

## **ABSTRACT**

The rail system in Europe has suffered a crisis for more than thirty years in a period of clear growth of the transport. The causes for this failure have been low degree of investment on rail infrastructure and of interoperability, different gauges, power supply systems, train control systems, and safety and organisation procedures. Other factors have also had influence: decentralization, spatial distribution of production, low or inexistent charge of external costs in the transport sector, low degree of adaptation to customers needs; structure of goods, the liberalization of road sector since 1985, the slow reorganisation of railway companies and its inadequate degree of internationalisation.

According to this, clients felt international rail services to be less attractive than other ways of transport. Bottlenecks and low average speeds limited the traffic capacity. The lack of interoperability and the bad coordination and communication between operators raised costs whereas resources were invested in parallel innovation and development programmes. Besides of this, the favourable treatment given to national railways prevented competence and better quality services. On the other hand, other means of transport learnt to take advantage of these deficiencies and nowadays show the rail sector how to solve many of them.

In front of the growth of transport and of the soon entrance of eastern European countries in the EU the problems affecting the European transport had to be solved. The potential of railways as regards capacity and sustainability, make their contribution indispensable to manage the expected future volumes of traffic, especially in freight transport. Therefore, the traffic politics was renewed towards a resurgence of rail.

According to the studies of the EU-Commission, the ERRAC and the UIC, to assure the future success of railways EU countries must provide with the necessary infrastructure and anticipate the future growth of demand by eliminating bottlenecks and building new tracks and a network dedicated to freight, infrastructure management and train operation must be split, infrastructure managers must develop and implement solutions to overcome frontiers.

Railways must also improve their performance to satisfy market needs, intra-modal competence must be introduced to strength the rail. Innovation must be brought to operation and management of the networks, rolling stock, maintenance, train control so as information and communication technologies. And costs must be reduced

In order to attain these goals lots of projects have been brought to live. The EU and the EU-Commission are working on the legal frame that will boost the introduction of changes in the rail and transport sectors; e.g. liberalization of the rail market. This frame is being built with the orientational white papers and the mandatory directives 91/440, 95/18, 95/19, 96/48 and its updates 12, 13, 14 and 16 of 2001 among others.

The European bodies together with governments, organisations and railways have also conceived freight and passenger networks at trans-European and pan-European level and projects to eliminate bottlenecks or geographic barriers.

Technical incompatibilities will be suppressed with mandatory technical specifications for interoperability, which will also help production and fabrication prices to go down. The ERTMS programme has been created among these specifications to develop an optimal train control system. It will consist of three levels of work to get adapted to the requirements of the lines and its modular construction will allow tracks to be upgraded easily from one level to another.

In the case of the connections between Spain and Germany, there are still many problems. The Pyrenees act as a natural barrier, the different gauge and power supply systems on the route as a technical one, and the different infrastructure operators and its procedures as an organisational one. Moreover, the increment in traffic is clogging the available passages. To overcome these difficulties another passage is being opened across the centre of the mountain range and new lines are being built with international gauge on the Spanish side. The improvement in the French net will shorten the distances and travel times.

The ambitious path that the related parties have chosen to modernise the rail in Europe is, unfortunately, not free of obstacles. The size of the renewal demands huge effort in coordination and cooperation, in developing the new technologies, but also in funding all the projects.