



Building the trans-European transport network



...without high-performance transport networks, economies cannot be competitive...

Innovative funding solutions

Interoperability of electronic toll systems

Introduction

This memo examines the situation of infrastructure in the trans-European network and the way it is financed, and shows the need to implement, without delay, a set of complementary measures geared towards a more effective use of funding earmarked for trans-European infrastructure. The proposed measures are based on two major pillars: better coordination of public financing and an effective "European electronic toll service".

These measures should advance the implementation of the major trans-European network projects.

Why do we need to develop the trans-European network?

Without high-performance transport networks, economies cannot be competitive. The creation and smooth operation of the trans-European transport network, which became official Community policy 10 years ago, is a key condition for the success of the internal market and to ensure sustainable mobility in an enlarged Union. At present, however, traffic on the network is continuing to grow apace but unevenly. Transport infrastructure is still under-financed, owing to a lack of adequate funds and the absence of a framework conducive to investment.

It is no small paradox to note that the Treaty makes the Community responsible for producing guidelines for the development of the trans-European transport network (TEN-T) without granting it the financial resources to execute that task.

There is no denying, however, that one of the keys to a successful enlargement will be the creation of a proper transport infrastructure network which supplies the links still missing between the Fifteen and with the new member countries and enables full benefit to be derived from the European single area. This will involve infrastructure being modernised or newly built not just in the future member countries, but also in the existing EU Member States, given that some projects have not yet been carried out, that new traffic flows will develop and that connections between the two zones are few and far between.

Apart from technical and planning problems, **the main difficulty facing TEN projects is funding**. The estimated cost of the trans-European transport network alone is around €400 billion for all the projects to be completed by 2010, plus over €100 billion more for projects involving the future Member States.

Although the objectives set by the Union for development of the networks are, rightly, ambitious, the results are failing to live up to expectations: only three of the 14 priority projects endorsed by the Heads of State and Government in Essen in December 1994 have been completed and some of the other 11 are still at the preliminary studies stage.

How can we develop the trans-European transport network?

- Through innovative funding solutions
- Through the interoperability of electronic toll systems

Why are these necessary?

In its White Paper *European transport policy for 2010: time to decide* the Commission already drew attention to the clear mismatch between the advertised objectives and the financial resources available to the Community in respect of the trans-European network. The fact is that the budget the Member States put aside for developing such transport infrastructure and the funds made available by the Union are insufficient.

Whereas in the 1980s the Member States used to invest, on average, 1.5% of their GDP on building transport infrastructure, they now invest less than 1% (all transport infrastructure combined). Consequently, the Member States put €15 to €20 billion a year into the various trans-European transport network projects. This funding is clearly inadequate to complete all the planned projects by 2010 and, strictly speaking, takes no account of the new needs which will emerge with enlargement.

There seems to be little possibility at present of seeing a significant increase in the public funding allocated to these infrastructure projects, given the budget constraints of the public administrations.

Use of public-private partnerships (PPPs) to supplement public financing may be envisaged for some types of project. However, there are still too many unknowns regarding the projects to be carried out – especially railway and cross-border projects – and regarding transport policy choices. Consequently, the private sector has insufficient confidence to commit to financing them.

Moreover, PPPs almost always require major public financial support in the form of subsidies or guarantees.

The Community is also helping to finance the TEN-T

This co-financing mainly takes the form of direct grants, though the Regulation (of the EP and of the Council) also allows guarantees for loans or subsidies of the interest on loans. Alongside this, the Community also helps finance these networks via the Structural Funds (Cohesion Fund and ERDF).

In the case of links inside the future Member States, the Pre-Accession Structural Instrument is helping to develop the networks in these countries. The total Community contribution in the European Union (all instruments combined excluding EIB loans) for the entire period from 2000 to 2006 adds up to around €20 billion. Clearly, the Community support therefore covers only a very small fraction of the funding requirements and is far from sufficient to make an effective contribution to developing the networks.

To promote a new culture of transport infrastructure funding in Europe which complies with Article 155 of the Treaty establishing the European Community (which stipulates that "the Community may support the financial efforts of the Member States"), the Commission may, in close cooperation with the Member States, take any useful initiative to encourage such financial coordination and to facilitate synergy between the public and private sectors.



A new approach is needed

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The new approach being proposed is therefore based on the following set of options:

- **Greater synergy in public investment:** whatever the principal method of funding, whether it is public or private, the size, complexity and cross-border nature of the main trans-European transport network projects increase the need for better **definition of priorities and coordination of funding**.
- **The introduction of legal and financial management structures modelled on a European company:** the introduction of structures specially created for each major project and benefiting from European company rules could provide the legal and financial transparency and coordination that are lacking in many financial packages for infrastructure projects. Taking this further, the idea of a European structure for the **Promotion and Active Coordination** of the cross border projects of the Trans-European Transport Network able to fulfil the role of a catalyst for the use of existing public funds should be developed.

Lastly, consideration should also be given - in the framework of the preparatory works - on the next review of the financial perspective to **increasing specific funds and introducing Community loans or guarantees** for other loans, specifically dedicated to targeted trans-European transport network projects.

Developing synergy between public funds

Public funds - both national and Community - do not appear to be used optimally. In the context of the trans-European transport network they are often spread among a large number of projects with no real order of priority being observed. All Community resources are covered by rules and priorities, which are different but complementary.

In its resolution on the Transport White Paper, the European Parliament (report by Mr Izquierdo Collado) thus proposed the setting-up of a "new **European transport fund** as a financial instrument with a substantial budget allocation, which would be applied across all Member States and deal with all modes of transport". This proposal would confirm the need for a coordinated management of all funds committed to the TEN.

Beside this, EIB loans and other national or regional public funds could, where they concern the trans-European transport network, usefully be brought together under coordinated management, which could be provided by a structure responsible for promotion and active coordination of the trans-European transport network.



The development of new Community funding instruments

The redirection and reprogramming of financial resources decided on by the Berlin European Council, the second review of the trans-European transport network master plans now under way (for all modes) supported by a High Level Group chaired by Mr Karel Van Miert, and the definition of a trans-European network for rail freight open to competition are providing fresh momentum for trans-European transport network policy in an enlarged Europe. This will need to be at the heart of the next review of the financial perspective.

In this context, short of removing investments from the calculation of budgetary deficits, it is hard to see how the Union will be able to escape a debate on a substantial increase in the Community funds given over to building the trans-European transport network.

Lastly, the solution for creating new Community financial instruments could also involve developing guarantees for the political risks related to the construction of certain major infrastructure (such as the Lyon–Turin project) in the trans-European transport network.

Conclusions that can be drawn

Financing of the trans-European transport network in an enlarged European Union will in future make it necessary to:

- use innovative means to promote the involvement of private capital so as to overcome the factors currently preventing the general use of public-private partnerships;
- ensure coherence and complementarity between the management structures for projects of this type, particularly by setting up new transnational entities such as "European companies";
- re-assess – in the context of the debate on the review of the financial perspective – the overall amount of Community funding for development of the trans-European transport network in an enlarged Europe.

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A uniform electronic toll system throughout Europe

This Directive was announced in the White Paper *European transport policy for 2010: time to decide*. It prescribes the conditions necessary for a European electronic toll service to be put in place as soon as possible on all parts of the road network subject to tolls. This service will be based on the principle of "one contract per customer, one box per vehicle".

The Directive does not deal with road-charging policy as such. However, by ensuring the interoperability of toll systems in the internal market it will facilitate the implementation of a Europe-wide infrastructure-charging policy.

The recommended technologies can cover all types of infrastructure (motorways, roads, bridges, tunnels, etc.) and vehicles (HGV, light vehicles, motorbikes, etc.).



What is the aim of such a Directive?

Originally conceived for the convenience of people who frequently use the motorway network, electronic tolls are now recognised as an essential tool of the new transport policy in terms of sustainable development. But recent decisions by several Member States to introduce national systems for lorries – systems which are unfortunately mutually incompatible – demonstrate the need for firm Community action unless we want to see the cabs of heavy goods vehicles becoming a showcase for the European electronics industry, or drivers unwittingly breaking the law as result of the complexity of the operations they need to carry out. The growth in international traffic raises the question of whether these systems should not be interoperable at European level.

- While the maximum flow for a lane equipped with a bank card machine or a manual toll is 120 vehicles per hour, a lane with an electronic toll can handle between 200 and 300 vehicles per hour, depending on its configuration.
- Moreover, particularly at peak periods, but also more persistently at certain very busy points in the European road network, **the collection of tolls causes congestion, delays, accidents and incidents** which are detrimental both to road users and to the environment. Electronic tolls put users and their vehicles at the centre of the transport system. They are an excellent tool for reducing congestion.
- By eliminating these bottlenecks and making traffic flow more smoothly, electronic tolls also help reduce the number of accidents and thus improve road safety. By limiting cash transactions at toll stations, they also reduce the risks associated with the transport of money.

Lastly, electronic tolls are the key to **developing the information society in road transport**, as the same on-board equipment will allow value-added telematic services to be deployed for travellers: an automatic emergency call in the event of an accident, real-time information on traffic conditions and journey times, etc. They therefore help to strengthen the European electronics industry, which is at the forefront of this technology, but which requires technical standards to be implemented in order to avoid market fragmentation.

How can we implement a uniform electronic toll system?

Motorway operating companies have invested large sums of money (several hundred million euros per network) to equip their networks with systems originally intended to provide a better service to the drivers of light vehicles. Account needs to be taken of these investments and their amortisation (in accounting and technical terms) in the progressive migration towards interoperable systems as part of the "European service".

In this way, progress can be made towards the interoperability of existing systems. However, some countries want to introduce an electronic toll system for HGVs in 2003 or 2004. Certain cities, such as Rome and London, have decided to install a toll system to control vehicle access to the city centre. Technical guidelines therefore need to be laid down now to ensure the interoperability of future systems. Moreover, the market is in favour of establishing a reference system for the future.

In response to these twin problems, the European electronic toll service will be based on a **short-term solution** (until 2005) which takes account of existing systems, and then on a **long-term solution** (2008- 2012), which is already being decided on and presented.

A. The short-term technical solution for deploying the European service:

- **Combining satellite positioning and mobile telephony with microwave technologies in the short to medium term, but opting exclusively for the more modern technology in the long term**

This combination is intended to **make network charging possible without having to build new stations**. The widespread introduction of road-charging policies requires new technological solutions capable of covering all road infrastructure. Toll lanes cannot be built on all parts of the road network, including town centres, for financial reasons, let alone environmental and safety reasons.

This proposal is based on the use of new technologies that are already available: the GNSS (satellite positioning) / GSM combination in conjunction with microwave technology, which is already in widespread use in the Union. These three technologies are the only ones currently being considered for new toll systems in Europe.

The use of satellite positioning and mobile telephony technologies is advocated because they are more flexible and better suited to the new Community charging policies. However, operators who want to continue using microwave technology for new systems will be allowed to do so subject to compliance with certain strictly defined conditions.

This choice protects the continuity of the investments that have already been made in several European countries, while allowing for the fact that the strengths of the new technologies will inevitably dominate in the near future, especially as they will open the door to new value-added services aimed at travellers. This choice also gives operators the freedom to choose the best solution for their specific problem, while ensuring the conditions necessary for the deployment of the European electronic toll service.

B. The long-term technical solution for deploying the European service: imposition of the satellite solution from 2008 for new systems and from 2012 generally

In 2008, microwave technology, a product of the 1970s, will be over 30 years old, and will have been left behind by new technology, even if it is still in use on the motorway networks. Satellite technology, on the other hand, boosted by the full implementation of Galileo in 2008, will have matured and had time not only to prove itself but also to acquire the necessary experience to be able to support the European electronic toll service by itself. In particular, the tricky problem of fraud prevention, currently handled by means of complex short-range roadside-vehicle communication, should become easier to deal with thanks to the emergence of new technological solutions.

There is also a risk that there may be further attempts to introduce new microwave systems, different from the current systems, between now and 2008, thus creating more technical interoperability problems.

This is why the proposed Directive stipulates that in 2008 the satellite solution involving the combination of satellite positioning and mobile telephony must be adopted, in preference to microwave technology, for all new systems brought into service on or after that date as part of the European electronic toll service.

To ensure that the fraud prevention problems in evidence today have been properly taken into account and dealt with, **the Commission will have to produce a report** by 31 December 2007.

Timetable for implementing the European electronic toll service

The service will be deployed in two stages:

- from 2005 for electronic toll payments by HGVs, buses and coaches,
- from 2010 for cars.

By 2010, technological progress will have made it possible to fit all four-wheeled vehicles with equipment communicating with the outside world via microwave, GSM and satellite interfaces supporting a range of telematic services, including electronic tolls. This technological leap, which has already started, will bring the cost of equipping a vehicle down to about 100 euros.

The European service will enable all the HGV-charging and urban congestion-charging policies the European Union or the Member States want to introduce to be fully implemented.

As well as being better suited to "zone tolls", satellite positioning in conjunction with mobile telephony precludes the need to retrofit road networks which were not built with space for toll plazas.

By 2010, interoperability between national electronic toll systems will have been achieved through the deployment of a "European service" offered to all types of customer.

The technical and contractual arrangements for full deployment of the European service on the technical bases described above will be examined by a **Regulatory Committee** set up under the Directive.

A Regulatory Committee: the Directive provides for the creation of a Regulatory Committee to assist the Commission in the implementation of the European electronic toll system. The Committee will be composed of representatives of the Member States with practical experience in the fields of electronic tolls and road management. It will base its work on the results of research projects conducted under the research and development framework programme and in the context of the trans-European networks. Preparatory work has already been carried out under the auspices of the Commission, involving national authorities, infrastructure managers and equipment manufacturers.

The effects of a uniform European electronic toll service

The Commission believes that, by 2010, a uniform system will enable almost 80% of toll transactions to be carried out using electronic toll equipment, thus putting an end to the interminable queues which obstruct toll stations during peak periods.

People employed in toll stations could easily be employed by motorway operating companies to improve the quality of motorway services, and many jobs (about 200 000, highly skilled) should be created in the industrial and service sectors.

All developed and emerging countries are having to address the same overriding policy issues and are working towards the same solutions. This Directive will give European industry, which is already well placed in the world market, a considerable boost in promoting effective and innovative products.

Photos courtesy: GIF, HST on page 1

