for continuous submission of proposals evaluated by a semi-permanent panel would eliminate the need for a separate annual Work Programme.

5. In order to address the needs of the market TEN Telecom projects should include two types of projects, specifically:
   i. Tier I projects, or large-scale, long-duration projects for trans-European benefits, offering clear benefits to European society and serving as examples for wider (i.e. across more regions or in other areas) implementation. This wider implementation could result from expanding an existing project (for example with co-funding) or through a heightened public profile leading to emulation. These projects would be selected by suppliers and consumers and implemented with funding from member states. Such projects, similar to those for other TENs, could involve experimentation in different settings before implementation across Europe.
   ii. Tier II projects, being more market-oriented, should be more open in their definition, i.e., defined by grant seekers rather than by programme administrators. Such proposals should have a trans-European dimension, be of common or general interest, and be applicable to current market conditions but lack sources of private funding. Frequent calls for proposals and fast-track evaluation of these should be used to minimize time to market.

6. Calls for proposals should be based on up-to-date assessments of technological developments as well as market and policy considerations and consultation.

7. Projects should include initiatives for providing services of general interest. These include privately provided services where these are subject to public service restrictions or where the services are themselves public services delivered by a private body on behalf of a public one.

8. Greater coordination is needed with Information Society policy initiatives, other finance sources (especially the European Investment Bank and the European Investment Fund) and Member State counterparts with similar deployment objectives. Project specifications should reflect policy objectives. Coordination with other sources of support is possible through consultation on Tier I projects, assumption of promising RTD projects for market implementation, and through development of financial plans led by TEN Telecom. Coordination with other sector-specific support measures (e.g. IDA or eContent) can also be fruitful.

9. Projects of common interest should emphasize interconnection, particularly with remote or underdeveloped regions and Accession Countries. The nature of these projects will vary by region. Projects of common interest in centrally located regions, for example, may focus on interoperability and interconnection among applications and services, while those in less-connected regions may focus on basic network interconnection.

10. Strengthened incentives for progress to deployment are needed in market feasibility studies, including technical assistance and payment for progress.

11. The TEN Telecom Action should work to raise awareness of support, both financial and non-financial, available to projects, ranging from the pre-proposal stage to business and financial plan development to project evaluation to facilitating consortium construction and exchange of information.

12. Procedures are in place to ensure proper use of public money. However, retrospective examination of procedural and practical barriers to co-operation should be undertaken to reduce unnecessary barriers and to delineate opportunities for co-operation.

# 2 Introduction

## 2.1 Contex

TEN Telecom covers "Trans-European Networks for Telecommunications". It is a European Union initiative aimed at facilitating the development of the Information Society. The programme promotes the launch of trans-European and global telecommunications applications and services and thus advances European socio-economic and regional integration, the dissemination of knowledge and the development of remote regions. TEN Telecom was launched in June 1997 by a European Parliament and Council Decision, and will run until the end of 2001. Although not part of the research Framework Programme, TEN Telecom is a key tool for the exploitation of successful innovations from technical development to the market. By supporting deployment, it will eventually help European citizens profit from the information society that Europe is becoming.

The TEN Telecom Action[4] is part of the overall structure of the European Commission's Trans-European Network initiative, which has its origins in the Maastricht Treaty. In the 1995 Communication "Towards the Information Society[5]" the TEN Telecom Action was clearly positioned as part of a broad synergetic framework aimed at optimising the use of Community instruments and financial resources. In this vision, the Commission pointed out that:

> "*In most areas, the commercial viability of the new services and applications is sufficiently attractive to render public action unnecessary or to restrict it to a minimum to cover, for example, part of the risks involved in the development of new technologies. In certain application fields where, despite evident socio-economic benefits, the prospects for commercial viability are judged by private investors to be uncertain or long term, catalytic actions can be envisaged under the umbrella of public authorities, in particular in areas of collective interest. Lack of immediate commercial viability for certain applications is also partly due to the innovative character of the applications, requiring rapid integration of new technologies and organisational adaptation.*
>
> *The Community, in conformity with the principle of subsidiarity, can play a catalytic role by helping generate the critical mass that will attract private investors, thus allowing markets to take off more rapidly."*

The EU was seen as having a two-fold role: stimulating project initiatives (by raising awareness, brokering partnership and guiding interested partners to sources of financial support); and financially supporting the realisation of projects. Financial support was to be channelled through five instruments differing in focus and rules:

- the trans-European network support mechanism;
- the framework RTD programme
- The Structural Funds and the Cohesion Fund
- The European Investment Bank and the European Investment Fund
- Programmes devoted to education and training.

[4] Further information relating to this Action, associated guidelines, work programmes and calls for proposals and definitions relating to the information society and the Trans-European Networks can be found at the Action's website: http://telecom2000.finsiel.it/tentelecom

[5] European Commission COM (95) 224, 31 May 1995.

The Communication clearly emphasises that projects of collective interest combine the promise of clear socio-economic benefits with short-run obstacles to commercial viability. It also clearly endorses the three principles underlying the Action.

1. Project identification and selection should be demand-driven.
2. Support under the Action should be targeted to specific modalities and project types described. *Business plan development and/or market validation projects* qualify for up to 50% co-funding. *Initial deployment projects* may receive interest rate rebates, contributions to loan guarantee premiums, risk capital and, in duly substantiated exceptional cases, direct subsidies up to 10% of total investment cost.
3. Support should be co-ordinated across instruments.

## 2.2 Aims of TEN Telecom

The objectives and priorities of the TEN Telecom Action are clearly described in the text of the Guidelines. The Guidelines call on the Community to 'support the interconnection of networks in the sphere of telecommunications infrastructure, the establishment and development of interoperable services and applications as well as access to them. This should lead to:

- Facilitating the transition towards the information society, promoting the satisfaction of social and cultural needs and improving the quality of life,
- Improving the competitiveness of Community firms, in particular SMEs, and strengthening the internal market,
- Strengthening economic, social and regional cohesion, taking particular account of the need to link island, land-locked and peripheral regions to the central regions of the Community,
- Accelerating the development of new growth-area activities leading to job creation.'

As a result, they specify support for projects that are:

- Of trans-European general or common interest;
- Based on mature and proven technologies;
- Capable of producing strong socio-economic effects; and
- Sustainable in the long run (through private or public funding justified by returns).

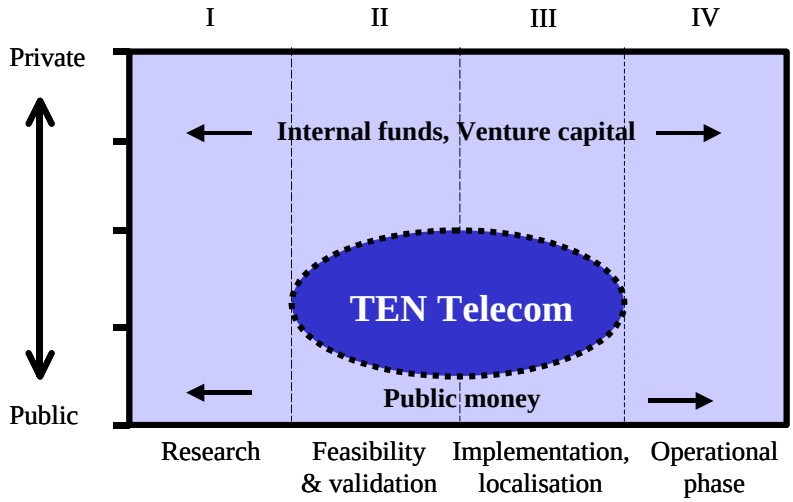
Implicit in these characteristics are certain pre-conditions: completion of necessary technical studies, initial market research, etc. While not specifically earmarked as a follow-up to Member State or Community publicly funded RTD projects, proposals originating from such projects are certainly welcomed provided the other conditions are met.

## 2.3 Focus of the Action

Figure 1 and 2 illustrate the focus and substance of the Action. They are discussed in more detail below. Project objectives (public interest or private interest) are placed on the vertical axis and the life cycle phase on the horizontal axis.

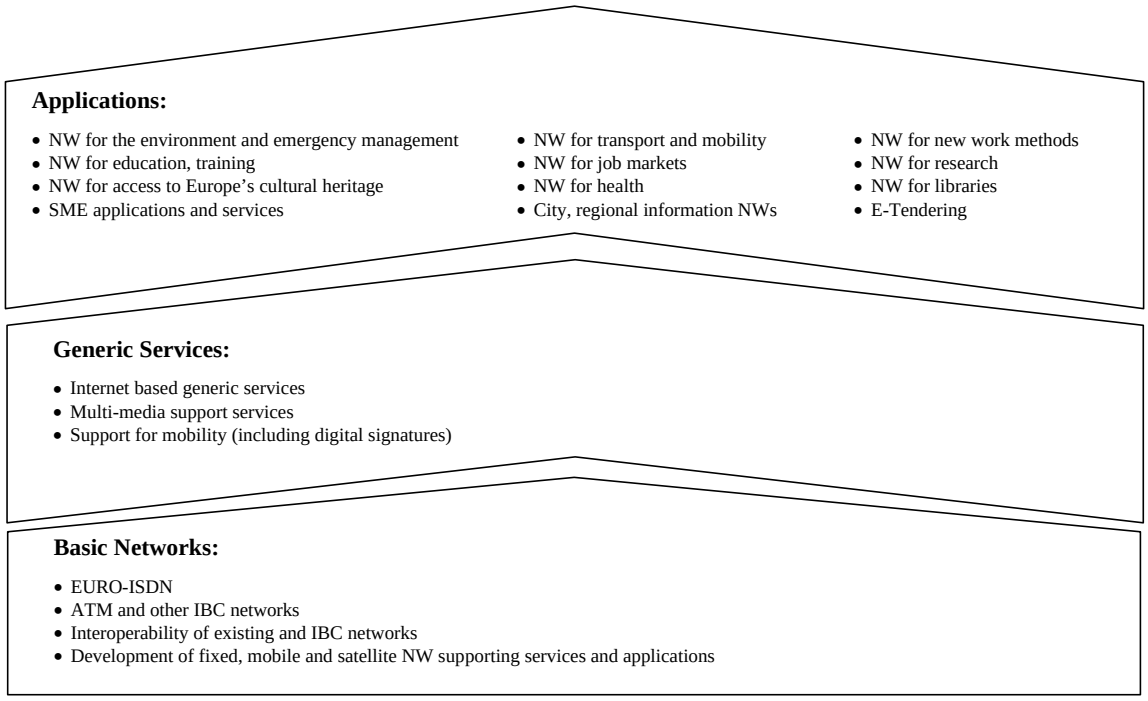
The present Annex I links the operational objectives of the Action to a listing of 19 projects of common interest divided among three 'layers' of the telecommunications industry

**Figure 1. Focus of the TEN Telecom Action**




TEN Telecom support can complement venture capital funding available through EIB and EIF for projects with social and societal objectives. But it can also complement investments from other public and private venture capital sources, internal funding or non-venture capital forms of public support. In terms of life cycle, the emphasis is on the feasibility and validation phase, but also on the implementation phase and even roll out to other European locations, provided this contributes to the general interest and has a trans European character.

**Figure 2.Three layer telecommunications industry structure**




The present Annex I distinguishes the three layers of the telecommunication market identified in the Whitebook; basic networks, generic services and applications. Within each, a variety of project areas are listed. It is important to note that these are not projects of common interest in the sense in which the term is used in other Trans-European Network Actions - large integrated projects specified in detail and endorsed by the Council.

## 2.4 Need for Further Change

Article 14 of the current Guidelines requires that[6]:

- Every three years the Commission report on implementation of this Decision to the European Parliament, the Council, the Economic and Social Committee and the Committee of the Regions;

- This report evaluates results achieved with Community support in the various project fields in relation to the overall objectives.

- Together with that report, the Commission shall propose revisions to Annex I on the basis of technical developments and experience gained.

In addition, recent developments in telecommunications networks, technology, markets and policy may warrant adjustments. New forms of network are emerging and interoperability remains an area of concern, especially in remote regions and Accession Countries. Emerging broadband networks, which create new opportunities for provision of services of general interest, provide another example; Community support may be instrumental in ensuring that such services are deployed.

This reflects well known issues surrounding network externalities – the benefits of a specific initiative spread far beyond the direct users of the service or application, so near-term commercial evaluation may not fully reflect societal benefits. In particular, the trans-European potential of network interconnection and the services and applications it supports is sometimes slow to develop.

Experience with projects undertaken under the existing Guidelines shows the scope for improving the clarity with which projects of common interest are defined in relation to evolving market and technological contexts. Such modifications could sharpen the focus of the Guidelines, increase the degree of co-ordination with overall policy objectives, place greater emphasis on services of general interest[7], and clarify the Action's focus and relation with RTD support on one side and other sources of finance on the other.

Finally, projects of common interest are currently defined in terms of a layered structure (See Figure 2) for the telecommunications industry. In a world of rapid convergence, it is important to convey the impression that particular projects should be aimed at specific layers, but may well cut across layers in order to address the common interest.

Overall, specific doubts have arisen regarding the linkage between the present state of the sector and current TEN Telecom activities. These arise from the limited financial support available, the diffuse focus of Annex I and perceived co-ordination and integration problems.

Five principal motivations underpin recommendations presented in this section, based on our research, and the intermediate evaluation:

- Specific doubts regarding the linkage between the present state of the sector and current TEN Telecom activities arise from the limited support available, the diffuse focus of Annex I and perceived co-ordination and integration problems.

[6] Article 14 of the Guidelines

[7] See for example European Commission, COM (2000) 580 final, "Services of General Interest in Europe.

- The TEN Telecom action should be differentiated more clearly from other forms of Community support.

- Also, the Action should be related more clearly to broader Community policy objectives and to other forms of financial support in the telecommunications sector.

- There is a need to simplify and focus the range of projects of common interest listed in Annex I. This would minimise the risk of diluting available resources and ensure that projects of common interest combine the essential characteristics of trans-European dimension. It could also help to clarify the relation between the objectives and priorities as laid down in the Guidelines Decision, and the definition of projects of common interest identified in Annex I. In particular, the evaluators recommended revising the way in which the three-layer model of the telecommunications sector was used.

- There is a need to strengthen the commitment of projects to market deployment.

### 2.5 Recommendations for change

These considerations have led us to the following recommendations:

1. Areas of common interest should be placed in clear market, technological, social, and policy contexts. Basic networks, generic services, and application layers should define the focus for specific projects but not constrain the way they are conceived or implemented.

2. "Market-led" projects, or those that users help formulate and conduct, should be encouraged in order to ensure relevance and viability of the outcome of the project.

3. Projects should focus more on deployment by providing more pre-proposal support, exploring ways to provide more support within the Financial Regulation (e.g., conditional offers of support, increasing the proportion of allowable cost reimbursement for deployment projects) and speeding up decisions.

4. The Guidelines should be expressed in general terms, and Annex I, redrafted each year, should reflect changing policy priorities and sector developments. A rolling call or deadline for continuous submission of proposals evaluated by a semi-permanent panel would eliminate the need for a separate annual Work Programme.

5. In order to address the needs of the market TEN Telecom projects should include two types of projects, specifically:

    i. Tier I projects, or large-scale, long-duration projects for trans-European benefits, offering clear benefits to European society and serving as examples for wider (i.e. across more regions or in other areas) implementation. This wider implementation could result from expanding an existing project (for example with co-funding) or through a heightened public profile leading to emulation. These projects would be selected by suppliers and consumers and implemented with funding from member states. Such projects, similar to those for other TENs, could involve experimentation in different settings before implementation across Europe.

    ii Tier II projects, being more market-oriented, should be more open in their definition, i.e., defined by grant seekers rather than by programme administrators. Such proposals should have a trans-European dimension, be

of common or general interest, and be applicable to current market conditions but lack sources of private funding. Frequent calls for proposals and fast-track evaluation of these should be used to minimize time to market.

6. Calls for proposals should be based on up-to-date assessments of technological developments as well as market and policy considerations and consultation.

7. Projects should include initiatives for providing services of general interest. These include privately provided services where these are subject to public service restrictions or where the services are themselves public services delivered by a private body on behalf of a public one.

8. Greater coordination is needed with Information Society policy initiatives, other finance sources (especially the European Investment Bank and the European Investment Fund) and Member State counterparts with similar deployment objectives. Project specifications should reflect policy objectives. Coordination with other sources of support is possible through consultation on Tier I projects, assumption of promising RTD projects for market implementation, and through development of financial plans led by TEN Telecom. Coordination with other sector-specific support measures (e.g. IDA or eContent) can also be fruitful.

9. Projects of common interest should emphasize interconnection, particularly with remote or underdeveloped regions and Accession Countries. The nature of these projects will vary by region. Projects of common interest in centrally located regions, for example, may focus on interoperability and interconnection among applications and services, while those in less-connected regions may focus on basic network interconnection.

10. Strengthened incentives for progress to deployment are needed in market feasibility studies, including technical assistance and payment for progress.

11. The TEN Telecom Action should work to raise awareness of support, both financial and non-financial, available to projects, ranging from the pre-proposal stage to business and financial plan development to project evaluation to facilitating consortium construction and exchange of information.

12. Procedures are in place to ensure proper use of public money. However, retrospective examination of procedural and practical barriers to co-operation should be undertaken to reduce unnecessary barriers and to delineate opportunities for co-operation.

### 2.6 Document Structure

Section 3 presents the evidence used in developing the recommendations. This includes background information in the form of evaluations of this Action and findings from three specific investigations: a market and technology foresight, a survey of important stakeholder groups and a series of in-depth interviews. Section 4 presents the recommendations. In particular, subsection 4.2 recommends implementation changes, and gives the reason, description and consequences of each change, while subsection 4.3 takes a similar approach to changes to Annex I. Details of the foresight exercise, survey and interviews are presented in a supporting volume.

# 3 Findings

## 3.1 Findings from RAND/IDC-study

Foresight, survey, interviews presented in an integrated and more coherent fashion, in a way that almost inevitably leads to the (kinds of) recommendations made below.

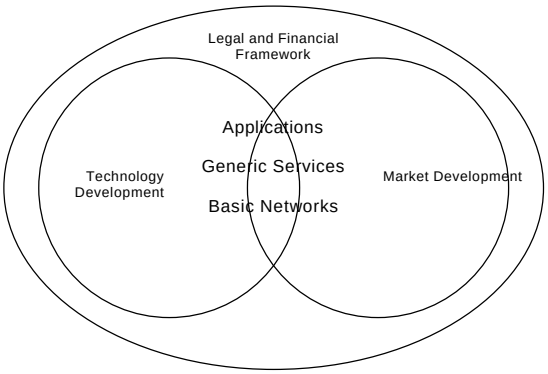
The analyses leading to the recommendations for revisions to Annex I are based on a Technology Foresight study, a questionnaire based survey, a series of in-depth interviews and the Report by the European Court of Auditors on the TEN Telecom Action[8], as well as the TEN Telecom Intermediate Evaluation[9].

### 3.1.1 Methodology

To validate, supplement and focus the recommendations coming from these studies, the current project undertook three further investigations: a technology and market foresight exercise; a survey of a wide population of market actors; and a series of in-depth interviews.

Figure 3 describes our understanding of the general environment of technology and market developments bearing on the domain of the Action. Developments of applications, generic services, and basic networks reflect a shifting balance between technology supplies and market demands and needs. The legal and financial framework gives a general context for technology and market developments and for the development of telecommunications applications, generic services and basic networks.

**Figure 3. The environment of telecommunications applications, generic services, and basic networks development.**




For the purposes of this project, we conducted a *foresight*[10] assessment, based on desk research that included a meta-analysis of other foresight activities. The assessment looked at both the technology (supply-push) and market (demand-pull) sides of the picture. The results were organised into five overall categories: application; generic services; basic networks; financial and regulatory context and others. The first three correspond to the three layers in

[8] EC 2000/C 166/01 Court of Auditors Special Report No 9/2000 concerning trans-European-networks (TEN) – telecommunications, accompanied by the Commission's replies.

[9] Intermediate Evaluation of the TEN Telecom Action; Final Report by PLS Rambol for the European Commission DG Information Society; November 2000.

[10] The TEN Telecom Action includes a semi-annual survey by Husat and Databank Consulting of recent European telecommunications developments and trends, to provide strategic guidance. The results are documented in TEN Telecom Intelligence Report Updates.

the Guidelines themselves. The fourth addresses the additional instruments available in the Financial Regulations and the general issue of what form (if any) of support is needed. The last category is intended to examine relevant issues relating to regulatory and other contexts.

A *survey* questionnaire was constructed using the first results of the market and technology foresight as input. All questions were discussed among the contributing employees of RAND Europe, IDC and the European Commission. A sample database of potential respondents was created using the TEN Telecom contact databases. The survey covered the consultation with representatives of four different interest groups, which consist of:

- Representatives of the different EU Member States.
- Representatives of key telematics developing sectors and standardisation bodies.
- Users and users' organisations.
- Financial institutions / venture capitalists.

The sample was designed so that all Member States and the different interest groups are represented. Survey results will thus give a representative view of the TEN Telecom context. The questionnaire was sent by email to the sample database of potential respondents, together with a covering letter, and an explanation of the TEN Telecom Action and Annex I. The respondents were able to return the filled in questionnaire by email or fax. To increase the response and to ensure that the responses were spread among the Member States and interest groups, part of the contact database that received the email were contacted by telephone to remind them of the TEN Telecom questionnaire.

In-depth interviews were conducted with a range of individuals representing important actors and organisations in the environment within which TEN Telecom operates. These include: participants in the Action's activities (including planning and project review), venture capitalists, operators, consumer groups, legislators and academic experts on telecommunications market development. The interviews were based on a *pro forma* protocol (included in the supporting volume) and the results summarised in terms of: perceptions of important future developments; the impact and relevance of the Action to date; and future prospects for the Action.

### 3.1.2 Technology and Market Foresight

Conclusions of the foresight exercise that bear relevance for review of the Action can be summarised as follows:

1. Technological and market possibilities have been evolving rapidly and will continue to do so

2. Convergence and divergence will continue to dominate the sectoral structure: new initiatives will cross layers; old sectors will combine; and new sectors will emerge

3. Value can be added by finding new uses for existing technologies and applying new technologies to existing market needs as well as by developing matches between new technologies and new needs.

4. Other reforms and developments in telecommunications are related sectors, including evolving cost structures, progress towards increased competition, reform of financial and related services, etc. will both increase the possible scope for TEN Telecom support and reduce the obstacles that some current projects need help in overcoming.

Some developments of particular relevance to the Action are summarised in Table 2 - Table 4 as reflected in Appendix I – Main findings Foresight Study to this report. For more detail, please see the Supporting Volume.

### 3.1.3 Survey

The most relevant conclusions from the survey can be summarised as follows:

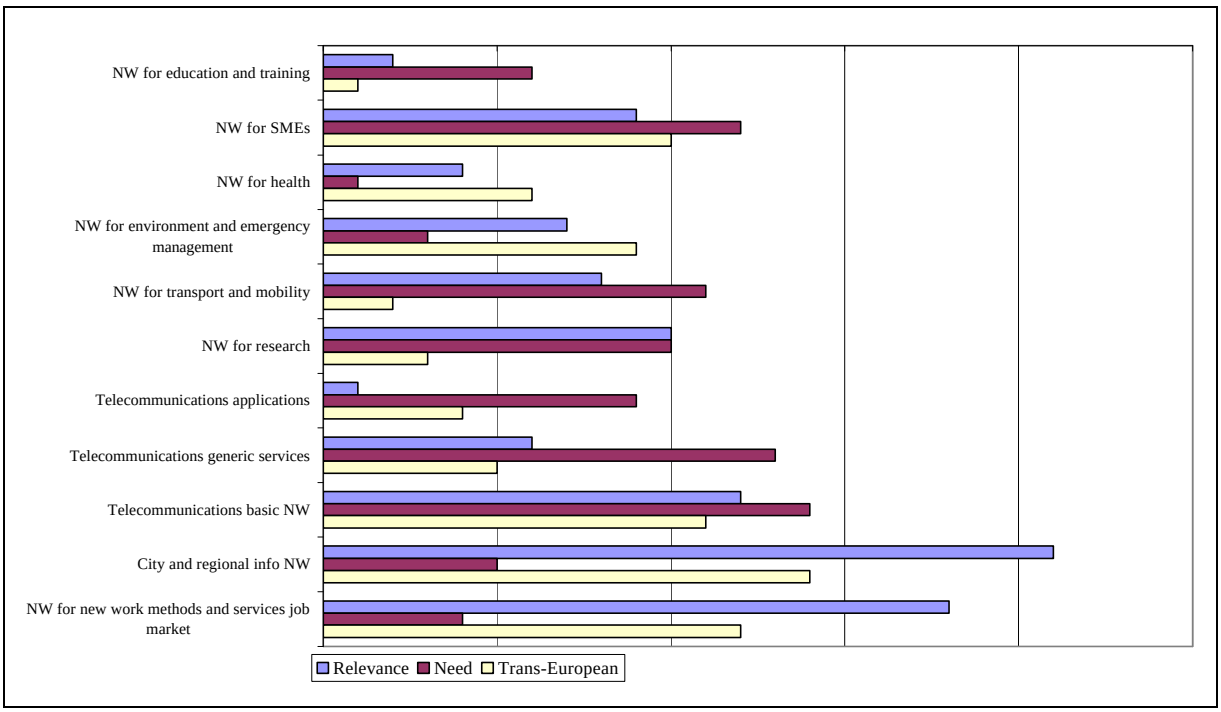
- The most important developments over the next five years will include e-commerce and electronic payment and broadband services on the demand-driven side and mobile technology, broadband technologies and convergence on the supply-driven side. The most relevant areas for future public intervention are i) new access methods/devices, mobility and convergence; ii) secure networks and smart cards; and iii) networks for SMEs.
- Many areas were regarded as needing public financial support. Many commentators have remarked this apparent scarcity of effective venture capital. It reflects the weakness of integrated European venture capital markets, and linguistic or cultural differences separating entrepreneurs from investors in this area. Another factor is the US venture capital market, which draws away enormous amounts of potential European venture capital. A third factor is the tendency for European innovation to originate from large rather than small firms and to concentrate on process rather than product innovation. For trans-European initiatives, the need to work in a range of different jurisdictions creates further barriers.

Focusing more closely on the areas deemed appropriate for support through the Action, the survey asked about three related aspects of areas related to the current Annex I: the *relevance* of public support, the need for public support (inadequacy of private support) and the *trans-European* character. They lend support to the appropriateness of including an indicative list of sectors related to those identified in the e-Europe initiative. The results are summarised in the supporting volume. We ranked the areas of general interest as follows:

- Relevance = 2*{“very relevant”} + 1*{“relevant”} - 1*{“irrelevant”} - 2*{“very irrelevant”}
- Need = 2*{“insufficient”} - 1*{“slightly sufficient”} - 2*{“completely sufficient”}
- Trans-European = {”Yes”}

These rankings are shown in Figure 4 below: rankings of areas of common interest by relevance of public support, need for public support and trans-European dimension.

**Figure 4. Rankings of areas of common interest by relevance of public support, need for public support and trans-European dimension**



Among those doubting the relevance of the Action, four reasons were most often cited.

i) basic networks are or should be addressed by operators or private funding;

ii) generic services in the areas of multi-media, e-commerce, research and mobile and fixed broadband networks can be adequately supported by private funds;

iii) networks for access to Europe's cultural heritage, health, new methods of work, job markets and research are already funded through other activities;

iv) certain areas evolve too quickly for efficient public intervention.

- Often-cited advantages of the Action include business and near-market orientation, support for (esp. public-private) partnerships and trans-European characteristics. Others include autonomy, clarity of aims, wider market perspective and suitability for start-up firms.
- Often-cited disadvantages of the Action compared to similar intervention programmes include delays that increase time to market, lack of programme focus, and insufficient level of support. Others include inappropriate attempts to unify local solutions, overlap with other programmes, complexity of terminology and proposal conditions, a level of technological focus that appeared to exclude some good ideas, inapplicability to user organisations, failure to enforce linkage to successful service delivery.
- The respondents see most synergy effects between the TEN Telecom Action and the IST programme (68%), followed by the ESPRIT programme (47%, part of the now closed 4th Framework Programme). Compared to the other projects, a relatively high percentage of respondents feel that there is no synergy or overlap between TEN Telecom and the Structural funds or the Risk capital undertakings. Most respondents are not aware of IDA, the European Investment Bank and the European Investment Fund, which explains that eight out of ten people don't know whether or not there are any synergetic effects with TEN Telecom.
- Most respondents thought Annex I was at least somewhat appropriate to its intended purpose. It is regarded as moderately flexible, and many used it as a screen to see whether there was a potential match between their projects and the Action.
- A shorter set of clearly explained categories, possibly with examples, was mentioned by respondents as a possible modification to Annex I. The current comprehensive structure could be read as discouraging potentially useful projects.

### 3.1.4 In-Depth Interviews

***Opinions: technology and development***

Despite recent problems with the so-called new economy, most experts believe the communications revolution will continue, bringing further technological and market convergence and increased focus on mobility. Experts differ about the significance of mobile telecom technologies, with some arguing that everything will become mobile while others maintain that mobile communication will remain an extension to fixed technologies. Liberalisation of the telecom market is set to continue although incumbents will continue to hinder new entrants. The drive towards more competition also stems from the choice demanded by technology users.

***TEN Telecom impact and relevance***

Most respondents question the market relevance of the TEN Telecom Action as currently implemented for the following reasons:

1. Financial support is very limited compared to market size and levels of investment by key market players. Annual EU investment volume is 2000 times the TEN Telecom budget of 50 million Euro.

2. The Action lacks a clear focus. The telecom market is very broad, so the Action should clearly *define* "trans-European" and "projects of common interest."

3. There does not seem to be sufficient co-ordination with other telecom-related EU programmes.

4. Integration with other funds (EIF/structural funds) that seek to support new, promising initiatives in the sphere of SMEs could be improved.

These concerns do not imply that the TEN Telecom Action *per se* has no relevance. There is widespread agreement that an EU contribution in the domain of telecom services and applications can make a difference. It *does* imply that the Action needs a clearer focus on its exact role in the telecommunication sector and its relation to other EU programs and actions and the market as a whole.

The respondents share a common opinion about the desirability of the following.

- Linking financial support to the activities of other EU financial institutions, like the EIF and the EIB. Accordingly, support channels *and* modalities (e.g. debt financing instead of grants) should be altered.
- Adding non-financial support and co-ordination. Given the limited financial scope of the Action, it should seek to bolster its effectiveness by non-financial activities (e.g. networking, standardisation and knowledge-dispersion).
- Limiting activities to services and applications, excluding projects aimed at basic network investment.
- Focusing the Action on critical areas of public concern (health, education, public risk management, and government.
- Improving the definition of project selection criteria, which should be specific enough to support adequate evaluation of the use of grants and as flexible as needed to cope with changing telecom market demands.

### 3.2 Common Themes in TEN Telecom Evaluation

Several themes were common to all the evaluations and investigations in this review. These included the need for investment in basic telecom networks, the relationship of TEN to other telecom projects, coordination of TEN Telecom with other activities, developing guidelines for projects to make enduring contributions, targeting TEN initiatives more toward telecom projects, and devising more projects to attain market success.

#### 3.2.1 Investment in Basic Networks

The TEN Financial Regulation directs TENs to undertake large infrastructure projects, but the TEN Telecom Action primarily promotes applications and services. This emphasis results from a level of funding for telecom infrastructure that is small compared to its costs. Furthermore, since private investors are willing to fund physical network construction and typically recoup the costs of their investments in telecom infrastructure, provided access is fair and efficient, there is little need or case for public funding. Finally, the time scale of the TEN Telecom Action is longer than the rapid pace of technological change in network infrastructure demands. The Court of Auditors therefore questions whether any emphasis on

infrastructure is appropriate for the TEN Telecom Action. The Intermediate Evaluation of the TEN went further, suggesting the "basic network" layer of the TEN Telecom Action for supporting basic infrastructure should be dropped. The technology foresight study predicts future change will be in applications and services, providing further evidence for dropping basic infrastructure as an appropriate area for the TEN Telecom Action. Survey and interview respondents concurred that TEN Telecom is not suitable for infrastructure projects.

An emphasis on services and applications can be viewed as consistent with the original TEN objectives. There are two reasons for this view. First, the Whitebook includes services and applications among goals for TEN Telecom. Second, many areas need support here, and TEN Telecom development of all telecom services and applications that the infrastructure can support is essential to developing the full value of a trans-European telecom network.

### 3.2.2 Relation to Other Programs

Both TEN Telecom and RTD programmes (e.g., Advanced Communications Technologies and Services (ACTS), Information Society Technologies (IST), Telematics) include market-testing measures for technologies, applications, and services. Some of these projects have been submitted both to RTD and TEN Telecom for funding – though not at the same time. Survey and interview respondents indicated that many TEN Telecom projects are a continuation of RTD projects rather than new initiatives.

There are clear differences between the programmes. RTD programmes seek to advance knowledge in a relatively closed environment, while TENs aim to promote operational trans-European networks and produce products and services. Overlaps between the two have resulted from implementation. An occasional lack of suitable proposals for TEN Telecom, for example, may have resulted in support being granted to what were effectively continuations of research projects. Part of this lack of proposals may have resulted from a perceived combination of modest resources and cumbersome procedures in the program, further pushing it toward projects oriented to research rather than market development. Initial implementation of TEN Telecom projects appears to have followed the lead of the IST Telematics programme, introducing overlap between the two. The TEN Telecom Action has not embraced many large-scale projects that are appropriate for TEN action. The RTD programmes have not actively encouraged TEN Telecom proposals for market development of RTD-sponsored projects. In other words, the different initiatives could have, but did not, develop a complementarity strengthening the work of each other without overlap. A similar focus on complementarities could be developed with other programmes focused on single sectors such as administration (IDA) or publishing (eContent).

### 3.2.3 Coordination with Other Activities

The overlaps and complementarities between TEN Telecom and other programmes suggests the need for coordination among activities, both at the Community and Member State levels. Such coordination should not be the fixed, *pro forma* requirement it often becomes, but rather a genuine partnership. A lack of clear structure, poor incentives, insufficient shared knowledge, weakness in or lack of common objectives, and political changes have all hampered past efforts at coordination. Other activities can complement TEN Telecom by supporting different phases in the project life cycle or supporting market development in individual nations. TEN Telecom and other activities also may be partial substitutes for each other, offering funding to similar types of project but using different criteria or providing varying mixes of non-financial support. In such cases, coordination involves determining the best match between project and support mechanism.

### 3.2.4 Developing and Implementing Guidelines

While speed is essential to successful innovations in the rapidly changing telecom sector, this does not mean that the general TEN Telecom Guidelines indeed should be revised frequently. In fact, there may be an advantage in revising the general Guidelines less frequently, particularly if this leads to projects that will be of enduring value compared to projects whose value derives from specific sectors or technologies. The difficulty in "picking winners" in this sector, i.e., in identifying projects that, ultimately, will be a commercial success, underscores the need to design guidelines for projects that make enduring contributions rather than those responding to short-term market conditions.

Greater pre-proposal support and continuity among evaluators can speed the proposal evaluation process. The time to submit proposals may vary greatly from project to project, reflecting the need to coordinate trans-European projects with national authorities. The natural pace of change varies between layers of the sector (i.e., infrastructure, services, and applications) and between different markets (with markets for commercial services changing faster than markets for public services), which in turn requires varying timelines for different proposals.

### 3.2.5 Targeting Projects

The European Court of Auditors called for a greater focus in TEN Telecom projects. The Interim Evaluation called for a reduced number of project areas, with projects identifying a strategic set of cross-sectional issues in a revised layer structure (e.g., dropping infrastructure projects) and including end users in specifying and prioritising projects. Survey and interview respondents also suggested greater targeting of TEN Telecom projects, although the suggested focus varied among participants.

This calls into question the role of Annex I of the Guidelines in project selection and approval, in developing connections between TEN Telecom and other policies, and in choosing to rely on guidance from the market or program administrators. At a basic level, the issue is not whether more focus is needed, but on what the Action should focus. This question is reflected in a certain linguistic inconsistency between the terms 'project' and 'area' (or 'sector'). As written, Annex I chooses to focus on areas rather than projects – there is no *a* priori reason to believe that reducing the number of areas will result in fewer projects. An area focus may be appropriate for a research programme, but is arguably less suited to TEN support, where focus is most valuable during implementation – i.e. at the project level.

A second point concerns the question of how, and by whom, the areas are chosen. The areas of interest for potential telecom proposals listed in the Annex appear to be related more to those of a prior program than to those of the TEN Telecom Action. In guiding projects, a balance must be struck between the interests of the market and those of programme administrators. It would be a mistake not to take advantage of the insights of market stakeholders, but their proposals do not represent an unbiased sample of stakeholders or of all those the Telecom Action seeks to help. Programme administrators may sometimes be better positioned to identify broader interests, as well as to offer insight on opportunities for synergy between the Action and other program. In particular, a project focus might prove more effective in ensuring that TEN Telecom resources produce European benefit, particularly concerning delivery of public services. This comes about both through the strong signal delivered by specifying the project in advance and via the sustained engagement between project and Commission staff that a project focus implies.

### 3.2.6 Attaining Market Success

Only a small percentage of TEN Telecom market feasibility studies resulted in completed business and financial plans, much less successful market implementation of sponsored

innovations. Several variables affect the prospects of TEN Telecom projects in achieving market success. First, available funding is often much smaller than project need. In this regard, we note that the Financial Regulation stipulates a maximum payment of 10% of allowable costs for deployment projects. This seems very low when one considers that TEN Telecom projects produce European benefit by extending the deployment of proven technologies to a trans- or pan-European scale.

This extension necessarily involves development activities to enable the project to meet the needs of people with different languages, legal systems, public organisations and administrative procedures. These differences are significant in the private sector[11] where globalisation and competitive pressures have already produced a degree of uniformity; thus, the costs of 'going trans-European' are likely to be even higher for public services. This is precisely why TEN Telecom support is necessary to realise European added value, and supports the idea that the 10% ceiling should be raised[12]. Second, TEN Telecom projects, being projects with uncertain commercial prospects, face difficulties in attracting private funding. Third, TEN project proposals, as noted, often fail to include business or financial plans needed for market implementation. Fourth, as survey and interview respondents noted, TEN Telecom projects have only weak incentives for pursuing ultimate market success; in particular, researchers sometimes view TEN Telecom grant support as an end in itself rather than a means to pursue greater market reward. Finally, having a large number of small projects works against a high success rate in a field where a critical mass (in terms of project *scale* and trans-European *scope*) is important for market success.

[11] Microsoft estimates that up to 50% of software development cost goes to localization.

[12] In addition, the ceiling refers to a ratio of reimbursed costs to total costs. Clarifying the definitions of allowable and allowed costs may change the meaning of the ceiling in practice. Finally, it is worth observing that the deployment projects least likely to be deterred by a 10% reimbursement ratio are precisely those where the European value added component accounting for the additional costs is least important.

# 4 Recommendations

## 4.1 General recommendations and observations relating to the Action

In this section, we provide some interpretation of five issues relating to the Action as a whole. Although they fall outside the direct scope of this project, they may help to put the specific recommendations made below in context. The first three are related to the communication[13] describing the mechanism for implementation of Information Society actions, which establishes three principles for project support. They concern the demand-driven nature of the Action, the need to target the Action on specific phases in a project's life cycle and necessary co-ordination with other instruments, etc. The remaining two are the definition of basic telecommunications networks and the role of 'projects of common interest' in defining the scope of the Action.

### 4.1.1 Demand-driven projects

Project identification and selection should follow a *demand-driven* approach and use public calls for proposals. 'Demand-driven' projects are essentially those specified by proposers. In the current setting, it may be worth considering expanding this definition in two directions. First, it seems appropriate to encourage the demand side of the market to participate in projects. Second, the approach has always involved a degree of emphasis or guidance by the Commission in the identification of projects of common interest.

### 4.1.2 Project life cycles

The TEN Telecom instrument should be used for near-market activities at the appropriate *phase in the project's life cycle*. Thus it is important to have concrete ideas as to when the two main types of TEN Telecom support (market validation, initial deployment) become relevant and when they cease to be relevant. This has specific implications for such implementation matters as allowable costs, duration and modality of support, etc. Clear limits would tend to maximise the benefits of TEN Telecom support whilst minimising risks of diffused focus, missed opportunities or adverse incentive effects.

It is customary to divide the development and deployment of a new service or application into four phases.

Phase I. The RTD phase covers technical studies, design and development and technical validation. It ends with a well-defined product, service or application. This phase increasingly includes preparation for market feasibility assessment through pilot, demonstration and preliminary market research studies, which are addressed by market take-up actions such as those in the IST programme.

Phase II. The market validation phase covers business and financial plan preparation and market validation studies, which tend to be more explicitly business-orientated than pilot or demonstration projects.

Phase III. The initial market deployment phase covers the first market exposure of the product, service or application. It is designed to verify the results of market validation, creating market presence and mobilising financial and other support for the final phase.

Phase IV. The full market deployment phase covers self-sustaining provision of the product, service or application to users.

[13] European Commission COM (95) 224, 31 May 1995.

The TEN Telecom Action is aimed at Phases II and III, feasibility validation and initial market deployment. A project's ability to benefit from the support on offer depends on market proximity and commitment to eventual market deployment.

Market proximity means that the project is ready for market deployment and has good prospects for eventual success. It must be based on proven technologies and all necessary pilot, demonstration and preliminary market research studies must have been completed.

Commitment to eventual deployment implies that proposals must clearly indicate planned progress towards business plan development (for market feasibility studies), financial planning, resource mobilisation and soundly based business decisions about full-scale deployment.

With regard to the boundary between Phases I and II, an essential indicator is proof of technical feasibility within a mature technology. This does not mean that no further development is needed - for instance to adapt the product to real or different markets. In some ways, the problem of how to avoid funding research that is not of this nature is the reverse of the problem faced by RTD project officers, who want to fund research and avoid funding product development *per se*. In this sense, liaison would be helpful in establishing a consistent set of criteria that draw lines respected by both the RTD and the TEN Telecom sides.

The evaluators noted[14] the possibility of overlap between Phase I *technical* feasibility demonstrations (within the remit of research support programmes) and Phase II *market* feasibility studies (covered by the TEN Telecom Action). They found effective co-ordination between research support programmes and the Action to date, but suggested a need to clarify the boundaries as the scope of "market take-up" measures supported by the Framework research support programme expands.

The distinction between Phases III and IV is a problem not solved by the market. The 'perpetual adolescence' of some high tech start-ups (notoriously dotcoms, but many others fit as well) is eloquent testimony to this. Thus there is no satisfactory accepted practice or validated indicator to use. It may be best to define Phase III in terms of three limits: *time*, *resources* and *market reach.*

An initial market deployment should avoid heavy sunk costs, retain certain flexibility, and be limited in scope in order to ensure adequate uptake and a sound base for expansion. Rolling out a product on a wide scale before it has been tested in a limited 'real market' is a recipe for disaster. A deployment project should establish a clear plan for test-marketing and initial deployment, followed by a clear-cut business decision about full deployment. Of course, no generic definition can apply both to products with a wide potential market and to products that will always serve a specialised audience. The thrust of these recommendations is to establish a default suggestion and a set of principles for customising it.

### 4.1.3 Co-ordination

A problem to be solved is the co-ordination over time of the availability of the different financial support. This specifically foresees the co-ordination mechanism embodied in the TEN Telecom action and provides the basis for enhanced co-ordination where necessary. Co-ordination should be improved with regard to Information Society policy objectives, other support instruments (esp. Framework RTD support programmes), other finance sources (esp. the European Investment Bank and the European Investment Fund) and Member State counterparts.

[14] Cf. "Intermediate Evaluation of the TEN Telecom Action." Section 8.6.

### 4.1.4 Basic telecommunications networks

There is evident need for a clear definition of a basic communications network that covers its similarities to and differences from trans-European networks in the areas of transportation and telecommunications. The Guidelines Decision carefully defines trans-European networks in the telecommunications area as comprising three layers: applications, generic services and basic networks. Progress towards the information society requires the availability of services and (especially) applications of common interest; in most cases these can be implemented via existing networks. Evaluators and other commentators have commented that it may not be appropriate to strictly partition projects of common interest among separate layers. First, the term 'basic networks' suggests (physical) infrastructure to many stakeholders. Second, a strict division of projects into one of three mutually exclusive categories seems to downplay the rising importance of convergence. Finally, the relative scarcity of basic network projects among those supported by the Action is taken by some to imply that the level and modality of support offered is inappropriate to basic network projects.

In our view, it is useful to conceive of a basic network of interconnection and communication. This definition focuses attention on interconnection and interoperability on a trans-European scale. Progress towards such a network can be attained or encouraged by provision of generic services and applications that rely on such networks.

The case for public support is enhanced by this view, which draws attention to 'network externalities' –the effects of network enhancement and extension are felt throughout the network and not limited to those who directly undertake the investment. As a result, social benefits offered by such projects may exceed the private returns on which commercial financing decisions are based, particularly in the early phases of market validation and deployment.

Moreover, this definition is inherently neutral with regard to technology, and is scaleable to cover e.g. city, regional, satellite, etc. networks. What is particularly relevant is that the network is distinct from the physical infrastructure. For instance, a satellite-based network of communication may be established simply by purchasing transmission capacity on existing satellites.

Layers should be reinterpreted to emphasise that they are the main focus for specific projects, but not a constraint on how they are conceived and implemented.

### 4.1.5 Projects of common interest set the scope of the Action

The demand-driven nature of the Action, budget limitations and active private-sector investment limit the scope for large public infrastructure projects typical of the transport and energy TENs. Annex I primarily provides descriptions of *general areas* of activity. The Guidelines inform potential participants[15] in advance of programme implementation, ensuring a healthy set of proposals appropriately close to market deployment.

Overall, survey participants found the listing in Annex I lacked a specific focus on overall objectives. The implicit assumption was that candidates should match one of the listed projects fairly exactly, leading to an emphasis on projects concerned with new services and applications rooted in the fruits of recent research. Such projects tend to be new to the market and technology-driven and thus more likely to be market validation than initial deployment projects. Other types of project can also be useful in meeting the Action's objectives. In

[15] Typically, those in a position to supply and/or demand services and applications that serve trans-European public as well as private interests and strengthen the interconnection and interoperability of Trans-European telecommunications networks.

general, projects could reflect one of four views as to how European added value could be achieved.

1. Provider-led projects to expand the scope (countries, sectors, public or private domains) of existing technologies, services and applications;

2. User-led projects to identify and deploy new technologies, services and applications to meet existing needs;

3. Provider-led projects to verify market feasibility and undertake initial deployment of new technologies, services and applications to meet new needs; and

4. User-led projects to develop new solutions to problems involving the delivery of services of general interest.

## 4.2 Recommendations and observations relating to project selection and implementation

This section presents recommendations relating to five aspects of project selection and implementation: a two-tier project structure; improved co-ordination; geographical integration; incentives for project progress; and categories of allowable costs.

### 4.2.1 Two-tier-structure (including foresight in WP, Call development)

Most commentary on TEN Telecom touched on the relatively modest size of the support available, and recommended adjusting support to reflect project type and the administrative burdens, side constraints and delays associated with TEN Telecom proposal and implementation procedures. There seemed to be arguments in favour of both 'fast-track' procedures for smaller-scale projects and careful, deliberate support programme for larger, strategically targeted initiatives. This implies the two-tier structure shown in Table 1.

***Table 1. Recommended two-tier project portfolio***

| Tier | Characteristics | Scale | Timing |
|---|---|---|---|
| I | Strategically chosen via consultation among trans-European supply, demand sides. | Co-ordinated sets of projects focusing on general interest | Fixed call |
| II | Defined by proposers in response to general specification | Small, near-market projects | Rolling call |

Tier I would comprise a few large-scale projects selected according to strategic terms of reference developed by consultation with area stakeholders and appropriate Member State and EC representatives, and that focus on general interest. For instance, in the area of health applications, a group representing telemedicine policy or prescription drug procurement agencies could meet on a periodic basis. The primary purpose would be the exchange of ideas, good practice or risk experience between supply and demand sides of the market. As an important by-product, promising avenues for self-supporting projects involving wider application of proven services and applications can be explored and a framework developed for specifying *a set of crosscutting projects* to be pursued simultaneously in several Member States. The set would be chosen to test a variety of approaches to a given issue, and/or evaluate the implications of national differences. The whole would therefore be more valuable than the sum of the parts, and the entire set would be squarely aimed at the trans-European dimension.

Such projects would necessarily involve more resources, greater co-ordination and more time than a typical TEN Telecom project, though Member States should defray a substantial proportion of costs arising in their own economies. Both multi-annual duration and co-funding are explicitly foreseen in the (revised) Financial Regulation. Projects would be specified and bids solicited with a fixed Call[16], which would also ensure a balance of projects across relevant dimensions.

Tier II projects would comprise market projects in which both suppliers and consumers help to formulate and conduct projects oriented to different areas or market segments, still on a trans-European basis. Tier II projects, being more market-oriented, should be more open in their definition, i.e., defined by grant seekers rather than by programme administrators. Such proposals should have a trans-European dimension, be of common or general interest, and be applicable to current market conditions but lack sources of private funding. Frequent calls for proposals and fast-track evaluation of these should be used to minimize time to market. The change will mobilise higher levels of support for strategically chosen projects co-ordinated across Member States and time to maximise utility for the Community as a whole, ensuring a broadly based and appropriately-specified market deployment of projects of common interest. The stakeholders would sharpen focus on areas of common interest, mobilise complementary national and regional support and ensure that a wide range of relevant information is taken into account. The networking activity could produce other benefits in the substantive domain (e.g. telemedicine). For Tier II projects, the emphasis on demand-led deployment projects and use of a rolling Call would shorten time to market.

### 4.2.2 Improved co-ordination with funds and other (EU) programmes

Co-ordination should be improved with regard to Information Society policy objectives, other support instruments (esp. Framework RTD support programmes), other finance sources (esp. European Investment Bank, European Investment Fund) and Member State counterparts. *Co-ordination with Information Society policy* is implicit in recommended changes to Annex I.

*Potential overlap with other support instruments* was a consistent theme in the Court of Auditors Report, the Interim Evaluation, the survey and the in-depth interviews and is discussed above in terms of the boundaries of the Action. Some projects may straddle these boundaries and others may migrate from research to market deployment. Present co-ordination activities should continue, and may be amplified by information exchange at the project level (e.g. information from research projects 'migrating' to TEN Telecom may be relevant to the market deployment proposal). Another useful activity would be to make co-ordination activities more visible and thus increase their utility to the involved organisations. Formal co-ordination at the Work Programme level would probably slow the process too much to be practical. Instead, advance co-ordination with the option for representation on project selection teams and the ability to refer projects of sufficient maturity and common interest would supplement existing co-ordination mechanisms. This should be facilitated by the common ground represented by the e-Europe initiative. These changes would clarify the operational meaning of the Action's focus, reduce the possibility of encroachment or duplication and facilitate the development of synergies.

To improve *co-ordination with other finance sources*, those seeking information about proposals could be advised of the availability of these instruments and encouraged to seek this sort of funding where appropriate. Survey respondents did not see direct risk capital provision by the TEN Telecom Action as particularly relevant. Interview subjects further pointed out

[16] The overall 10% cap embodied in Article 5(3) would still apply to the Community portion. This would be linked to an estimate of total investment cost. In the case of a project that lays the foundation for a trans-European rollout, it is an interesting question whether this cap relates to investment costs for the full market deployment of the pilots or the whole project.

that this might carry additional risk. Indirect participation through interest rate subsidies, loan guarantee fees, etc. was universally regarded as a useful addition. Co-ordination with EIB and/or EIF to develop appropriate linkages is already ongoing. This will make more money available in the short run, sharpen business incentives acting on projects and facilitate access to medium-term finance for full market deployment. In addition, it would bring TEN Telecom projects into early contact with financiers, laying the groundwork for future market deployment finance and increasing business discipline. Finally, it would strengthen connections between the Action and the public and private finance communities.

*Co-ordination with Member States* can also usefully be reciprocal. The Action should support periodic exchange with national counterparts to identify gaps that can be filled by Member State action, develop suggestions for strategic cross-country projects and determine the scope of necessary specialisation or localisation for projects originating in different Member States or regions. This could also identify co-funding possibilities between the Action and national programmes, with TEN Telecom support carefully directed at the trans-European dimension. This would lead to a stronger set of projects. There would be greater possibilities for mutual reinforcement, lessons learnt and identification and dissemination of good practice. Moreover, it would be easier to attain critical market mass and build truly trans-European initiatives involving consortia of national organisations with complementary competencies.

#### 4.2.3 Integration

The impetus towards Accession and the elaboration of regional telecommunications development largely arose after the present Guidelines were drafted. Many fundamental problems addressed by the Action (particularly basic network interconnection and generic service access and quality) are sharpest in Accession States and (in a slightly different way) at the regional level. Enterprise risk is particularly marked in Accession States and private finance is often severely restricted. Possibilities for synergies between Member and Accession States are particularly marked in this area.

One specific issue concerns projects of common interest that reflect regional preferences. At one level, these can be handled through the proposed co-ordination mechanisms and are clearly within the scope of many of the recommended projects of common interest. On another level, they raise concerns about *equity* (whether some regions will benefit unfairly), *scope* (whether regional preferences are appropriate guides for Community action) and *remit* (whether such projects are not more properly handled by Structural Funds, the Cohesion Fund or other instruments). With regard to equity, the proposed two-tier structure (particularly Tier I) provides an ideal vehicle for maintaining regional balance. As far as scope is concerned, regionalisation is officially recognised as an increasingly important dimension of policy in the telecommunications area[17]. Finally, the extension of proposed co-ordination activities to include instruments with regional competence will provide an appropriate platform for addressing the issue of remit that will become increasingly important as accession proceeds.

Additional benefit would arise in terms of the *acquis communautaire;* solutions would be increasingly consistent across Member and Accession States. Other spillovers include the mobilisation of increased private enterprise capital for sustainable businesses producing services of common interest in a part of Europe where this is sorely needed and the inclusion in TEN Telecom projects of countries whose experience is of direct relevance to the future structure of the Union.

[17] Address by Commissioner Likkanen to the Helsinki summit, 2000.

### 4.2.4 Incentives for project progress

There is evidence of problems with project progress and ultimate market take-up. Three solutions are recommended: *claim articulation* - requiring proposals to demonstrate need and commitment, *non-financial support* and *direct incentives*. They can increase the extent to which projects are conceived and implemented with the aim of achieving steady progress towards market deployment and place the project on a sound contractual footing.

TEN Telecom projects should *require* Community support. The justification of project objectives in terms of the Action should be required by Annex I. They should not be attainable (or only attainable in limited form) without Community support. This is a difficult test. Some suggest that projects with good prospects of ultimate success will already find support from private financiers. On the other, those surveyed in the Intermediate Evaluation overwhelmingly asserted that their projects would not have proceeded without Community support. This was reinforced by evidence that unsuccessful proposals were dropped or pursued only in limited form.

To produce the greatest benefit from available resources, we need better information as to whether common interests are not recognised by private financiers. Proposals should address the issues of common interest, financial obstacles and telecom added value explicitly. This will provide assurance that projects are worthwhile and need support. Those making proposals will be encouraged to explore other finance options first, which can screen out those where common interests can be advanced without use of Community resources. This would have the side effect of increasing the flow of such projects to private markets and increasing the willingness of venture capitalists to fund such projects on their own.

Of course, Community support is an important stamp of approval - projects failing to obtain private finance because of short-term commercial risk can ask venture capitalists whether TEN Telecom support is likely to tip the balance in favour of sustained funding. This information could be used to strengthen the proposal. The overall effect on the Action is to simplify proposal evaluation and improve the likelihood that a successful proposal will become a successful business venture.

*Non-financial support* can address problems found in the Intermediate Evaluation with business and financial plan development. The Action supports these activities through another means, but more direct linkage by TEN Telecom staff could ensure that financial and non-financial resources were combined in a fruitful way.

The survey and interviews indicated that the Action could serve as a network resource in its own right, facilitating information exchange and smoothing the development of productive relationships among entrepreneurs, innovators and financiers. The change can be effected by specific guidance at the pre-proposal or contract negotiation stage, backed by a web-based platform for networking and information exchange. This could include project highlights of relevance to those interested in proposing different projects (e.g., “this project served the following common interest in the following way”) and results of project evaluation and project progress indicators.

Two procedural changes can strengthen *direct incentives* for project progress. First, project contracts should specify milestones and put mechanisms in place to ensure they are achieved. This necessarily involves evaluation, which is receiving increasing emphasis in Community projects even in the research area. A second step might be an explicit policy of paying for deliverables as is being considered in the context of Sixth Framework development.

These measures should increase understanding of steps necessary to achieve market penetration and progress towards specific objectives necessary to obtain finance. In addition,

milestone assessment can facilitate future evaluation of the Action, build tools and insights appropriate to understanding the particular characteristics of TEN Telecom projects and sharpen understanding of the steps required to successfully launch projects of common interest.

#### 4.2.5 Categories of Allowable Costs

TEN Telecom support is limited by co-funding constraints. Market validation projects may be reimbursed up to the smaller of 50% of total allowable cost and 10% of estimated total investment cost. Deployment projects are limited to recovery of 10% of total estimated investment cost (which must include any previous market validation support).

These limits could be altered by the choice of an appropriate *funding model*. A 50% limit is associated with the full cost (flat-rate overhead) model; this is not available for deployment projects and is compulsory for private companies. Non-private entities whose cost accounting systems allow imputation of personnel time to specific projects may claim 100% of *additional* direct costs (not including permanent staff costs) plus up to 20% overhead under the additional cost model. There are detailed regulations governing the implementation of these models, including reporting and record-keeping requirements.

From an economic perspective, these constraints may reduce the attractiveness of support or distort staffing; in particular, organisations using the additional costs model are compelled to use temporary staff for carrying out project activities. This seems particularly inappropriate to business start-up activities. While project staff could be made permanent once EC support has ceased, the parent organisation can no longer receive reimbursement for their time on other projects under this model.

Additional economic aspects of the costing model include the non-recoverability of bid and proposal costs, which increases the deterrent effect of prolonged or complicated proposal and negotiation procedures. Onerous requirements on attribution of joint costs limit opportunities for internal leverage and synergy. Inability to cover future losses or liabilities may be significant in deployment projects. Inadmissibility of many categories of commercial, distribution, etc. costs narrows the base on which total investment cost is computed.

### 4.3 Recommendations and observations relating to Annex I

At present, Annex I identifies projects of common interest through a listing of 19 categories divided among three market layers. A revised Annex I, redrafted each year, should very precisely reflect changing policy priorities and sector developments. In response to a consistent pattern of commentary emerging from the background evaluations and the studies undertaken in this project, we suggest the following structure:

- An introductory section laying out the focus of the Action
- A section relating the identification of projects of common interest to the broader policy context provided by the TEN initiative, in particular laying out the meaning of ‘basic telecommunications networks’ (see Subsection 4.1.4 )
- A specific statement of the implications of these interpretations for eligible projects, intended to direct attention towards alternative project types and forms of support (see Subsection 4.1.5 ).
- A revised indicative listing of project areas

- A section on supplementary support and co-ordination actions[18]

The rest of this section discusses the first, fourth and fifth of these recommendations.

### 4.3.1 Focus of the TEN Telecom Action

Evidence suggests that the focus of the Action is not clearly understood. The focus may be conceived in two dimensions. These are shown graphically in Figure 1 on page 13.

- The Action applies to different *phases in a project's life cycle* (see Subsection 4.1.2 ).
- *The specific objectives of the Action* focus attention on projects having a trans-European dimension[19], public interest in the results of project deployment and a need for public support.

Three main features differentiate the objectives of this Action from those of other Commission programmes:

1. Trans-European dimension[20] - the meaning of "Trans-European" varies with type of project, but should mean a specifically trans-European or pan-European focus for the project, involving interconnection or interoperability of networks[21] at a trans-European level. The Guidelines Decision establishes priorities for the Action that lay heavy emphasis on the trans-European dimension[22]. In particular, the third Priority discusses "trans-boundary regional initiatives and initiatives involving regions, in particular the less-favoured ones." It is also important to stress that inclusion of consortium members from a range of Member States is neither necessary nor sufficient to meet this test.

2. Public interest – Annex I provides working definitions of the common interest served by projects which should be directly reflected in project objectives. This focus is entirely appropriate to near-market activities. Projects should be clearly linked to and serving *public interest objectives* and priorities expressed in Articles 2 and 3 (respectively) of the Guidelines Decision, or support provision of *services of general interest* as discussed in Article 16 of the Amsterdam Treaty[23].

[18] This is retained from the present Annex I. Its importance is underlined by Recommendation 4, which indicates the desirability of selecting a few strategic, cross-sectional issues. These could be selected in consultation across potential users, suppliers, Member State representatives and other Commission offices. Recommendation 6 also highlights the importance of considering user demand as well as supply factors. The foresight research undertaken in developing the proposed revision suggests that both of these targeting activities may be appropriate aspects of Work Programme development.

[19] Particularly where this builds on interconnection and interoperability of basic telecommunications networks.

[20] Cf. Recommendation 2 above

[21] The objectives presented in Article 2 of the Guidelines decision specifically refer to "the need to link island, land-locked and peripheral regions to the central regions of the Community."

[22] In addition to the direct call in Priority 3, Priority 1 speaks of a "European information society," Priority 2 speaks of access to information "throughout the Community" and Priority 5 concerns "trans-European generic services."

[23] The evaluators specifically identified the e-Europe initiative in discussing the relevance of the Action. This importance of including these objectives and the related relevance of services of general interest in the definition of common interest, were further borne out in the in-depth interviews and the surveys conducted by the evaluators and the team analysing the status of the Guidelines. They are also reflected in the language of the Guidelines Decision, which calls on the Commission to "facilitat(e) the transition to the information society." It should also be noted that the first priority speaks of "applications of collective interest."

This definition of public interest indicates clearly the support to basic networks that is potentially consistent with this Action. It is worth recalling the following objective of the e-Europe initiative:

> *"… for Europe to become the most competitive and dynamic economy in the world, in this exploiting the opportunities of the new economy and in particular the Internet…"*

This was refined at the December 1999 launch of the initiative into three key objectives:

- Bringing all Europeans into the digital age and online.
- Creating a digitally literate Europe, supported by an entrepreneurial culture.
- Ensuring the process is socially inclusive and builds consumer trust.

While the e-Europe initiative is only part of a larger set of policies towards realisation of the information society, it serves as a useful focal point. It represents a clear statement of relevant objectives that are likely to remain even as the initiative evolves.

The definition of services of general interest given in Article 86 of the Treaty refers to market and non-market services which the Member States subject to specific public service obligations by virtue of a general interest criterion. Article 16 of the Treaty places them among the shared values of the Union as important contributors to social and territorial cohesion. It is often the case these services cross boundaries separating public and private domains. Projects that promote such services may have to address new markets supporting delivery of public services.

While such 'public markets' make increasing use of methods drawn from the private sector, it is by no means clear that the associated risks to commercial suppliers can be evaluated using conventional private sector investment and business analysis models. Hence, supplies of private venture capital are often limited.

Support by the Action in this area could increase the mobility and utility of such funds by removing, reducing or shedding light on these risks and facilitating their management. This linkage could be made explicit in the revised Annex I to strengthen the mutual consistency of the Guidelines Decision and Annex I and to distinguish the TEN Telecom objectives from those of many other research or Structural Fund activities.

3. Need for public support – projects should be clearly ready for Phase II or Phase III support; as discussed in Subsection 4.1.2 they should be *ready for market deployment* and have *good prospects* for eventual success. Proposals must clearly indicate *planned progress* towards business plan development (for market feasibility studies), financial planning and resource mobilisation and soundly based business decisions about full-scale deployment. Public support should be *relevant* to the substantive area. The proposal should provide *evidence of financial hurdles* and reasons why the level and type of public support requested will overcome these hurdles. It is worth noting that availability of this evidence will different between market validation and initial deployment projects.

   Most projects to date have been market validation studies. This may reflect the amount of support on offer together with the fact that projects successfully completing Phase II may be able to attract other forms of support for initial and full market deployment. A *2-phase evaluation procedure* can enhance the efficient use of public funds.

   Projects applying for Phase II support will naturally not have as much evidence of financial hurdles so proposal evaluation will be more closely linked to product and market definition. Proposals for Phase III financing will be able to provide greater evidence of

financial planning and obstacles, so proposal evaluation will have a stronger financial component.

The Financial Regulation describes *alternative financial instruments* extending the grant modality that has characterised TEN Telecom support to date. The following funding instruments can be used:

- Co-financing of studies related to projects, including preparatory feasibility and evaluation studies, and other technical support measures for these studies.
- Interest subsidies for loans granted by the EIB or other public or private financial bodies.
- Contribution towards loan guarantee fees imposed by the EIF or other financial institutions.
- Direct grants to investments in duly justified cases.
- Risk-capital participation and substantial private investment.
- Combinations of these possibilities up to maximum of 10 % of the total investment cost of a project.

The survey and stakeholder interviews indicated that these instruments have considerable untapped potential. Annex I can draw attention to these instruments, and stress their role in mobilising capital from other public and private sources. This simultaneously addresses concerns about the size of support available under the Action and calls for greater co-operation among funding bodies. Such co-operation can identify synergies, reduce duplication, and sharpen the focus on projects that promise to serve common interests and would not be adequately undertaken without Community support.

### 4.3.2 Revised list of indicative project areas

The current text of Annex I is primarily devoted to a listing of projects of common interest. It also contains a section highlighting projects of particular interest. We recommend a simplified approach. The projects recommended for inclusion below were identified by survey participants as meeting the three criteria of trans-European dimension, public interest and need for public support. Several projects in the current Annex I could be omitted, and others reworded to minimise technological specificity and avoid excluding projects that cross network layers.

***General changes***

We recommend two general changes to the listing of projects of common interest in Annex I.

- The listing should clearly indicate that these are areas for projects rather than specific projects *per se*.
- Projects can (if desired) be arranged according to the layer on which they are focused. The text should clarify that projects need not be limited to a single layer. Project descriptions should reinforce this division through consistent use of language.
- Where projects are likely to cross layers, we recommend the term “Services and applications for …”

***Projects focused on the application layer***

With regard to projects focused on the applications layer, we suggest the following (listed in order of appearance in Annex I).

- A network for universities and research should be dropped. According to the Intermediate Evaluation, "(n)etworks for research are seen by a number of respondents as extensively covered by both EU, national and regional programmes and not in line with the Actions purpose of focusing on feasibility and early deployment.[24]"
- Distance education and training centres should be retained as part of a broadly-drafted "Services and applications for education and training."
- Health telematics should be recast as "Services and applications for health and social care" to include social care services, especially for the elderly, in light of survey results and the requirements of Paragraph 8 of the preamble to the Guidelines Decision.
- Transport telematics – should be retained as "Services and applications for transport."
- Telematics for the environment should be retained as "Services and applications for environment and emergency management."
- Teleworking should be combined with Telematic services for the job market into "Services and applications supporting new methods of work and the operation of trans-European labour markets." The rewording combines services for the job market with new methods of work (including telecommuting) and emphasises the trans-European contribution to meet survey perceptions that such projects should be undertaken locally.
- Telematic services for SMEs should be retained as "Telematic services and applications for SMEs." The rewording highlights the role of applications for SMEs that may not be involved in e-commerce *per se*.
- Electronic tendering should be absorbed into a new project area "Services and applications for administrations" (see below).
- City information highways should be dropped in light of survey findings that the trans-European dimension was not sufficiently developed and that Community-level public support was relevant in this area. Projects extending interesting services and application from one city or region to another can be included in the new "Services and applications for administrations" project of common interest (see below).
- Library services should be combined with "Cultural and linguistic heritage" into a reworded "Access to Europe's cultural and linguistic heritage" project, to recognise the role of libraries as repositories of Europe's collective knowledge and cultural heritage.
- Telematic services for the job market – see "Telematics" above.
- (**New**) Services and applications for administrations. This project of common interest includes the electronic tendering project and the emergent themes of e-government and e-democracy. It addresses a range of service and application deployments on markets where the user (demand) side is represented by public bodies or private organisations acting on behalf of public bodies. Such users frequently deliver services of general interest or carry out public functions under contracting-out or public-private partnership arrangements.

  The spread of such arrangements, the need for Member State administrations to interact smoothly and the fact that public procurement supply spans the Single Market provides the requisite trans-European dimension. Public interest is implicit in the services delivered - particularly the delivery of public services, strengthening transparency and accountability of public bodies and citizen access to public information. Public support is

[24] Cf. "Intermediate Evaluation of the TEN Telecom Action." Section 5.2.1.

needed because these markets are difficult for conventional risk capital providers to assess. Projects that extend good practice from one administration to others on a trans-European, pan-European or regional basis are welcomed.

***Projects focused on the generic applications layer***

With regard to projects focused on the generic services layer, we recommend the following.

- Implementation of operational trans-European generic services should be retained. While progress in making email, file transfer and online database access has been rapid, problems of interoperability and security remain.
- Progressive extension of generic services towards a multimedia environment should be dropped in light of survey results indicating that Community-level public support beyond that available in other programmes is not relevant in this area.
- Introduction of non-proprietary digital signature as a basis for open service provision and mobility of use should be combined with other basic services into "Services supporting e-commerce." The natural overlap with "Services and applications for administrations" can be managed by recognition that e-commerce includes government-to-government (G2G), government to citizen (G2C) and government to business (G2B) as well as more conventional B2B and B2C transactions. The scope of the services should be broadened to include authentication, integrity, security, rights management, electronic payment and open Smart Card services.
- (**New**) New access methods and devices; mobility and convergence. This project of common interest embraces cross cutting projects that provide alternative means of access, enhancing the range of information and services available to citizens and extending their participation in the information society. It embraces projects difficult to classify elsewhere, and includes 'visionary' access methods and devices with the potential to transcend current use patterns. Trans-European character must be demonstrated, but may involve *location independence* or novel combinations of *pan-European standardisation* with appropriate '*localisation*' (e.g. automatic language recognition and translation) or *connection of remote regions* (e.g. through wireless delivery of enhanced universal services). Public interest is related to the broad information society objectives in Article 2 of the Guidelines Decision, and need for public support is related to high levels of enterprise risk associated with deployment of such projects, particularly where the public interest component is strong.

***Projects focused on the basic networks layer***

With regard to projects focused on the basic networks layer, we recommend the following.

- Euro-Integrated Services Digital Networks should be dropped in light of survey and interview results indicating inappropriate technical specificity, diminished relevance of Community support and diminished need for public support.
- Commercial introduction of Asynchronous Transfer Mode (ATM) and other IBC networks should be dropped in light of survey and interview results indicating inappropriate technical specificity, diminished relevance of Community support and diminished need for public support.
- Interoperation of existing and IBC networks should be retained, and projects aimed at integration of remote regions encouraged. Perhaps interconnection and interoperation of remote region networks should be a project in its own right, but the same purpose can be accomplished by clearly indicating that the project includes both "interoperation of existing networks" *and* "Interoperation of existing *with* IBC networks." Such projects

could also be aimed at removing barriers among national networks, especially in *accession countries*.

- Development of fixed, mobile and satellite networks can be retained or absorbed into "New access methods and devices; mobility and convergence." (see above)

#### 4.3.3 Support and co-ordination measures

This should be retained; all available evidence points to its continued relevance and importance. The former paragraph 4 on projects of particular interest should be dropped, assuming that Annex I reflects current priorities.

In view of Recommendation 8 in the Intermediate Evaluation, additional text should be added to highlight the importance of collecting and disseminating information about TEN Telecom projects. This can build awareness, improve co-ordination and increase the return to existing projects by building a set of examples for use by future applicants and other providers of financial support to near-market activity.

# Appendix 1 – Main Findings of the Foresight Study

***Table 2. Trends and developments in the application area.***

| | |
|---|---|
| **Applications for SMEs** | |
| **Technology Development:** | • (Emergence of .com companies)<br>• Increasing adoption of ICT business advantage by SMEs |
| **Market Development:** | • Easy use<br>• Flexible solutions with reasonable costs<br>• Increasing business and customer interaction, falling operating costs |
| **Scope for support:** | • **Improved access to information and e-commerce services**<br>• **Applications linking SMEs with each other, customers and public authorities** |
| **Administration** | |
| **Technology Development:** | • Digital document, electronic signature and electronic tendering protocols at national and international level<br>• To use single access channel to all public information |
| **Market Development:** | • Improvements in the effectiveness and quality of public services<br>• Improvements in the relations between governments and citizens<br>• Horizontal co-operation among municipalities<br>• Access to public administration databases<br>• To rapidly obtain and change complete information between administration and citizens |
| **Scope for support** | • **Applications secure and efficient supporting citizen access to public information and on-line public services (C2G and C2G)**<br>• **Applications supporting electronic tendering (esp. on a trans-European basis) and other business-to-government (B2G) traffic**<br>• **Applications supporting Intra- and inter-government communication (G2G)** |
| **New work methods and services for the job market** | |
| **Market Development:** | • Expansions in the number of mobile and remote workers<br>• Increasing scope for participation of under-represented groups<br>• Apparent shortages or mismatch of ICT-related skills and experience<br>• Management, support and training for teleworking |
| **Scope for support** | • **Job placement and other electronic labour market applications**<br>• **Applications facilitating new methods of work.** |

***Table 2. Trends and developments in the application area.***

| | |
|---|---|
| **Education and learning** | |
| **Market Development:** | • Training organisations using ICT to deliver their training courses<br>• Integration of ICT training courses to their training policy<br>• Modifications/effort in organisational structures, training, harmonising content, and costs linked to adapting a product/service to a national context, standards, etc.<br>• Challenges linked to the structure of working population, the needs and requirements of specific groups, bringing training courses inside SMEs and organisations, enriching education and training content<br>• Production of multimedia pedagogical resources<br>• Wide access to ICT |
| **Scope for support** | • Distance learning applications<br>• Applications facilitating ICT training and knowledge diffusion |
| **Electronic commerce** | |
| **Technology Development:** | • Different types of B2B e-commerce: electronic data interchange, extranets, e-procurement, e-marketplaces, and 'e-tailers' in place<br>• Electronic markets and more variety in B2B business models than in B2C<br>• Mobile e-commerce services<br>• Customer relationship management allowing personalised products or services<br>• Developments e.g. mobile location services allowing new kind of e-commerce |
| **Market Development:** | • Limited share of on-line buyers despite rapid growth in Internet users<br>• Companies need integration of back-end systems with Web front-end, smooth subcontractors, partners etc. relationships and skilled workforce<br>• Customers need security, reliability, individualised content, targeted services<br>• Evolving cost structures, increased competition, financial and related service reform will increase scope for TEN Telecom support and reduce current obstacles.<br>• Implementation of the Electronic Commerce Directive will affect project prospects. |
| **Scope for support** | • Applications supporting portable and secure customer profiling<br>• Applications supporting implementation of e-Commerce Directive<br>• Applications facilitating operation of electronic markets (esp. search, negotiation, consumer protection, etc. |

***Table 2. Trends and developments in the application area.***

**Health**

| | |
|---|---|
| **Market Development:** | • Customised services<br>• Access to health care services independent of patient, provider location<br>• Internet-based services like information, consultancy, networked, transactional, commercial services, health profiling and educational services<br>• ICT-based applications like off-line services, emergency management and smart cards carrying a patient's medical records<br>• Need security, privacy and data protection, validation services and assured quality of online information and diagnoses<br>• Search for, referral to appropriate service providers<br>• Need for secure and handy payment methods and sufficient bandwidth |
| **Scope for support** | • Applications supporting secure and portable patient records<br>• Applications facilitating prescription drug purchase (by health authorities and patients)<br>• Applications providing dynamic referral and brokerage<br>• Applications supporting telemedicine, including paramedic and consultant services. |

**Environmental and emergency management**

| | |
|---|---|
| **Market Development:** | • Increased real-time collection of environmental monitoring data<br>• Increased use of ICT in emergency management systems<br>• Potential for tying e.g. road use charges to environmental impacts |
| **Scope for support** | • Applications for collecting, integrating and disseminating environmental information<br>• Applications supporting improved communication and co-ordination among emergency management authorities<br>• Applications supporting 'smart' green charging schemes |

***Table 2. Trends and developments in the application area.***

**Access to Europe's cultural heritage**

| | |
|---|---|
| **Technology Development:** | • Broadband networks allowing improved access to cultural repositories<br>• Increasing possibilities for digital archiving |
| **Market Development:** | • Local initiatives to digitise text, art, music etc. in libraries, museums, etc.<br>• Proliferation of mixed subscription and public access models for information access<br>• Increasing attention to European electronic and online content<br>• 'Virtual tourism' to provide direct experience and facilitate planned physical access |
| **Scope for support** | • Applications supporting a uniform open standard for preserving and presenting cultural content<br>• Applications supporting networked and integrated access to cultural content in a range of locations<br>• Applications supporting 'value added' multimedia and interactive cultural access packages |

***Table 3. Developments in the generic services area.***

| | |
|---|---|
| **Internet access** | |
| **Technology Development:** | • Free, cheap or unmetered (flat-rate) Internet access<br>• Subscription-less ISP services<br>• Commercial launch of broadband Internet access<br>• Mobile internet access<br>• IP VPN and IP telephony |
| **Market Development:** | • IDC estimates that 81 million Western Europeans use the Internet at least occasionally (once in every three months). This corresponds to 21% of the entire population. Less than four years from now, IDC expects more than half of the entire population to use the Internet. By yearend 2003, 215 million Western Europeans will be online at least quarterly<br>• Progress towards enhanced competition and decreased entry barriers will increase the potential scope of projects whilst decreasing the *a priori* financial obstacles they face |
| **Scope for support** | • Reinforce progress towards safe, secure Internet services |
| **Messaging** | |
| **Technology Development:** | • No-cost email boxes provided by Internet service providers<br>• Messages carrying viruses and useless information<br>• Instant messaging software<br>• New unified messaging solutions enabling e.g.. differentiation of offerings<br>• Integrating unified messaging solutions to existing corporate messaging and telephone system<br>• Instant messaging solutions with a variety of collaboration tools such as co-browsing and white boarding to be used for example for office/company communication |
| **Market Development:** | • To have all messages (e.g. email, fax, and voicemail) available in one mailbox through a variety of access devices, including PCs, Web browsers, and telephones (wire lined wireless)<br>• According to IDC, there will be 94 million (consumer and business) email boxes in Western Europe at the end of 2000. This number is expected to grow to 166 million email boxes by the end of 2005.<br>• The corporate IM market will grow from 5.5 million users world-wide in 2000 to 180 million in 2004, a growth rate of 140 percent |

| *Table 3. Developments in the generic services area.* | |
|---|---|
| **Internet Protocol Telephony** | |
| **Technology Development:** | • Multiple standards which the equipment developers need to take that in the consideration<br>• Firewalls configured to block User Datagram Protocol traffic (voice traffic)<br>• Reducing PSTN Rates<br>• Increase in the global band-width and the vast array of enhanced services and the increasing range of competitors are deploying these services |
| **Market Development:** | • Widespread availability of the quality of the service<br>• Higher requirements for the band-width of IP access<br>• Adequate protection of connection<br>• Total annual IP telephony minutes of use (MOU) was 91.5 million in 1999 and will grow to 47.3 billion by 2004, at a compound annual growth rate (CAGR) of 192%.<br>• Policy developments relating to Universal Service obligations and the standing of IP telephony providers as telecommunications service providers will affect commercial prospects. |
| **Security** | |
| **Technology Development:** | • Development in secure electronics transaction protocols<br>• Web-enabling the existing banking infrastructure and security around traditional payment mechanisms<br>• Smart-cards with digital certificates<br>• Encryption technologies like PGP in place, more advanced standards developing |
| **Market Development:** | • Need for digital signatures<br>• Mobile security applications<br>• Confidentiality, integrity, authentication, non-repudiation and protection of intellectual property<br>• Integration of security service products into operating systems and applications software (interoperability)<br>• Security of online transactions |
| **Scope for support** | • Enhanced security of transmissions as a service of general interest<br>• Digital signature<br>• Services supporting authentication, integrity, security, rights management, electronic payment and open Smart Card services |

| *Table 3. Developments in the generic services area.* | |
|---|---|
| **Cybersmart computing** | |
| **Technology Development:** | • Involves natural interfaces, smart content, and the complete cross-environment use of computing technology<br>• Drives consumer devices development<br>• Voice-controlled video-visiting, digital photo processing, film viewing, virtual travel, and Internet service access<br>• Development of natural user interfaces including e.g. natural language understanding, speech recognition and speech synthesis, and handwriting recognition<br>• Increase in the diversity of both the input and output channels<br>• Development of speaker-dependent speech processing applications and speech synthesis<br>• Development of telephony based software systems and machine translation |
| **Market Development:** | • More natural interfaces |
| **Intelligent information** | |
| **Technology Development:** | • Extraction of information<br>• Integrated information bases containing multimedia information of many types for an unlimited range of applications<br>• Development of learning and adaptive systems<br>• Development of neural networks (used already for monitoring jet engines)<br>• Development of agent-oriented technologies and products |
| **Multimedia applications and services, interactive TV, and telepresence (Interactivity)** | |
| **Technology Development:** | • Developments in the area of consumer devices (such as TVs, phones, electronic games) allowing increased functionality of applications such as interactive TV<br>• Developments in telepresence including combining real-world images with computer generated world<br>• Many potential applications, in e.g. defence, construction and pharmaceuticals |

***Table 4. Developments in the basic networks area.***

| | |
|---|---|
| **Wireless and wire line access networks** | |
| **Technology Development:** | • New transmission technologies<br>• Capacity expansion of network connection<br>• Separation of the access networks from the backbone network<br>• Development of IP Virtual Private Networks<br>• Developments in the broadband access services (cable modems, digital subscriber lines (DSLs), fixed wireless accesses, fibre-to-the-curb, power line telecommunications, satellite) |
| **Market Development:** | • Demands for more capacity and speed for example for voice traffic<br>• Regional coverage<br>• Multiple users sharing network resources<br>• Feasible connections for SMEs<br>• Connections to remote locations<br>• Further progress in implementing liberalisation, developing standards and setting non-discriminatory, transparent access allocation and pricing will reduce entry barriers. It remains to be seen whether this will proceed evenly across the EC. |
| **Scope for support** | • Projects that extend interconnection of regional networks<br>• Projects that support development and interconnection of inter-regional networks<br>• Projects that (partially) support interoperability of emergent networks in Accession States |
| **Mobile services development** | |
| **Technology Development:** | • Possibilities to complement messages with pictures and other multimedia<br>• Development of WAP technology (being platform independent)<br>• Development of the wireless communication between devices like Bluetooth |
| **Market Development:** | • Extensive use of short message services especially among young people<br>• To make the mobile users' life easier, better, more fulfilled, more informed, more enriched, more enjoyable and cheaper<br>• WAP technology enabling infotainment, e-commerce, banking services, financial information, location-based applications, interactive services (e.g. dating, service, chatting) entertainment services, calendar, unified messaging and customer service<br>• Costs (and large cost differentials across countries) associated with acquisition of 3G mobile licenses will affect the competitive landscape. |
| **Scope for support** | • Projects that increase service quality on mobile networks that support services of general interest<br>• Projects that support mobile network extension and interconnection where this is an economically desirable substitute/complement for fixed line or wireless networks (e.g. remote regions, accession countries) |

**Appendix 2: PowerPoint Presentation of Main Findings**

# TEN Telecom Guidelines Status Review

Report of a study for the European Commission DG Information Society
Spring 2001

RAND Europe – IDC Benelux

## This Guidelines status review...

- Reflects background input
  - Court of Auditors report – September 2000
  - TEN Telecom Evaluation by RAMBOL/PLS - November 2000
- Gathered information through RAND/IDC research
  - Foresight study
  - Survey-based consultation with the sector
  - In-depth interviews with selected players

## Outline

- Objectives and positioning
- Findings from RAND Europe/IDC research
- Perspectives
- A vision of TEN Telecom
- Recommendations

## TEN Telecom

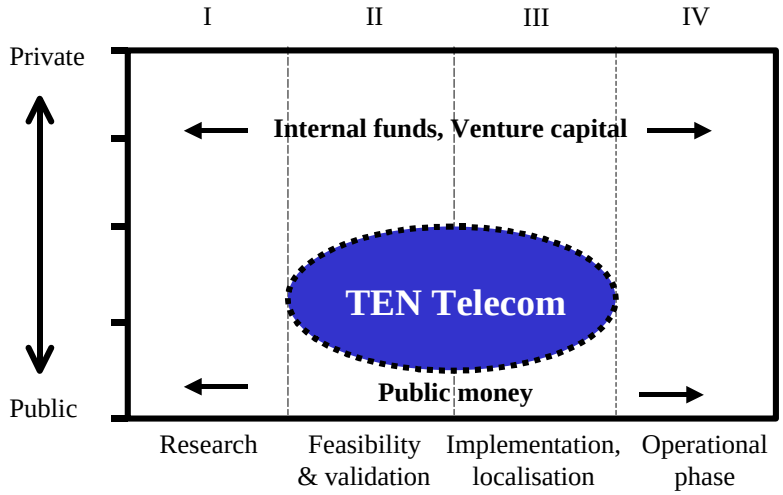
- … to support the interoperation of telecommunications networks through roll-out of trans-European applications and services in sectors of common interest, in situations where the commercial prospects are uncertain or long term.

# TEN Telecom

- In certain application fields where, despite evident socio-economic benefits, the prospects for commercial viability are judged by private investors to be uncertain or long term, catalytic actions can be envisaged under the umbrella of public authorities, in particular in areas of collective interest …
- The Community, in conformity with the principle of subsidiarity, can play a catalytic role by helping generate the critical mass that will attract private investors, thus allowing markets to take off more rapidly.

"Towards the Information Society", COM(95)-224

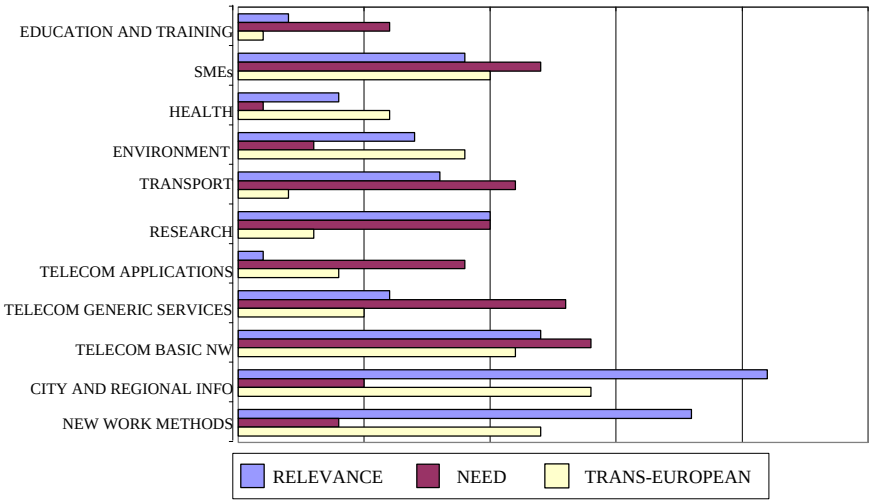
# TEN Telecom positioned



# Observations from RAND Europe/IDC research

- Annex I identifies are areas or sectors rather than projects of common interest in the strict sense
- The survey showed a range of opinions on the relevance, need for EC support and trans-European character of different areas
- The interviewees made a number of suggestions for improving efficiency and effectiveness.
- Four basic viewpoints were identified to approximate the original vision to the realities of the sector and the Action

# TEN Telecom perception



## Remarks in interviews:
### room for improvement

- Financial support is limited compared to market size and investment by key market players.
- The telecom market is very broad, so the Action should clearly define “projects of common interest.”
- There does not seem to be sufficient co-ordination with other telecom-related EU programmes.
- Integration with financial sources (EIF/structural funds) could be improved.

## Remarks in interviews:
### desirable additions

- Link financial support to the activities of other EU financial institutions (EIF, EIB…)
- Add non-financial support and co-ordination.
- Exclude projects aimed at basic network investment.
- Focus the Action on critical areas of public concern.
- Improve the definition of project selection criteria:
  - specific enough to support adequate evaluation
  - flexible enough to cope with changing telecom market demands
  - targeted on persistent problems the market has failed to address.

## 4 views as to how TEN Telecom projects can build European added value

1. Provider-led projects to expand the scope of existing technologies, services and applications;
2. User-led projects to identify and deploy new technologies, services and applications to meet existing needs;
3. Provider-led projects to verify market feasibility and undertake initial deployment of new technologies, services and applications to meet new needs; and
4. User-led projects to develop new solutions to problems involving the delivery of services of general interest and other unmet needs.

## What determines TEN Telecom need …

- Trans European Dimension
- Public Interest
- Need for Public Support

## Perspectives

- Investment in basic networks
- Relation to other programmes
- Coordination with other activities
- Speed and flexibility
- Targeting
- Incentives for project success

## Investment in basic networks

- Not much infrastructure creation: large costs, private investors can recoup, little need for public support.
- European Commission 1993 Whitebook explicitly introduces service and applications carried by a pan-European infrastructure
- Highlight definition of network as a pattern of communication and interaction, not a set of wires

## Relation to other programmes

- Clear differences in stated objectives, goals, *modus operandi*, focus - any confusion arises at implementation level
- Regarding RTD programmes, there was initial similarity of set-up and key descriptions. Over time, some RTD programmes have embraced market-testing/take-up measures, which produces overlap.
- Tendency to overlap reinforced by joint submissions, occasional shortage of strong proposals.

## Coordination with other activities

- Increased co-ordination is ‘motherhood and apple pie’ - what matters is *why* coordination is encouraged, *what* is coordinated and *how* it is organised.
- Coordination should not be *pro forma*
- Coordination with complementary agencies (e.g. RTD) involves *collaboration* (on integrated projects) or referral.
- Coordination with substitute sources of support (e.g. Structural Funds) involves *matching* proposals to support.

## Speed and flexibility

- Speed and critical (trans-European) mass are key success factors for *some* network services, applications
- For revising guidelines, a deliberate pace is good
- Evaluation time can be reduced by:
  - Pre-proposal support to improve proposals
  - Fitting evaluation closely to project type (feasibility study or deployment)
- Call timing may be a barrier for trans-European projects requiring agreement of national players

## Targeting

- Focus is always good - but who picks the focus and when?
  - Market participants have current, relevant knowledge, but represent a sub-sample with vested interests
  - Officials have knowledge of policy relevance, but may be remote from market conditions.
- The role of Annex I is crucial:
  - Specifying large scale integrated or cluster projects of common interest
  - Providing indicative areas where ‘market’ can propose

## Incentives for project success

- Perceptions of funding levels and conditions may deter some (esp. deployment) proposals
- Can projects be guided to increase chances of convincing sceptical venture capitalists to provide follow-on or top-up funding?
- Eventual market return should be more important to those involved in running projects than the chance to obtain grant funding. This suggests need for non-financial support and conditionality/payment for deliverables/milestones

## A vision of TEN Telecom
### Objectives and method

- Overarching goals: growth, competitiveness employment, cohesion and social inclusion
- One vehicle is TEN Telecom: implementing applications and services that support trans-European interconnection and interoperation using basic network infrastructures
  - TEN Telecom objectives should support overarching goals
  - Benefits of interconnection accrue throughout network - not all captured by connector, so ‘under-supplied’ (Jonathan, I don’t understand this)
  - Trans-European dimension is paramount for economies of scale and scope
  - Networks add value through communication, not wires

# A vision of TEN Telecom

## 2 types of projects

- Tier I: large-scale, strategically specified cluster/integrated projects
  - Should have a pan-European basis
  - Focus on a specific objective among *services of general interest* or *public sector applications*, chosen through stakeholder consultation
  - Combine 'natural experiments' in different national or regional contexts with coordinated 'critical mass' deployment
- Tier II: market-led projects
  - Both supply and demand sides (payer, user and/or beneficiary) play prominent roles in formulating and conducting the project
  - Projects oriented to multiple areas, market layers

# A vision of TEN Telecom

## Possible project portfolio

| Tier | Characteristics | Scale | Timing |
|---|---|---|---|
| I | Strategically chosen via consultation among trans-European supply, demand sides. | Co-ordinated sets of projects focusing on general interest | Fixed call |
| II | Defined by proposers in response to general specification | Small, near-market projects | Rolling call |

# A vision of TEN Telecom

## Project selection and support

- Use of rolling calls
  - Reduces pressure to obtain all approvals in short time
  - Facilitates working with other programmes, etc.
  - Requires semi-permanent evaluation group, which would acquire knowledge of projects and programme valuable in other contexts.
  - Encourage good (especially deployment) proposals
  - Shorten idea-to-project time while preserving effective screening
- Projects supported by sustained engagement:
  - From pre-proposal through deployment
  - Financial and non-financial components
  - 'Partnership' between project and Commission staff to heighten relevance, maximise impact, ease evaluation and monitoring

# A vision of TEN Telecom

## Annual revision of Annex I

- Annex I revised using market, technological, policy and social developments reflected in project evaluation and feedback, foresight results and appropriate consultation.
- Could obviate need for Work Programme.
- Tier I projects could be fully specified in Annex I (hence gaining weight of Council approval) or approved by Commission subsequently.

## Some recommendations

- Encourage 'market-led' projects, in which supply *and demand* sides formulate and conduct project
- Rebalance project portfolio in favour of deployment projects by:
  - Appropriate pre-proposal support
  - Exploring ways to provide more support within the Financial Regulation
  - Speeding up decisions
- Projects of common interest should include public or public-orientated projects including:
  - Services of general interest (privately provided services subject to Universal Service and other public service restrictions)
  - Delivery of government services

## Some recommendations, 2

- TEN Telecom can play a leading role in strengthening co-ordination through
  - Referring to policy objectives (e.g. eEurope) in project identification
  - Involving other stakeholders, funders in Tier I specification
  - Co-operating with Member States on integrated projects
  - Taking referrals of promising projects from RTD, risk capital sources
- Strengthen progress incentives through
  - Claim articulation (phased payments, adjusting allowable costs)
  - Non-financial support
  - Payment for progress