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European Project SUSTRAIL on rail freight systems presents its results during its Mid-Term Conference in Paris

The sustainable freight railway: Designing the freight vehicle – track system for higher delivered tonnage with improved availability at reduced cost

(Paris, 4 December 2013) The SUSTRAIL consortium and UIC held the SUSTRAIL Mid-Term Conference today at UIC Headquarters, Paris, offering issues for debate to participants, including railway suppliers, research groups, railway operators (undertakings and infrastructure managers), guaranteeing that project solutions will satisfy user needs and fulfil railway requirements, railway organisations at EU and international level.

The SUSTRAIL project commissioned by the European Commission started in June 2011 with a duration of four years (June 2011 – May 2015). This Mid-Term Conference is the opportunity to discover the main results achieved by the project over the last 24 months, including the initial outcomes from the combined approach SUSTRAIL is working on that integrates vehicle and track innovations for a more sustainable freight railway. Also, the event is the occasion to plan for the project's forthcoming activities and to pave the way for the exploitation of the project results.

Mr Hans-Günther Kersten, Director of the UIC Rail System Department, opened the conference on behalf of UIC which is "honoured to be hosting the Mid-Term conference, because dissemination is an integral part of its core business of sharing knowledge with its Members. Moreover this project is important for both operators and infrastructure managers as part of the strategy towards the achievement of the objectives defined in the 2011 EU White Paper on Transport, to which UIC has committed itself."

Among others, the following topics were presented:

- Integrated approach for an increased performance in the freight rail system (Network Rail, D'Appolonia)
- Current and future trends in freight systems and freight traffic flows (Newrail, Network Rail, Adif, Marlo)
- Running gear (Huddersfield University)
- Novel wheel profiles and improved braking systems (Lucchini, Politecnico di Milano, KES GmbH)
- Lightweight solutions for bogie and wagon structures (Newrail)
- Condition monitoring for the freight rail vehicle and for the rail track (Mermecc)
- Performance based design principles towards a "zero" maintenance track (Network Rail, D'Appolonia)
- Supportive ballast and substrate (D'Appolonia)
- Switches and crossing (University of Huddersfield)
- LCC and RAMS analysis (Lulea Technical University)
- Novel business models, including user and environmental benefits, and technical implementation and human factors (University of Leeds, Network Rail, Grupo Clas)

The Sustrail objective is to contribute to the rail freight system to allow it to regain position and market, accounting for:

- The increase in demand of the total freight transport volumes: about 40% (in tonne-kilometres) by 2030 and 80% by 2050;
- The shift of 30% of road freight over 300 km to other modes such as rail or waterborne transport by 2030 (50% by 2050) as targeted by the European Commission.

Within this framework and motivated by the need and opportunity for change in rail transport, SUSTRAIL provides the approach, structure and technical content to improve the Sustainability, Competitiveness, and Availability of European railway networks thanks to an integrated approach.

Innovations in rolling stock and freight vehicles combined with innovations in the track components will be pursued by: adopting a holistic approach; implementing a clear methodology and viable procedures; setting up appropriate business cases; ensuring the penetration and the exploitation of the project results by means of effective dissemination activities; cooperating with National and EU authorities in view of future proposals for recommendations to be adopted for enhancing freight transport in the railway context.

The main scientific and technological expected results of the project are:

- The development of advanced vehicle dynamics concepts
- Developments in the traction and braking systems for high speed low impact freight operation
- Novel designs and materials for lightweight high performance freight wagon body vehicles and bogie structures
- Advanced condition based predictive maintenance tools for critical components of both railway vehicles and the track
- Identification of performance based design principles to move towards the zero maintenance ideal for the vehicle/track system
- Optimisation of the ballast system and novel ground stabilisation and monitoring techniques to reduce track geometry degradation
- Optimisation of the track system and geometry especially at switches and crossings.

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