



INNOWAG AT A GLANCE



INNOvative monitoring and predictive maintenance solutions on lightweight WAGOn

INNOWAG PROJECT DRIVERS

The transport innovation of the project focuses around themes that are driven by market trends and determined by specific customers' requirements. External drivers of change such as economics, changing demographics, regulations, flexibility, environment protection, mobility and ICT evolution impact the future of European railways by changing the transport and distribution paradigm. The internal drivers of change such as new needs, cost reduction, sustainability, operations simplification, hardware/software technologies applied to trains, wagons, rolling stock, impact on time and space, on the supply chain and on the services which dictate the customers' choices.

INNOWAG PROJECT IN A NUTSHELL

The rail challenge is to achieve in the medium/long term a better use of its capillary infrastructure extracting from it a much higher degree of productivity and efficiency. INNOWAG intends to act on the internal drivers of change so as to induce the desired shift to rail by increasing the rail market share on the accessible segments.

The innovations planned by INNOWAG are concentrated on three macro-areas from concept to laboratory and real environment testing leading to market place implementation: *cargo condition monitoring, wagon design, predictive maintenance.*

For *cargo condition monitoring* the project focuses on sensors and intelligent pods applied to the wagons capable of transmitting data in real time using the most advanced ICT technologies, both on the geographical wagons' locations and the condition of the cargo transported. This answers the market need for implementation of an effective track and trace system which has been for decades a major shortcoming of rail.

For the *wagon's design* the project studies new structural design, the use of innovative materials leading to lighter bogies for higher payloads. At the same time due to constraints on gauge profiles, the wagons design evolution allows it to make optimal use of the available infrastructure. This is very important since the swap bodies, containers, and truck dimensions have increased over the past decades creating further limitations in the use of rail corridors. The wagons design contributes to overcome this problem for the requirement for operational flexibility.

For the *predictive maintenance* the project undertakes studies for implementing innovative models for equipment reliability, stress resistance and fatigue along with the costs associated to them in order to arrive at standardisation models. The maintenance elements constitute a substantial component of the overall rail service costs and if the system manages to achieve efficient and competitive maintenance, the final outcome is a better service produced at lower costs as required by the market.

INNOWAG KICK OFF MEETING- FROM PRESS RELEASE

The INNOWAG project, financed by the Shift2Rail initiative of the European Commission, had its kick off meeting in Newcastle-upon-Tyne, UK on the 15th and 16th November 2016. The objective of the project is to increase the rail freight competitive profile by developing the next generation of lightweight and intelligent freight wagons. The project will integrate innovative technologies for cargo condition monitoring into a novel high performance lightweight freight wagon, with predictive maintenance models for increasing European rail freight sustainable competitiveness. The INNOWAG project will also aim to develop a rail freight service that fits the needs of modern manufacturing and supply chain requirements, which will contribute to increasing rail freight capacity through the wagon design and deadweight reduction. This will improve freight logistic capabilities by offering real time data on freight location and conditions, through the use of smart self-powered sensors and ICT technologies. It will increase RAMS and reduce LCC by implementing modern and innovative predictive maintenance analytics, models and procedures. A qualifying part of the INNOWAG project development is the integration, correlation and exploitation of results into the other projects of the Shift2Rail members so that the emerging solutions are ready for exploitation into the marketplace.

INNOWAG CURRENT PROJECT STATUS

Work Package 1 "Benchmark, Market Drivers and Specifications" is composed of three tasks: Task 1 "Benchmark and market drivers", Task 2 "Compatibility and interoperability of integrated systems", Task 3 "Specifications and recommendations for further developments". The deliverable concerning Task 1 has been completed and submitted to S2Rail on time. The other two tasks are in progress for completion by May 31st 2017.

INNOWAG PROJECT PARTNERS

The INNOWAG Consortium is Coordinated by Newcastle University, UK and composed of leading European companies, associations and universities engaged in the field of Research, Technology Innovation and testing, Advanced rail material production, Wagons maintenance, Rail operations and ICT Fleet management.



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