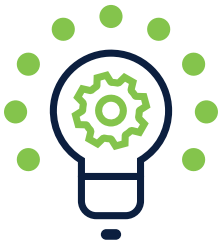
Co-funded by the European Union

# Transforming rail freight starts with smart wagon concepts

With the aim of initiating a 'technological awakening' for rail freight transport, Europe's Rail conducted a number of technical demonstrators (TD).

One of those investigated **smart freight wagon concepts**.

Based on this research, the TD delivered 3 technologies that could help generate the frameworks and functional requirements needed to enable the development of track-friendly, low-weight, low-noise, and high-speed running gear.



## RUNNING GEAR

**TRL: 4 (technology validated in lab)**

The running gear technology is comprised of wagon design and wheelset concepts and the evaluation of both acoustics and aerodynamic characteristics.

### Key findings

- Using aluminium solutions reduces the weight of an empty wagon, leading to an increase in payload weight (**900 kg**).
- This feature improves current payload ratio by **13%**.
- This payload increase would be also accompanied for by delivering better production costs, improving transport emissions, and decreasing maintenance requirements.

### Who benefits

Railway operators

Suppliers

Final users

## CORE MARKET WAGON (CMW)

**TRL: 7 (system prototype demonstration in an operational environment)**

CMW is an effort to design a light and intelligent wagon for transporting goods requiring protection against weather conditions (e.g. powder snow) as well as lighter parts and less rolling noise.

**Key findings**

- Europe's first covered wagon with sliding side walls has an increased volume of two square metres.
- Includes several sub-component optimisations that contribute to a greener and more efficient operation.
- The telematics and electrification systems enhance logistics capability and CBM concepts.

**Who benefits**

Railway operators

Suppliers

Final users

## EXTENDED MARKET WAGON (EMW)

**TRL: 6 (technology demonstrated in a relevant environment)**

The wagon incorporates many unique features and functions that should help make rail freight more attractive and competitive.

**Key findings**

- EMW offers a new production model aimed at intermodal rail freight and primarily targets the high value/low volume market.
- EMW offers a **13%** increase in payload, a **10%** reduction in energy consumption, and is designed to operate at a maximum speed of **140 KPH**.
- The wagon is expected to deliver between a **40-50%** improvement in the specific cost of transport per unit.

**Who benefits**

Railway operators

Suppliers

Final users

## WANT TO LEARN MORE?

Solutions developed by Shift2Rail, Europe's Rail's predecessor programme

rail-research.europa.eu