

Submission form to the XVII Conference of SIET, Milano 29 June -1 July

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Title of the presentation

An economic model for the evaluation of different technological scenarios in the rail sector

Abstract (400-500 words)

The transport sector is a context in which the layout of players and users as well as the regulation implies the risk of a slow introduction of innovative technologies. This is mostly due to the high protection which end users are naturally defended with by the regulation authorities, for the use of services which imply the involvement of the users' persons exposing them to a number of potentially high risks; besides this, however, the composition of the market and the nature itself of the infrastructure, the equipment and the technologies needed for the provision of transport services, generate a complexity which makes it very difficult for cutting edge technology to make it to the market in a short time.

However, the transport sector has been one of the main fields of application of one of the biggest programs of high-level technology advancement, that is the GALILEO project by the European Commission, aiming at creating a network of satellite managed by the European Union in order to compete and overcome the GPS in providing a number of services (the most important of which is of course positioning) to European users.

In the rail sector, contextually, the European Commission has been promoting the implementation of the ERTMS/ETCS (European Rail Traffic Management System/European Train Control System) as an integrated system for train control and signalling aiming at fostering interoperability while achieving the highest safety standards.

The concurrence of these two trends has led to the development of a solution for train control based on the use of satellites, which aims to compete with the traditional high-level ERTMS technologies, based on the use of balises and telecommunications between board and trackside by means of a dedicated network (GSM-Rail).

While the former solution (satellite-based) is still in a development phase and needs to go through a number of steps both from the policy point of view and from the technological point of view, it has the potential to speed up the implementation of ERTMS and actually exploit its advantages more effectively throughout Europe.

The two technological scenarios imply a number of different impacts which this paper aims at presenting, building an ad hoc methodology for comparing the economic effects on the different players involved (mainly on infrastructure managers, but also on railway undertakings, on the satellite sector, and of course on the signalling sector), with a specific focus on the elaboration of a comprehensive model for quantifying the economic implications of the use of balises for infrastructure managers.