

## INNOWAG Consortium

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[www.newrail.org/innowag](http://www.newrail.org/innowag)



*INNOvative monitoring and predictive maintenance solutions on lightweight WAGon*

## About INNOWAG

The INNOWAG project started in November 2016 and ends in April 2019. INNOWAG responds to the first Open Call issued by the Shift2Rail Joint Undertaking, as part of Shift2Rail Horizon 2020 programme. It specifically addresses the topic *S2R-OC-IP5-03-2015: Intelligent freight wagon with predictive maintenance*. INNOWAG is complementary to the FR8RAIL project, which responded to the topic *S2R-CFM-IP5-01-2015: Development of functional requirements for sustainable and attractive European rail freight*.

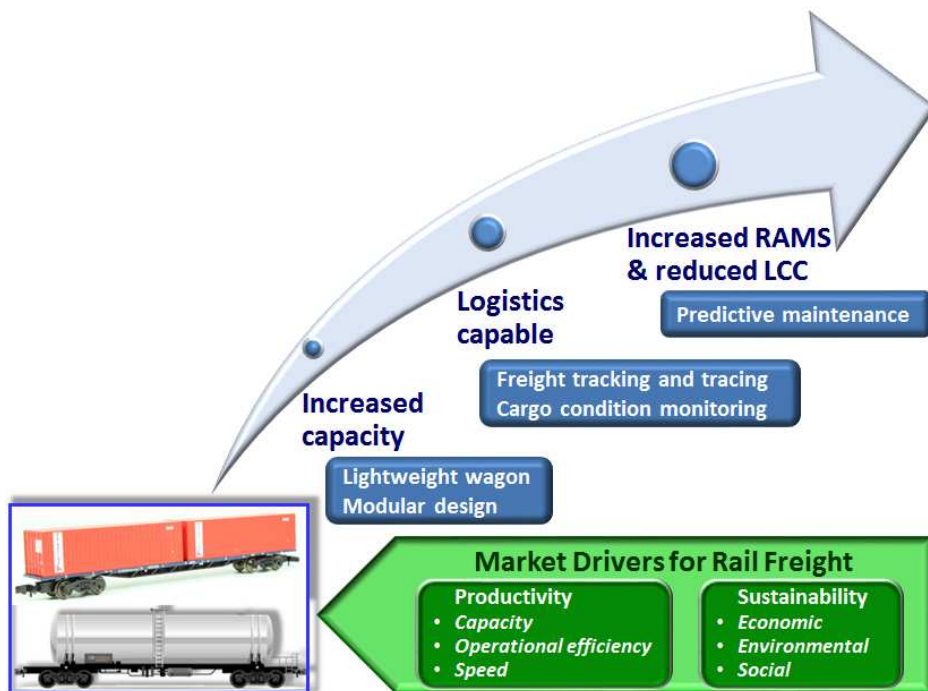
The concept underpinning the INNOWAG project aims to address the actual needs of rail freight for increasing its competitiveness and attractiveness. The INNOWAG project, therefore, aims at contributing to the development of rail freight services that fits the needs of modern manufacturing and supply chain.



## The Challenge

The **rail freight challenge** is to increase its competitiveness and attractiveness through a higher **productivity** and **efficiency**, as well as by adding **novel features** that would respond to new demands from customers and end-users.

Innovation in rail freight is, therefore, driven by both external drivers of change (such as demographics, globalisation, technology, sustainability, economic competitiveness, regulation, etc.) and internal drivers of change that are specific to the rail freight market (e.g., time and distance of services, demand of new logistic services, complexity and sophistication of supply chains, etc.). Such requirements have to be fulfilled through development of hardware and software technologies to be implemented in new equipment design and management of information.



INNOWAG tackles the internal drivers of change, with the overall goal to increase the rail market share in accessible segments, and thus support the shift of freight transport to rail. INNOWAG develops innovations in **three macro-areas** (cargo condition monitoring, wagon design, and predictive maintenance), from concept to laboratory and real environment testing, for further integration and implementation.

## The project objectives and approach

The aim of the INNOWAG project is to develop intelligent **cargo monitoring** and **predictive maintenance** solutions integrated on a **novel concept of lightweight wagon**, which would respond to major challenges in rail freight competitiveness, in relation to: increase of transport capacity, logistic capability and an improved RAMS and lower LCC.

The development of novel technology concepts and predictive maintenance models and procedures will be separately addressed by the INNOWAG work streams, which tackle the specific challenges in their essential areas:

- **Wagon design:** Development of a novel concept of modular and lightweight wagon;
- **Cargo condition monitoring:** Development of an autonomous self-powered sensor system for cargo tracing and condition monitoring of key parameters for critical types of freight;
- **Predictive maintenance:** Development of an integrated predictive maintenance approach to enable efficient use of both remote condition monitoring and historical data, and further support the implementation of predictive models and tools in rolling stock maintenance programmes.

