

# Main objectives and outcomes of the project

The project will contribute to the next generation of freight propulsion concepts addressing two main areas: freight running gear for locomotives and operation of long freight trains, with the following high-level objectives:

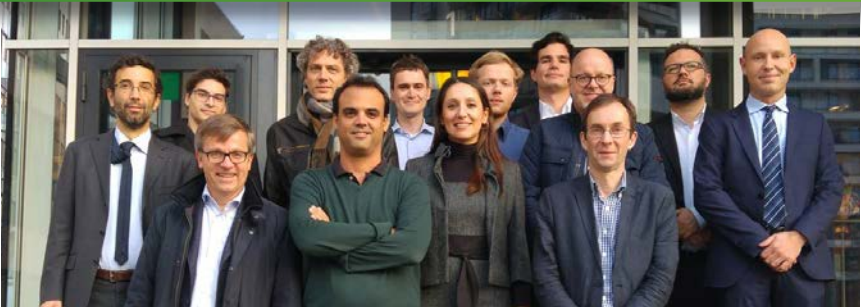
- 1. Improved performances: traction, speed, running dynamics and wheel/rail efforts;
- 2. Reduced rail freight noise at the source;
- 3. Enhance capacity/traffic throughput with the operation of longer trains (up to 1,500m);
- 4. Reduced operation and maintenance costs (reduced wheel and rail wear, smarter maintenance, etc.).

Two main technical Work Packages will focus on the main areas of intervention identified by the project under the leadership of Stadler and KTH:

WP2 - Next Generation Freight Bogie	
Task	Planned activity
Light materials assessment for rail freight bogie application	Research into transferability of new materials (TRL 3)
Noise reduction	Research, simulations and testing on noise solutions (TRL 4)
Passive and mechatronic steering systems	Research and simulations improved steering systems (TRL 4)
Monitoring systems	Research and assessment of monitoring solutions (TRL 3)
Bogie Model Integration and Implementation	Simulations and implementation on new concepts into a virtual model for final assessment (TRL 4)

WP3 - Operation of 1,500m long Freight Trains	
Task	Planned activity
Functional requirements of radio communication	Research into the reliability of radio communication (TRL 4)
Safety precautions in train configuration and brake application	Research into and simulations on brake pressures, longitudinal buffer forces and derailment risk (TRL 3)
Adaptions in the rail infrastructure	Definition of demands and requests on the infrastructure for long-train operation (TRL 3)

# Partners, Facts & Figures



PROJECT COORDINATOR



TECHNICAL LEADER



BENEFICIARIES



Total Budget:  
**€1**  
million

Partners:  
**10**  
Partners

Duration:  
**20**  
Months

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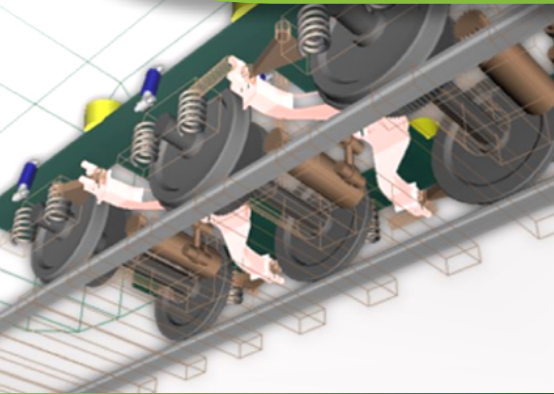
Innovative technical solutions for improved train **DYN**amics and operation of longer **FREIGHT** Trains



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## Project in a nutshell



Next Generation Freight Locomotive Bogie



Technical Solution for regular Operation of 1,500m long Freight Trains

**DYNAFREIGHT** (Innovative technical solutions for improved train **DYNA**mics and operation of longer **FREIGHT** Trains) is a 20-month Shift2Rail Open Call project launched in November 2016 with the aim to provide the necessary inputs for the development of the next railway freight propulsion concepts within Shift2Rail. The project contributes to overcoming the problems of operational and technical nature that have been negatively affecting the overall capacity, performance and competitiveness of the EU rail freight industry.

The DYNAFREIGHT Consortium is coordinated by UNIFE and gathers ten partners coming from six EU countries and covering all areas of expertise: Rail

supply Industry (Stadler, Lucchini RS and Laird Controls Europe), Infra Manager (ADIF), Academia (Politecnico di Milano, Huddersfield University, TUB and KTH) and consulting company (FIT Consulting).

The project addresses two main areas:

1. Freight running gear for locomotives: DYNAFREIGHT designs and develops the necessary concepts that will allow a locomotive freight bogie to reduce wheel and track wear, to have lower noise and lower LCC.
2. Operation of long freight trains: following the outcomes of MARATHON, DYNAFREIGHT prepares the path for regular operations of long freight trains.

The final vision of the proposed DYNAFREIGHT project is to contribute to the objectives of the EU White Paper on Transport 2011, which states that by 2030 a shift of 30% of road freight over 300km to rail, or a doubling of the freight transport by rail compared to 2005, should be achieved. Future models of locomotives will strongly contribute to the achievement of this challenge, supporting the realisation of the goal by providing more attractive

rail freight services to the final customer, with competitive rail solutions, maximizing flexibility and efficiency while reducing the operating and maintenance costs.

DYNAFREIGHT will contribute to this vision and overall concept of the EU rail freight transport by focusing on the next generation freight bogie locomotives and on preparing the path for regular operations of long freight trains (up to 1,500m), providing

the first steps for the development of TD5.5 New Freight Propulsion Concepts within Shift2Rail IP5. The innovations to be achieved in the two technical work packages proposed in DYNAFREIGHT are linked in the sense that the outcomes will be combined within Shift2Rail IP5 to bring a benefit at rail freight system level.

The main objectives of DYNAFREIGHT will be achieved through a fruitful cooperation with its correspondent Call For Members project, Future Freight Locomotive for Europe – FFL4E. the combined activities will serve for the success of the Technology Demonstrator 5.5 described in the Shift2Rail Multi-Annual Action Plan – MAAP.

