Introduction of FINE1

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17.10.2019

Shift2Rail

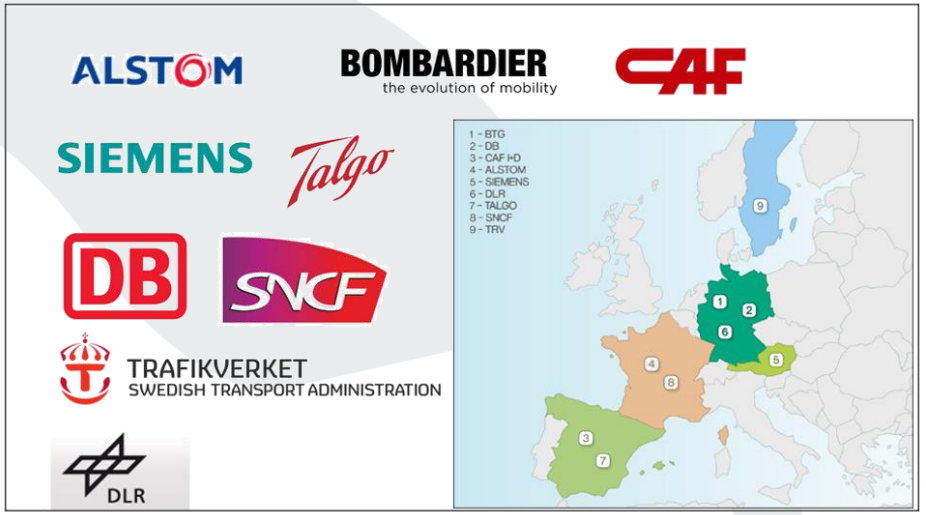
Grant Agreement Number: 730818

FINE1 Overview

FINE1 (Future Improvements on Noise and Energy 1)

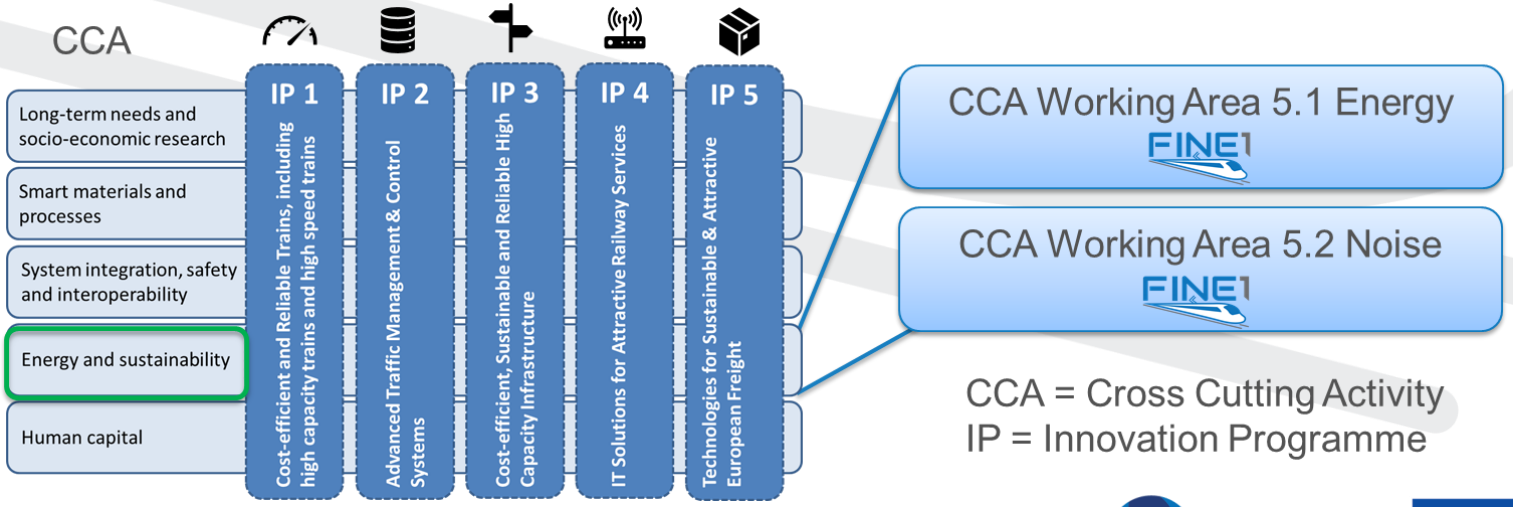
Main facts:

- 9 partners from 5 countries
- 38 months runtime
- 3,017 M€ budget
- Coordinator: Bombardier Transportation Germany



Complementary projects:

- OPEUS for Energy (Coordinator: University of Newcastle)
- DESTINATE for Noise (Coordinator: TU Berlin)



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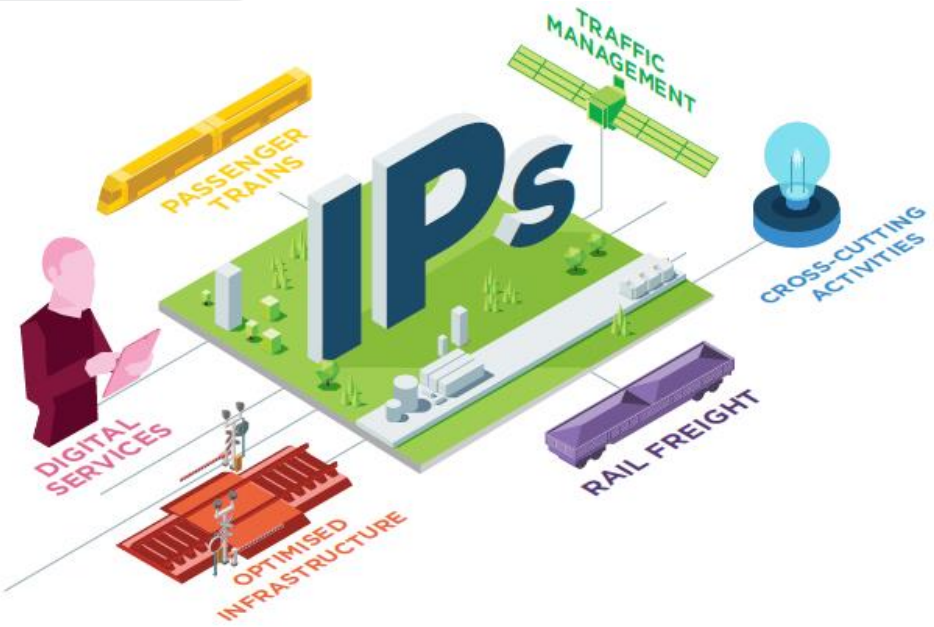
Objective and Challenges

Objectives

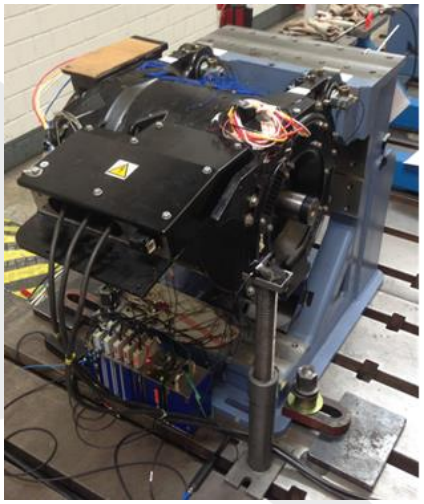
- Assessment of the energy and noise reduction potential of Shift2Rail
- Development and pre-standardisation of the practical useful tools for energy calculation, interior noise prediction and acoustic source characterization
- Integration of new technologies



Challenges

- Definition and agreement on the prediction methodology and reference parameters
  - e.g. traction chain / acoustical relevant systems
- Collection of improvements values for acoustic and energy performance of Technical Demonstrators within S2R IP projects
- Alignment of the projects FINE1 and the open call projects

Achievements



Achievements

- Baseline scenarios for noise monitoring in S2R TDs and traffic scenarios
- Definition of noise targets for S2R TD

- Improvement of interior noise calculation tools
- Development of characterisation methodologies for sources and train assemblies, especially for structure borne noise

- Auralisation&Visualisation demonstrator at InnoTrans 2018

- Simulation of the reduction of energy usage due to the S2R innovations by means of the OPEUS simulation tool
- The reduction potential is 4 – 8% (dependent from the traffic segment)

CONTRIBUTE TO **REDUCTION OF NEGATIVE EXTERNALITIES**, SUCH AS NOISE, VIBRATIONS, EMISSIONS & OTHER ENVIRONMENTAL IMPACTS

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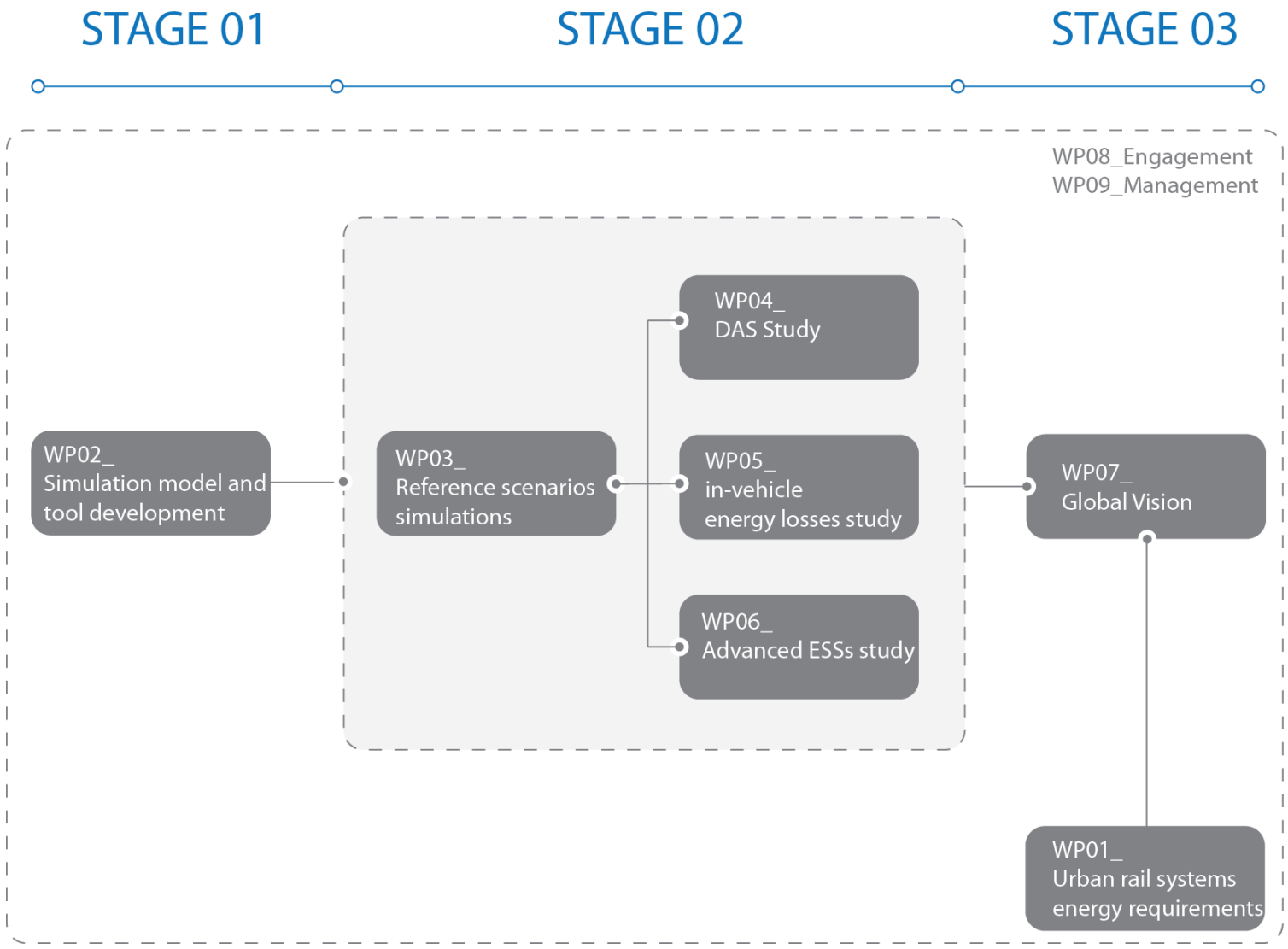
Modelling and strategies for the assessment and Optimisation of Energy Usage aspects of rail innovation_OPEUS

Dr Roberto Palacin_Coordinator

Overall aim

To develop a simulation methodology and accompanying modelling tool to evaluate, improve and optimise the energy consumption of rail systems with a particular focus on in-vehicle innovation

OPEUS_


STAGE 01
STAGE 02
STAGE 03
WP08_Engagement
WP09_Management
WP02_
Simulation model and tool development
WP03_
Reference scenarios simulations
WP04_
DAS Study
WP05_
in-vehicle energy losses study
WP06_
Advanced ESSs study
WP07_
Global Vision
WP01_
Urban rail systems energy requirements

OPEUS and FINE1 Final event, Paris, 17.10.19

HIGHLIGHTS

Key achievements

- **The TOOL!!**
- Illustration of its **applicability** by:
  - Assessment of **S2R innovation**;
  - Exploratory **case studies** in ESSs and traction chain losses
- **Energy outlook** for railway systems
  - **Urban** rail systems energy **requirements** e.g. socio-economic, political;
  - **Position paper** on energy and rail systems

- You will hear more about these outcomes during the afternoon sessions
  - Cluster 1_the tool and case studies
  - Cluster 2_position paper
  - Cluster 3_next steps for the tool

Thank you

Newcastle University

Universität Rostock

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