



Advisory Board Meeting
2022/03/31

Vision, Innovation and Highlights



Grant 881805

Vision

The main objective of the LOCATE project is to replace as necessary as possible the preventive conditional or scheduled maintenance of mechanical parts of the bogie by predictive maintenance.

It is expected that a condition-based monitoring maintenance program will:

- Increase of availability (concerns only the time to work on the bogie) 30%
- Decrease of the costs (only the maintenance costs of the bogie) 20%
- Increase of the reliability (of the bogies and the components linked) 60% (incidents per unit of route)

At the end of LOCATE we will have developed tools and methods

- to identify the failures in the bogies, primary and secondary suspensions, wheels, electric traction motor, or transmission. We will be able to anticipate these failures from several days to several weeks.
- To do pre-operational and operational planning using the data produced

LOCATE will have developed all the tools and components to perform a demonstration on a locomotive and in a maintenance depot environment, providing decision-making information to the operator. The technology readiness level will therefore be **TRL6** (technology demonstrated in relevant environment).

Innovation and Highlights

- Set of sensors and models to detect failures and measure condition of the bogie (wheelset, axle box, suspension, electric traction module, bogie frame).
- Locomotive reference behaviour database (simulation and potentially with collected data)
- Condition assessment using damage detection methods based on transmissibility concept, such as TDI and MO methods
- framework for predictive maintenance based on condition/reference behaviour, optimised maintenance schedule and operational constraints
- Condition monitoring, diagnostics and prognostics approach