

Special paper by G. Sciutto *et al*

## Evolution of railway liberalisation in the European Community

G. Sciutto<sup>1</sup>, R. Bozzo<sup>1</sup>, G. Dellepiane<sup>2</sup>, A. Traverso<sup>2</sup>

<sup>1</sup>*Sciro, Genoa, Italy.*

<sup>2</sup>*CRT, Genoa, Italy.*

### Abstract

The paper presents an overview of the railway transport evolution from the point of view of the market approach. The status of liberalisation of the railways is shortly examined to put in evidence as the European railway are evolving and the needs of railway companies to operate in an open railway market.

The certification of the safety and the adoption of new technologies are presented as a really relevant tool to operate in an open market from both points of view of quality enhancement and cost reduction.

### 1 The railway transport evolution: An Overview

We can actually claim that passenger and freight transport is one of the most significant social evolution indicators, and our society is surely expanding, according to the transport trend.

Until the 80s, an average increase of about 2 - 3 % per year in both freight and passengers transports could be observed, while prospects for the next decade, two thousands - two thousands and ten, based on the data of the 90s, forecast an increase of 45% for passenger traffic and even of 65% for freight traffic volumes. But, among the various transport modes, railway transport will keep covering only a part of the market, because private cars will continue to take the lion's share.

Complex and historical reasons could be indicated as the causes of such a situation, but we can mainly look at the ones inside the railway transport world: reduction of quality and increase of costs. In other words, lack of competitiveness.

For about one century, the railways have been bodies owned by state. It was a need due to some intrinsic characteristics as the high initial

investments costs, the social interest of transport, the national economic dump, buying plants and vehicles from national firms. But today, to enhance the railways for the market competition among transport modes, the liberalisation is seen today as the best solution. Obviously, a real market competition among transport modes requires to respect the basic role of equal opportunities. So, a significant problem about the social-external costs is arising today: if the road transport mode produces about 95 % of the global external costs, they shall never weigh on the community if it generates a disadvantageous market positioning for the other transport modes.

We can think that, probably, the market competition will succeed in pollution reduction where, until today, a pure political approach failed.

Table 1

	Temperature Raise (%)	Pollution (%)	Noise (%)	Accidents (%)	Congestion (%)
Road	90	98	80	99	99.5
Rail	3	1	13	0.5	0.5
Air	7	1	7	0.5	0

## 2 The liberalisation of railways

Various examples of liberalisation can be analysed looking at the railways in the world:

USA (1970);	Divisionalisation and privatisation (one main passenger operator)
New Zealand (1982);	Privatisation but not divisionalisation (one main operator owner of both infrastructure and vehicles)
Japan (1986);	No divisionalisation and no privatisation; only a regional approach was considered (more passenger operators owners of infrastructure, one for freight)
Argentina (1989);	Divisionalisation and privatisation of operations (more operators); Franchising of infrastructure and vehicles of national ownership.

Divisionalisation among infrastructure and operations, splitting the national railways according to a regional approach, maintaining the public ownership or privatising, have been some of the various possibilities applied.

The EU started from those lessons to propose its own approach. The need for competitiveness also for the European Railways, has been underlined by the EU Commission since the 90s. The Directive 440/91, (four hundred forty ninety nine) the White Book about Railways, the Green

Paper about Urban Transport, promote restructuring and reorganisation of the companies. Divisionalisation, liberalisation and external costs policy are pointed out as the right steps to reach the advantages of a market economy.

The EU countries are complying very slowly with the EU Directives: only the budget separation among infrastructure management and train operation is already required: in France, for example, only such a minimum requirement is respected and no new operators have been able to penetrate the today's monopoly market.

The situation is better in Germany, where separate companies have been forged splitting the state railways and a lot of little companies are operating at regional level, but sharing only the 10% of the market.

In any case, the monopoly situation was actually abolished only in the UK. In the UK, the liberalisation was started, independently from the European guidelines, in the middle of the 90s.

A divisionalisation assigned the Infrastructure management to Railtrack while the operation was split among many companies that were put on the market. Today we can learn from the problems of railways in the UK: a higher power of intervention must be assigned to the Transport Authorities and to the Rail Regulators in such a way as to overcome the lack of investments and the relevant loss of safety and of service quality. Really a new approach is proposed by the government proposing a wider control and new heavy investments, which costs will have to be shared among the privates and the State to overcome the loss of quality of the service evidenced in the last years by the main English newspapers (avoiding to speak about the great accidents of the last years).

In Italy, the divisionalisation has been already accomplished by means of separated companies for infrastructure and operation. Furthermore, it is also possible to obtain the licence to operate railway transport. These Italian licences will give no the exclusivity on the tracks so as to promote a real competitiveness.

Today, twelve private freight companies have already made request for the licence, while at least two have already started to operate in the middle of 2001. The main one is Ferrovie Nord Milano (FNM), a local railway company that operates in Lombardia as regional operator from many years; it has proceeded to the divisionalisation and two different companies are now operating on the management of the infrastructure and on the railway operations. After the divisionalisation the FNM Transport operator company have started to operate as international freight operator.

The second relevant company that operates as freight operator is Rail Traction Company, that started operating two freight trains a week overcoming same initial technical problems in the functioning of the new locos.

### 3 The safety certification

One of the aspects that deeply influences the corrected evolution of a liberalised railway market regards the control of the efficiency and the safety management independently from all the involved actors.

The European legislation assigns to the UE Members States, the responsibility of the certification of safety for the railway companies.

The Members States show different organizational modalities, for example:

- In France the Ministry of Transportation carries out the role of authority for the national safety, while the local administrations cover such role in the case of urban and regional transport
- In Germany the EBA (Eisenbahn Bundesamt) is the railway authority at federal level, while railway authorities operate at regional level (LfB local, Landesbevmächtiger für Bahnen)
- In United Kingdom, from 1994, the HMRI (Her Majesty Railway Inspectorate) is authority for the railway safety on behalf of the HSE (Health and Safety Executive, government agency for the safeguard of the health and the safety)
- In Holland, the Ministry of Transportation is authority for the safety, as in France
- in Austria, the Federal Ministry for Sciences and Transports (BMWV, Bundesministerium für Wissenschaft und Verkehr) the Supreme Authority for Transports (Oberste Verkehrsbehörde) was instituted for the release of the railway licences and for the authorization for systems commissioning
- finally, in Italy, the Ministry of Infrastructures and Transports has assigned such task to the company for the management of the national infrastructure, RFI SpA.

The European directive on the railway safety, has the objective to harmonize the organizational structures of the States Members in order to guarantee the railway safety. The Members States will have to institute supervision and regulation bodies fully independent from the Infrastructure Managers, the Transport Operating Companies and, in a general, from all involved actors.

Also the European legislation about the Interoperability of the Transeuropean Railway Network, by the directives on high speed (96/48/CE) and on conventional lines (the 2001/16/CE), establishes the procedures for the certification of interperability for railway products and subsystems. The Notified Bodies must officially be accepted by the members states so that the certifications can be valid in all the UE.

Therefore, the need arises to entrust to external subjects the task to estimate or to certify the conformity of systems and processes to the standards, the rules and the technical specifications, mainly for the transport safety of people and goods. The UE Members States have adopted own

different organisational models; such models introduce therefore different implications on the liberalisation of the market.

While France and Germany chose "monopolist" models, in Holland a "liberal" model is adopted: more private subjects have really obtained the acknowledgment as Notified Bodies and will operate as competitors. But also the German model and that French one introduce remarkable and substantial differences. In Germany EBC (EisenBahn CERT), born as emanation of the EBA, includes as partners, both qualified staff and of test structures (TÜV InterTraffic, TÜV Rail, DIN VSB CERT, etc.).

On the contrary, in France an independent company has been realized including as partners, with address tasks and coordination, railway companies, manufacturers and institutes of railway research, while the technical activities are carried out by expert and qualified valuers and in accredited laboratories.

Finally, as regards Italy, the situation must be still considered in a transitory phase: the law 299 of May 2001 defines the technical modalities for the acknowledgment of the Notified Bodies, but, due the organizational models have not been still defined, also the transitory dispositions that attribute temporarily to RFI SpA, a private company of group FS, the responsibility to certify the safety for the railway infrastructure and the rolling stock.

RFI can therefore, as a matter of fact, authorize itself, or other companies of FS group (Trenitalia), to the railway management and to express judgments on the competitors of the FS group that keep the relevance of low, producing as a consequence preeminence condition strongly disturbing the freedom of the market.

Analogous considerations are worth for the attribution, temporarily, of the role of Notified Body. Also in this case, it is obvious that guarantees of autonomy and decisional impartiality, foreseen by the Directive for the Notified Bodies, is compromised because equal opportunity to the various subjects present on the market is not assured.

It can therefore often be asserted that, as far as the divisionalisation, the Italian railroads have receipted the indication of the European directives, anticipating them, it is not the same for the independence of the certification of the safety and in the definition of the notified bodies, that are essential element for the corrected development of a free market economy in railway field.

#### **4 The role of technology in the evolution of railway market**

In this contest, technology has to be considered as one of the most relevant supports for any competitive railway company. Innovative technology shall enhance the railways productivity allowing internal and social cost reduction, but shall also augment the railway attractiveness in an intermodal-based transport world simplifying the interfaces with other transport modes.

Speaking about internal and social cost reduction, the role of technology will regard two main questions: the reduction of life cycle costs, by the intervention of the single components, but also on the system design for the enhancement of the service quality.

The impact of railway transport on the Sustainable growth, by a different approach to the design of trains and feeding systems based on energy saving and alternative feeding systems, noise minimisation, electromagnetic interference reduction.

But the main contribution to competitiveness shall be given through an integration approach: integration among the internal functions, integration among transport modes.

In both aspects of integration, the models and the tools shall have to be borrowed from those that today are allowing the great expansion of commerce and economy: the Information and Communication Technology.

The wide use of Centralised Traffic Control systems allow the availability of data relevant to all running trains in a centre for the real time traffic management. The extension and the integration of such centres within a real European network will have to be the next step, as foreseen by the European project OPTIRAILS.

Various examples of the possibilities offered by ICT to the enhancement of transport modes integration can be seen. The use of ATP/ATC systems is going to be extended also to new regional lines, but an effort must be made to reach a unified approach as allowed by the ERTMS, because intermodality is one of the keys that shall open the railway market to a real international approach. And ERTMS implementation, thanks to the use of a continuous radio link, shall allow the introduction of the moving block not only in the high speed railway lines, but also in the regional ones, in such a way to bring a wide contribution to the reduction of nodes congestion.

ICT shall give a heavy contribution also to the evolution of the freight transport, the more involved in the evolution brought by the needs coming from the new economy.

A first example is the document transfer: automatic emission by standard software and use of electronic transmission will really help cost reduction. Satellite and mobile technologies, that are already in use among the haulers for the location of road vehicles, shall be adopted within the European railway network to track wagons by some of the new Operators.

At last we have to remember the need for an electronically management of commerce also in transport: for this reason, a wide use of WEB Portals must be considered to enhance the level of competition in the transport market, allowing lower prices and better performances with advantages for all the involved parties.

## 5 Conclusions

Today's evolution of railways requires a new approach to the liberalisation; the competition must be oriented to the quality enhancement of the service as an weapon to win the in the battle among more operators. With a privatisation without a real competition and without a super partes control no future is possible for the railway transport.

The certification of safety will become a really relevant aspect in the evolution of the new companies and so the role of technology that will have to be to operate for quality enhancement and cost reduction.

The role of ICT will have to be predominant also to meet and cover the delays in infrastructure development until the railway network shall have become comparable with the road one. Such a role is really important, not only from a business point of view, but also because railways represent the real solution to put transport in a sustainable development.

The proper allocation of social external costs will absolutely give an important contribution to a more correct reallocation of the market share, but only discouragement of road transport by pollution-based taxes will not be sufficient: the probable result should be a mobility reduction, with insurmountable economic contraction and social involution.

As people and freight mobility is a need, modes integration, comfort and interaction possibility are to be enhanced to increase the attractiveness of a sustainable transport.

And now, a last doubt: on one hand we observe splitting of railway companies that produces a wide fragmentation of the actors involved in the transport market; on the other hand, in other fields of the economy, it happens that a multinational companies incorporate all the little companies involved in their production and distribution chain. What will happen if a multinational economic monopoly will replace the traditional state monopoly?

## References

- [1] Il Sistema di Trasporto Europeo: Tempi e Modi di Integrazione – Cernobbio (Como) – 22, 23 Aprile 1999.
- [2] R.Mercurio, M.Martinez: "Il Trasporto Ferroviario Europeo – Organizzazione e Regole del Mercato" – Gangemi Editore – 1999.
- [3] Liberalizzazione del Trasporto: Dal monopolio al Mercato – Quaderni Agens – no.2 Ottobre 2000.

- [4] Proposal for: Directive of The European Parliament and of the Council on Safety on the Community's Railway and Amending Council Directive 95/18/EC on the licencing of the railway undertakings and Directive 2001/14/EC on the Allication of Railway Infrastructure Capacity and levying of changes for the Use of Railway Infrastructure and Safety Certification - 23 January 2002 - Bruxelles.
- [5] B. Ostlund: "Realisation of an IT strategy for planning a railway sector under transformation" - Comprail 96; Volume 1: Railway System Management.