

## OBJECTIVES

The overall aim of the Mat4Rail project is to lay the foundation for:

- Reducing train weight by replacing metal parts with Fibre Reinforced Polymers (FRPs)
- Increasing capacity and passenger comfort via built-in modularity of train interior design

The objectives of the Materials work stream are to develop FRPs that meet all the railway environment requirements regarding Fire, Smoke and Toxicity, mechanical performance and cost effective manufacturing, to develop structural joints for FRPs, and to innovate the access door system by reaching improvements in term of weight, acoustic attenuation, thermal performances and cost.

The Interior Design work stream is addressing the challenges and shortcomings of current rolling stock in terms of modularity in use to meet the changing passenger demand during the 30-40 years of an in-service operating life-cycle of a train. This work stream is aimed towards tackling this challenge in three distinct sub-systems: innovative plug & play systems, innovative seats and innovative driver's desk.

Parallel to the Mat4Rail project runs the complementary Shift2Rail JU project, PIVOT - Performance improvement for vehicles on track. Mat4Rail and PIVOT aim at achieving innovations which respond to the rail industry's needs and requirements through frequent interaction and knowledge sharing between the two projects.

## KEY FACTS

Project Duration:  
01/10/2017-30/09/2019

Project Budget:  
3.5 million euro

Project Website:  
[www.mat4rail.eu](http://www.mat4rail.eu)



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## PROJECT COORDINATOR



Dr Elena Jubete  
[ejubete@cidetec.es](mailto:ejubete@cidetec.es)

## PARTNERS



[WWW.MAT4RAIL.EU](http://WWW.MAT4RAIL.EU)



# DESIGNING THE RAILWAY OF THE FUTURE

Fire resistant composite materials and  
smart modular design for more cost-efficient  
and reliable trains in Europe

ACTIVITIES

Mat4Rail aims to develop innovative materials and technologies, as well as design concepts within two independent work streams. Work Stream I of the project concentrates on materials, whereas Work Stream II addresses interior design.

The Materials work stream is structured into four work packages (WP): Resin development, fibre selection and manufacturing of first composite samples and parts (WP2), Investigation of joining technologies of composites parts with other composites parts as well as with metal parts (WP3). Testing and characterisation of novel materials and joints (WP4). Investigation of new materials, architectures and manufacturing processes for the door leaves of a train’s access doors (WP5).

The Interior Design work stream includes “Innovative plug & play systems” (WP6), “Innovative seats” (WP7) and “Innovative driver’s desk” (WP8).

