



# *TRAINDY*

TrainDy is a UIC-approved software program that calculates longitudinal forces along trains.

A key feature of the TrainDy software is its capacity to solve both pneumatic problems (venting of brake pipe and filling of brake cylinders) and mechanical problems (computation of relative movement between consecutive wagons). This feature makes TrainDy a valuable tool **for risk analysis on new heavier and longer freight trainset** compositions applying the IRS 40421 methodology **avoiding partial or total in-line tests.**



## What is TrainDy

## TrainDy Special Group

TrainDy can be used to:

- ▶ analyse train failures (derailment, disruptions, etc.)
- ▶ understand the influence of technical parameters or operating conditions
- ▶ optimise train productivity (increasing train mass or length, defining new driving rules for trains or design rules for rolling stock)

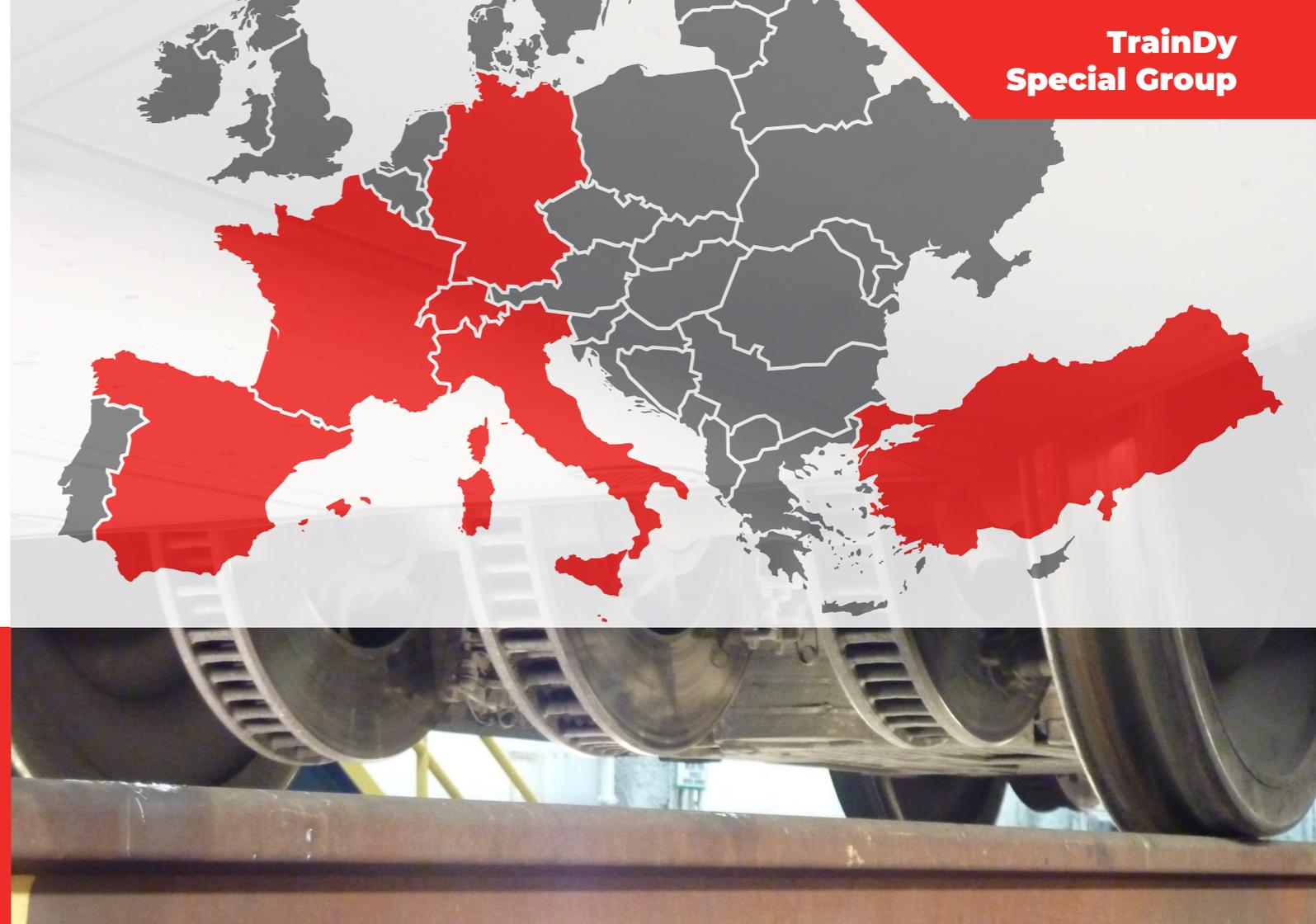
The TrainDy software is managed and developed in Matlab (an international standard programming language) by the UIC TrainDy Special Group.

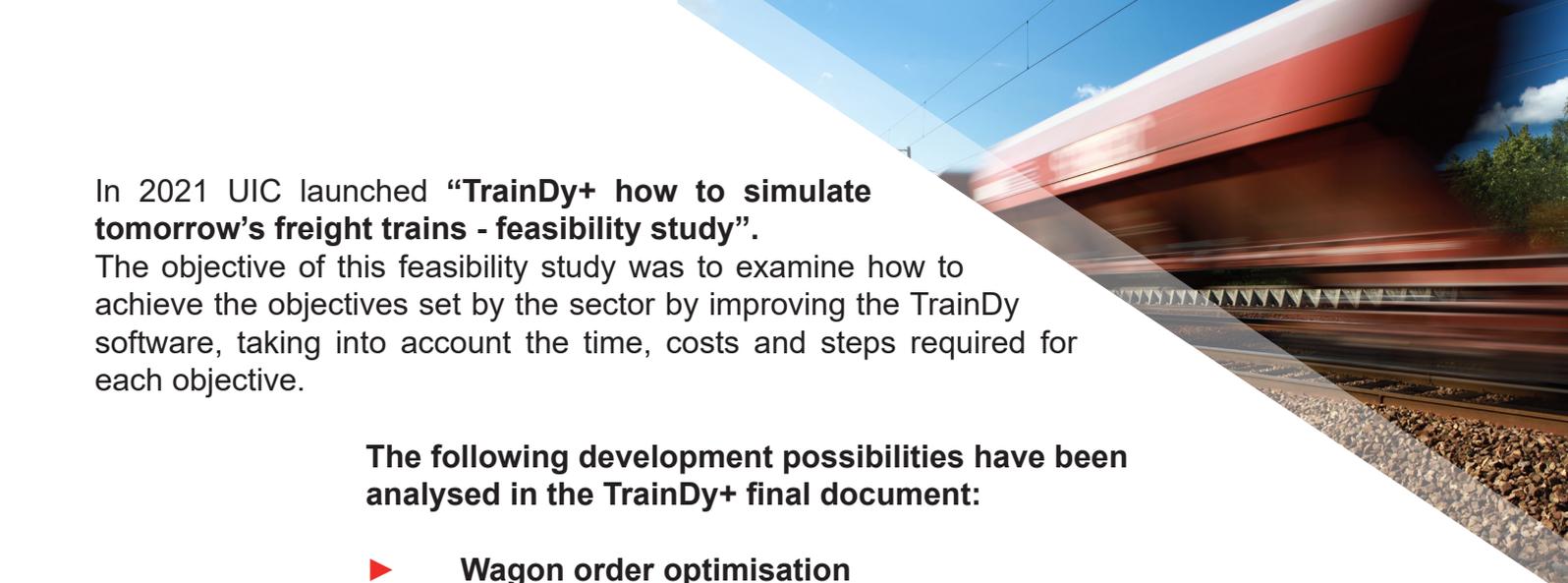
The software is available to members of the **TrainDy Special Group**.

The objectives of the special group are to **keep the TrainDy software up to date** and to increase its membership in order to maximise the use of TrainDy among freight operators and **deliver services** to customers interested in productivity gains.

Today the group is composed of **11 members** :

- ▶ **Railway undertakings:** DB AG, SNCF, TRENITALIA and SBB
- ▶ **Industrial companies:** Faiveley Transport (a Wabtec Company) and Knorr Bremse SfS mbH
- ▶ **Research institutes:** RAILENIUM and TUBITAK RUTE
- ▶ **Universities:** University of Rome Tor Vergata, Technical University of Berlin, and Universidad Antonio de Nebrija





In 2021 UIC launched “**TrainDy+ how to simulate tomorrow’s freight trains - feasibility study**”.

The objective of this feasibility study was to examine how to achieve the objectives set by the sector by improving the TrainDy software, taking into account the time, costs and steps required for each objective.

**The following development possibilities have been analysed in the TrainDy+ final document:**

- ▶ **Wagon order optimisation**
- ▶ **Electro-pneumatic brake**
- ▶ **Energy optimisation**
- ▶ **Integration of wheel/rail contact in longitudinal train dynamics**
- ▶ **Automatic statistical computation**
- ▶ **Simulator for Autonomous Trains**
- ▶ **Digital Automatic Coupling**

**TrainDy’s  
future**

**TrainDy+:** <https://www.shop-efr.com/fr/traindy-how-to-simulate-tomorrow-freight-trains-feasibility-study>

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