



PROJECT PARTNERS

COMSA with a consortium of 55 partners

BUSSINESS AREAS

Infrastructure area
COMSA, S.A.

DURATION

2015-2018

BUDGET

17.998.546€

KEYWORDS

Rail network, railway system, railway components, infrastructure, intelligent mobility, energy management

COORDINATOR

Manuel Alfageme (COMSA)

EXTERNAL FUNDING



Title of the project

Innovative Intelligent Rail "IN2RAIL"

Acronym

IN2RAIL

Content of the project

The European railway network has been incrementally developed over many years and is, today, a patchwork of components, systems and improvements. The network is susceptible to performance issues due to this legacy:

- The fundamental design of critical infrastructure assets, e.g. switches and crossings (S&C) and track systems are not capable of meeting the demands of future rail transport, and have not been designed following a whole system approach.
- Rather than risk and condition-based LEAN approaches, which optimize Reliability, Availability, Maintainability, Safety (RAMS) and lifecycle costs, asset maintenance activities predominantly follow costly time-based regimes that often fail to define the root causes of degradation.
- The wealth of data and information on the status of assets and traffic is distributed over a wide range of information systems and differing standards that restrict data access and exploitation.
- Power systems incur high and unnecessary energy losses: no close-loop systems exist to balance energy demands.

General objectives

IN2RAIL is a project which aims to create solutions to improve the energy performance of the railway system and research on new power systems characterized by reduced losses and capable of balancing energy demands, along with innovative energy management systems that enables accurate and precise estimation of energy flows within the railway. This will result in reduced energy consumption and costs, optimized asset management and better use of the railway capacity.

Results and conclusions

A way to improve energy performance in the railway sector has been tested which consisted in balancing energy flows in the rail power network with an AC synchronized power network without phase changes.

The electrical substations with no connection phase change to public grid have been observed to provide several advantages. These are Higher power, choice for connection to MV public power, no neutral section is required, double side feeding with load balancing, optimized substation sizing, larger inter-substations distances and less energy loss.

The end to end energy metering sensor network allows to have:

1. A non intrusive metering sensor network
2. An open international data platform
3. A set of monitoring & analysis applications