

Partners involved:	30
Project durations:	AeroTRAIN, PantoTRAIN: 36 months, DynoTRAIN: 48 months
Total Budget:	€ 13,23 m (EC funding: € 8 m)
Starting Date:	June 2009

TrioTRAIN – Total Regulatory Acceptance for the Interoperable Network

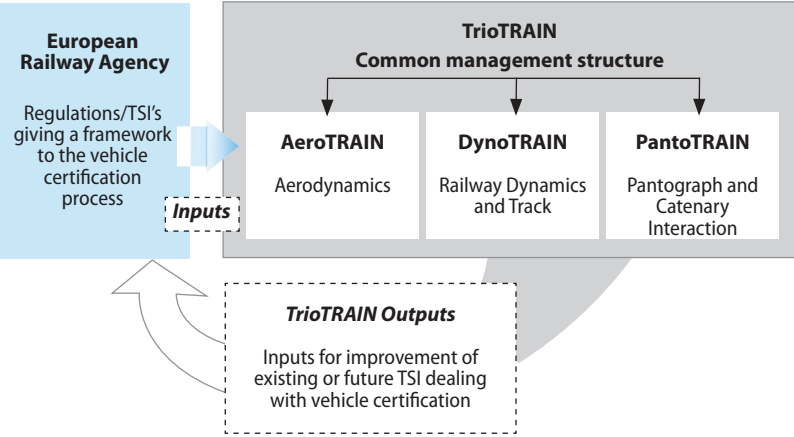
TRIOTRAIN OVERVIEW

TrioTRAIN is a cluster of integrated research projects partially funded under the ECs 7th Framework programme. TrioTRAIN aims at further promoting interoperability by increasing virtual certification, i.e. replacing testing by simulation and proposing a simplification of the authorisation processes through an optimised mix of field testing, mock-up testing and simulation. The overall goal is to contribute to the competitiveness of rail, hence encouraging an environmental friendly alternative for transportation of people and goods within Europe.

TRIOTRAIN CONTEXT AND CONCEPT

The certification of a rail vehicle according to European regulations - i.e Technical Specifications for Interoperability (TSIs), European Standards and national safety rules - represents a significant element of both vehicle cost and time to market. Indeed, a large part of vehicle certification mandates testing for safety, performance and infrastructure compatibility.

TrioTRAIN will contribute to the practical implementation of interoperability across Europe by leading to a faster, cheaper and



better certification and authorisation process for all involved stakeholders.

TECHNICAL ISSUES

TrioTRAIN will address three main technical issues, namely the vehicle dynamics (DynoTRAIN), the pantograph-catenary interaction (PantoTRAIN) and train aerodynamics (AeroTRAIN), which are three most relevant issues for a rail vehicle certification. When necessary, the “open points” in the TSI and inconsistencies in the existing acceptance criteria will be closed by proposing revision of these criteria.

Coordinator: **UNIFE**
 Website address: **www.triotrain.eu**
 Email address: **info@triotrain.eu**



Partners in TrioTRAIN cluster:



Partners involved : 18
Project duration : 36 months
Budget: € 4,04 m (EC Funding: € 2,5 m)

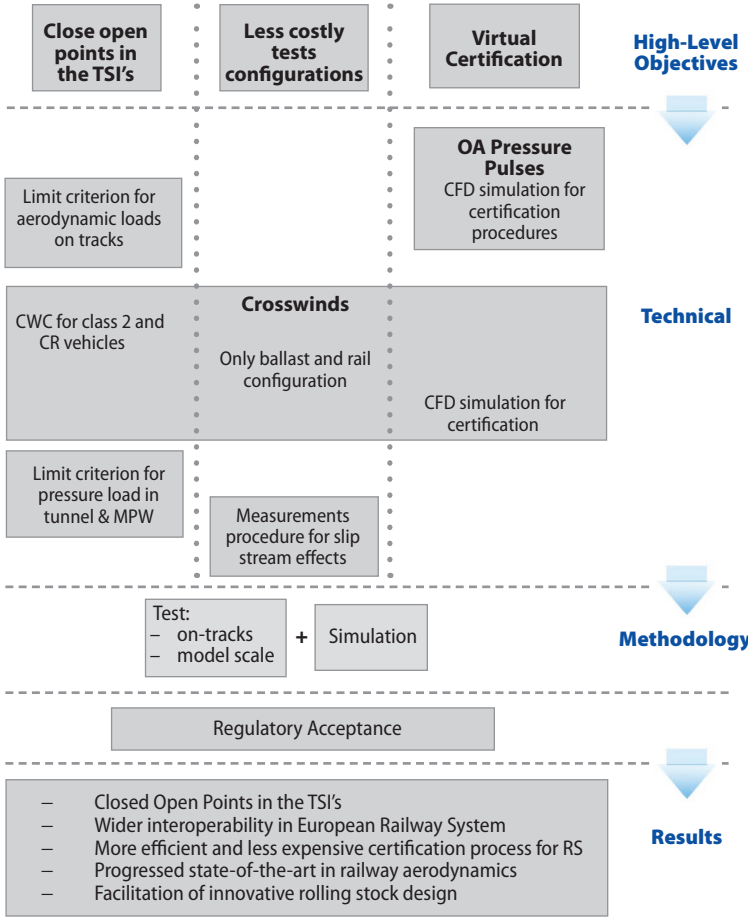


BACKGROUND

In the field of aerodynamics an EN standard has recently been developed which focuses on common definitions and descriptions of the aerodynamic phenomena and measurement procedures. Due to the application to all types of rail traffic it as yet has not converged to one method per phenomenon but allows variations that arise from national requirements.

PROJECT OBJECTIVES

- The overall goal will be achieved by the following high level objectives:
- Address HS & CR TSI's that effectively work to harmonise European and national standards on aerodynamics to reduce costs and time of certification
 - Reduce costs and time of certification by revising test configuration
 - Reduce costs and time of certification by introducing virtual testing
 - Close "open points" in the HS and CR TSI's.



Partners involved : 22
Project duration : 48 months
Budget: € 5,56 m (EC Funding: € 3,3 m)

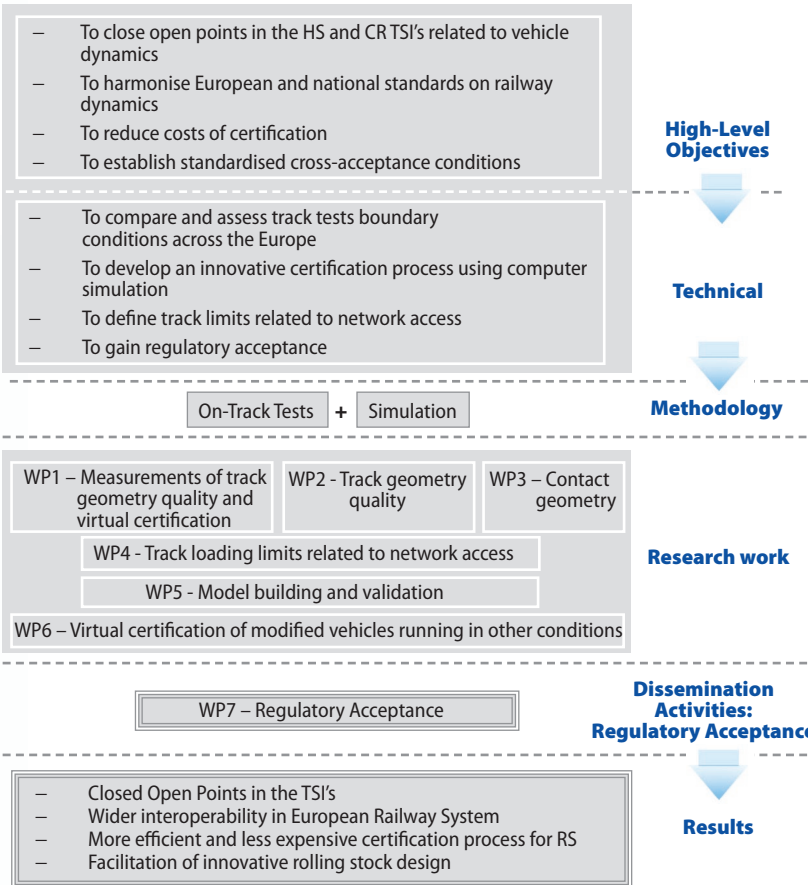


BACKGROUND

Certification against EN standards on railway dynamics in particular, together with the relevant technical annexes of the High Speed TSI, following various tests methods, extend train delivery times for months. Besides, the tests do not always capture all operating conditions. There is a risk of failure or unsafe approximation in such tests. In addition to this, some uncontrolled environmental and other boundary test conditions combined with restrictive operational limits can influence results. The costs and duration of tests performed in such conditions are also often increased by the need to do these tests several times so as to explore as much as possible all the range of environmental and boundary conditions and secure the results.

PROJECT OBJECTIVES

- The overall goal will be achieved by the following high level objectives:
- address HS & CR TSI's that effectively work to harmonise European and national standards on railway dynamics and track interaction to reduce costs and time of certification



- reduce costs and time of certification by replacing existing tests
- reduce costs of certification by introducing virtual testing

Partners involved : 16
Project duration : 36 months
Budget: € 3,63 m (EC Funding: € 2,2 m)



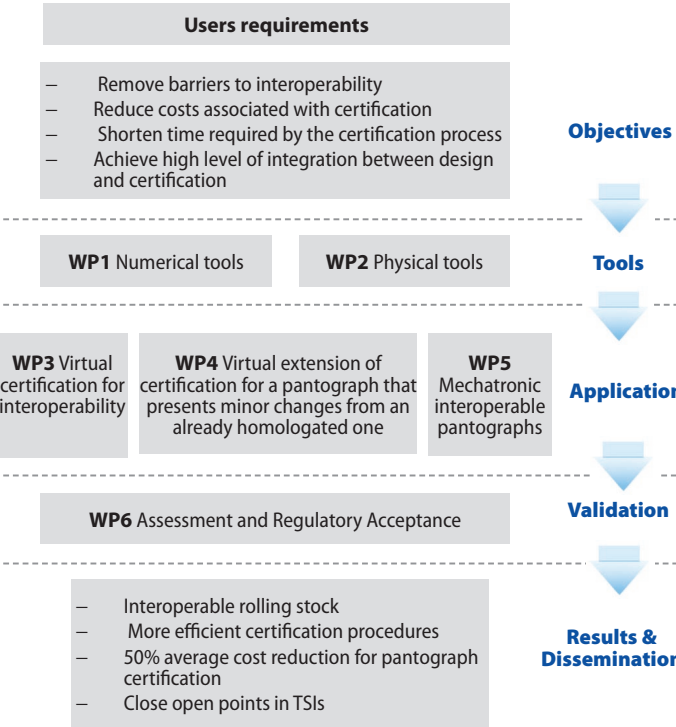
BACKGROUND

The pantograph / catenary system represents one of the major barriers to rolling stock interoperability: traditionally, each country in Europe having developed its own overhead line equipment in a different way, which is then reflected as different catenary and pantograph designs with variations in mechanical properties. Hence, a unified approval method, able to consider the diversity of existing solutions in Europe is a key subject that must be addressed to provide a competitive railway system

PROJECT OBJECTIVES

PantoTRAIN will provide the European railway industry with a key step towards achieving full interoperability by providing the tools to assess the mechanical compatibility of pantographs and catenaries. Furthermore the implemented results of PantoTRAIN will contribute to decrease maintenance costs. This will be achieved by setting up a comprehensive procedure for virtual performance assessment for the pantograph / catenary system.

- The overall objectives of the PantoTRAIN project are:
- to improve pantograph interoperability, also by fostering the use of innovative pantographs having mechatronic functionalities. This will remove one of the major barriers to rolling stock interoperability



- to reduce the costs associated with certification of new and modified pantographs
- to shorten substantially the time required by the certification process of pantograph / catenary systems
- to achieve a high level of integration between design and certification processes for pantographs.