

The European rail revolution

John Marcus, Head of Communications at UNIFE explains SHIFT²RAIL, the proposed major European public private partnership for rail research and its importance for the rail sector...

SHIFT²RAIL, the European public-private Joint Undertaking for rail research amounting to no less than €920m in funding is expected to be formally approved by the European Council of Ministers in June. This initiative, whose preparatory work is organised by UNIFE, the European rail industry association and its members (along with the broader sector), will improve the state of the art of rail technology and revolutionise rail as a mode of transport for both passengers and freight. The European rail industry currently accounts for 50% of the world market for rail products; SHIFT²RAIL is central to helping the industry maintain this leadership position while at the same time boosting the capacity and reliability of rail transport – resulting in better transport for all that is both attractive and environmentally friendly.

In 2011, the European Commission published their White Paper on Transport that sought to address the main transport challenges in the EU for the foreseeable future. One of the key phrases that is repeatedly mentioned throughout the document is “modal shift” – the need to move the percentage of passengers and freight using Europe’s over taxed road infrastructure to rail and maritime transport – in fact, it stipulates a target of 30% of passenger and freight transport to shift from road to rail and inland waterways by 2050.

For the rail industry, this document represented a massive opportunity and paralleled some investigatory work into a large scale EU-industry research initiative at that time being carried out by several major rail manufacturers and their European trade association, UNIFE. Having witnessed considerable success in similar EU PPP initiatives such as Clean Sky and SESAR in the air transport sector, the rail industry sought a massive, system-wide innovation initiative that

would make rail transport more attractive to end users by delivering a step change in rail technology – dubbed SHIFT²RAIL after the modal “shift” it endeavours to promote.

In order to boost the demand for rail, SHIFT²RAIL has 3 main targets: increasing the capacity, boosting the reliability, and reducing the lifecycle cost of the rail system. The research will be organised into 5 research areas called “Innovation Programmes” (or IPs):

- IP1: Cost-Efficient and Reliable High Capacity Trains, including High Capacity Trains and High Speed Trains;
- IP2: Advanced Traffic Management and Control Systems;
- IP3: Cost Efficient and Reliable High Capacity Infrastructure;
- IP4: IT Solutions for Attractive Railway Services;
- IP5: Technologies for Sustainable & Attractive European Freight.

These 5 IPs, and their component Integrated Technology Demonstrators (ITDs), constitute the system-focused approach that encompasses all of the subsystems across all platforms of rail transport (high-speed/mainline, regional, urban/suburban, and freight). Moreover, the research is designed to deliver outcomes that are “closer to market” through vigorous testing and demonstration that boosts confidence in early adopters and investors. This solves a common challenge in rail innovation – the fact that many new products are developed and tested in labs but the research programme lacks the resources to bring it close

enough to market for future implementation; making the first customer the first tester, if the results even go to market. In SHIFT²RAIL, 4 System Platform Demonstrations (1 for each segment of rail transport) are foreseen that will integrate the outcomes of all ITDs and IPs to be validated – ensuring high market uptake.

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The critical mass of support necessary to prepare and launch such a public-private undertaking has been possible not only because of the apparent societal challenges mentioned above, but because this type of undertaking is the only tool capable of delivering the step change that is widely viewed as necessary for rail. Furthermore, European PPPs in other sectors such as CleanSky (air transport), SESAR (air traffic management), and FCH (Fuel Cells and Hydrogen) have been great successes. These initiatives provided the necessary resources and the framework for collaboration that is necessary to take large strides forward which otherwise would not have been taken. This is especially true for the rail sector which is quite fragmented and large scale collaboration between the industry, operators, and infrastructure managers would be impossible without the incentive of EU investment which allows them to mitigate the risks associated with such large scale R&D.

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and efficient rail R&I results in economic (competitiveness and operational efficiency of the sector, induced macroeconomic impacts for wider economy), social (employment, safety, security, service quality) and environmental (reduced pollution, noise, congestion) impacts”. Additionally, a study carried out in 2013 by Seureco-Erasme Institute supports this assertion pointing out that SHIFT²RAIL will “enhance growth, competitiveness and employment in Europe” and foresees that the initiative will help to create more than 140,000 jobs in Europe between 2015 and 2030.

At present, SHIFT²RAIL has rallied monumental support within the EU institutions: including the full endorsement of the Commission through its proposal for a Council regulation to provide €450m in EU funds to create SHIFT²RAIL (to be matched by €470m from the private sector), and positive opinions on the Regulation from the European Parliament, the European Economic and Social Committee, and the Council of Ministers. Moreover, a significant portion of the European rail sector has participated in the preparatory work of the initiative, counting more than 125 organisations including: rail manufacturers, operators, infrastructure managers, universities, research institutes, and SMEs. The full Regulation for the Joint Undertaking is expected to be formally approved and adopted by the Council of Ministers in June, meaning that the Joint Undertaking will be officially established over the summer with operations expected to begin in January 2015. ■

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