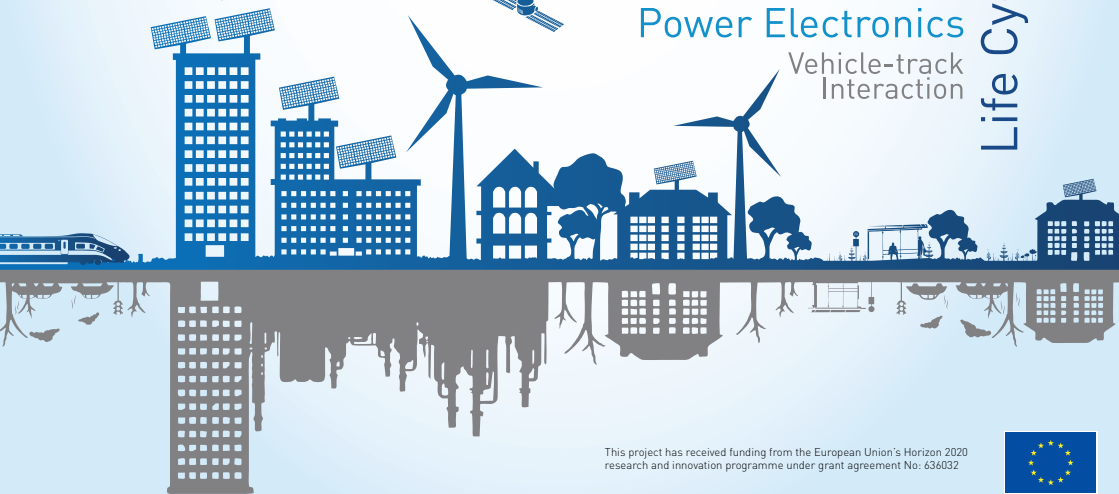




Roll2Rail

New Dependable
Rolling Stock
for a more Sustainable,
Intelligent and Comfortable
Rail Transport in Europe

Capacity
Reliability
Radical Innovation
Interior Design
Braking Systems
Noise Reduction
Composite Materials
Wireless
Energy Efficiency
Attractiveness
Mechatronics
Rolling Stock
Passenger Comfort
Next Generation
Light vehicles
Running Gear
Traction
Power Electronics
Vehicle-track Interaction
Life Cycle Costs





Project in a Nutshell

Roll2Rail aims to develop key technologies that will overcome hurdles to innovation in rolling stock development and forms part of a longer term strategy towards revolutionising the rolling stock of today. This project envisions paving the way towards a 15% increase in the capacity of the railway system, a 50% increase in the operational reliability and punctuality of the vehicles, a 30% improvement in energy efficiency of the system, and a 40% reduction in vehicle and track life cycle costs, while at the same time also improving passenger comfort. Moreover, Roll2Rail is setting the foundations for many of the technologies that will be continued within Shift2Rail's Innovation Programme 1: "Cost-efficient and Reliable Trains, including high capacity trains and high speed trains".

Project Objectives

The main concept behind Roll2Rail is to depart from the traditional incremental approach to vehicle development towards a whole new way of thinking on product development. The actions to be undertaken within the scope of Roll2Rail are related to the following more specific objectives:

- To develop the basis of a new traction technology based on emerging electronic components and motor-wheel high-speed equipment.
- To open the way for new functionality which will allow more flexible and reliable coupling between vehicles by using wireless technology applied to train control functionalities.
- To reduce vehicle weight so as to increase space available for passengers using carbody solutions based on lightweight composite materials.



Project Organisation

- To un-block innovation in the field of running gear by developing a clear way of quantifying the life-cycle cost impact of existing and new technological solutions.
- To bring down barriers to step-change innovation in the area of braking systems by gaining knowledge of the variety of requirements in Europe.
- To contribute to a new attractive and innovative environment for passengers in the vehicle by developing standardised methodologies for assessing attractiveness and comfort from the passenger's point of view.
- To develop methodologies for noise source separation techniques allowing implementation of novel and more efficient noise mitigation measures for the rolling stock of the future.
- To develop a standardised methodology for the calculation of energy consumption for Passenger, Freight and Urban trains.

Roll2Rail focuses on technological innovations in different subsystems of the vehicles which, individually, each and all together, contribute to achieve the desired impact at vehicle and whole railway system level on capacity, reliability, efficiency, comfort and life cycle costs. The project expects innovations in 8 different areas such as traction and power electronics, train communications, car bodyshell, running gear technologies, brakes, train interiors, noise and vibration and energy performance — each of which has a dedicated work package (WP).

WP1 is investigating more energy efficient, better performing, lighter, quieter and less bulky **traction systems**. The objective of this WP is to propose a new traction technology based on emerging electronic components and motor-wheel high-speed equipment.

WP2 is looking into a new generation of train communication systems. In particular, this WP will develop new **wireless technologies** applied to train control functionalities.

WP11 Project Management

WP1

Traction

WP2

TCMS

WP3

Car
Bodyshell

WP4

Running
Gear

WP5

Brakes

WP6

Comfortable
& Attractive
Train Interiors

WP7 & WP8 Transversal activities: Noise - Energy



WP9 System Integration and Technical Coordination



WP10 Dissemination

WP3 is working on the reduction of vehicle weight by investigating **car body solutions** based on lightweight composite materials.

WP4 is focusing on innovation in the field of **running gear**. In particular this WP aims at quantifying the Life Cycle Cost impact of existing and new running gear technologies.

WP5 aims to break down barriers for **innovation in brakes** by investigating and proposing future requirements for the process of homologation and harmonisation of brakes.

WP6 is working on attractive and **innovative environments for passengers**. The aim of this WP is to develop standardised methodologies for assessing attractiveness and comfort from the passengers' point of view.

WP7 is researching the implementation of novel and more efficient **noise mitigation** measures, specifically regarding the development of methodologies for noise source separation techniques.

WP8 is looking into the quantification of **energy** baselines by developing an energy calculation methodology.

Contribution to Shift2Rail

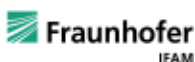
Roll2Rail is one of the lighthouse projects of Shift2Rail. It will contribute to Innovation Programme 1 "Cost-efficient and reliable trains, including high capacity trains and high speed trains" as well as to Shift2Rail's "Cross-cutting activities". At the end of the project, the outcomes will be incorporated into real vehicles or relevant environments as part of the long term strategy of Shift2Rail.

Partners

Project coordinator



Technical leader





Facts and Figures

Total Budget:

€16

million

(€16m EU funded)

31

Partners

Duration:

30

Months

Project Start Date:

1st May 2015

Project End Date:

31st October 2017

Grant Agreement No: 636032

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