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*TEN Telecom Guidelines
Status Review*

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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 market¹ 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 sector² 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 raised³. 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.