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# Welcome to the first edition of the Shift2Rail Newsletter

Newsletter #0

## Welcome the #0 edition of the Shift2Rail newsletter!

In our bimonthly newsletter you will read about the progresses, achievements and success stories of our Research & Innovation Programme as well as gain an insight into Innovation Capabilities delivering the railway system(s) of the future. Through this first edition we present you the current state of play of the Shift2Rail Programme and give you a flavour of what is to come in the upcoming newsletters. We hope you will enjoy reading it.



## Welcome Word

The railway sector has a range of advantageous characteristics, which sets it apart from its competitors, for instance its ability to provide mass transit, journey comfort, safety, a low carbon footprint and energy efficiency, however it is not unaffected by the important societal and other key challenges Europe is facing. Shift2Rail JU has been established within the context of Europe experiencing these challenges in order to provide a paradigm shift to meet the evolving needs of the European citizens, and target cost and efficiency of the rail services.

S2R's vision reflects and provides solutions to the societal and other key challenges, Europe is facing, meeting the expectations of citizens, connecting people, business, and regions to make Europe a global hub for mobility and prosperity.

The European Commission upholds its commitment to Shift2Rail. The work performed by the JU demonstrates the added value of joint efforts from various actors working together towards a more competitive and stronger European Railway industry fully equipped to support the future needs of EU transport.

***Henrik Hololei, Director-General for Mobility and Transport and Chair of the S2R JU Governing Board***



## Shift2Rail develops world leading technology and products for innovative trains

The European railway sector, represented in the membership of Shift2Rail, are today faced with the challenges of dramatically improving train services that the operators provide to their passengers and freight customers, as well as maintaining the European railway industries' competitiveness in the world market. The sector faces the double challenge of improving performance and capability of the railway whilst reducing costs. Indeed, to remain competitive the railway industry must work with all the other transport modes to create a fully integrated multimodal transport system for the European citizen and customers.

Shift2Rail offers the unique opportunity to develop world leading technology and products for innovative trains and railway systems that meet the operating challenges and maintain Europe's position in the market place.

The S2R JU Members are working together to achieve focussed objectives that have been jointly developed in the JU. S2R enables the JU Members and the various organisations participating in the R&I projects to seek exciting opportunities to draw in and utilise the latest technologies in the Autonomous and IT sectors, as well as the advances in material science. Without S2R it is doubtful that the railway industry could achieve the implementation of these technologies.

***Prof Andy Doherty, Chief Technology Officer (CTO) Network Rail, ERRAC Chairman, and Governing Board Member of Shift2Rail***



## State of Play: Shift2Rail JU driving innovation on railways

Today, the railway although remaining at the heart of EU transport, needs radical change to bring to the forefront its unique role and establish itself as the backbone of future digital and sustainable mobility. The purpose of S2R is to achieve a Single European Railway Area; to enhance the attractiveness and the competitiveness of the European railway system; to ensure a modal shift from roads towards a more sustainable mode of transport such as rail; and to sustain the leadership of the European rail industry on the global market.

The S2R activities are driven by the [S2R Master Plan](#), designed to deliver the vision of a radically improved railway system and to define Research & Innovation (R&I) priorities for a 2030 horizon, beyond the programmatic period of the JU. S2R proposes a holistic approach to the rail system bringing together different stakeholders from the railway sector (e.g. rail equipment manufacturers, infrastructure managers, railway undertakings, SMEs and research centres) for them to collaborate, coordinate innovation efforts, and exchange expertise.

Given this whole-system approach, the S2R Master Plan establishes an

R&I Programme structured around five integrated Innovation Programmes (IPs) and five cross-cutting work areas (CCA) delivering among many things digitalisation, automation and energy efficiency. Central to this vision is putting the “customer” in charge delivering to European citizens the benefits of disruptive change, from today’s railway transport, operations and capabilities, to a user-centric railway system that excels. Today, the already running Shift2Rail projects have begun delivering the building blocks which enable innovative solutions needed to meet the needs of railway operators and network managers and to provide optimal services for European citizens and freight business. Expressed in the form of Capabilities, the technological innovations will bring about the most sustainable, cost-efficient, high-performing, time driven, digital, and competitive customer-centred transport mode for Europe.

***Carlo Borghini, Executive Director of Shift2Rail***



### **Innovation capabilities: as the key pillars of the future railway system**

Shift2Rail's Innovation Capabilities will allow railways to be part of the innovative future and to realise their vision. The Innovation Capabilities have digitalisation and automation at their core and will enable the sector to produce value-adding products and services. As an example, the capability to run trains much closer together would allow a dramatic increase in service frequency and network capacity, with higher system utilisation and related revenue adding significant value to railway businesses. For each of these capabilities, a set of necessary intermediate competences and technologies advances (sub-capabilities) has been built in.

The clusters below highlight where within the system the capabilities will have an impact:

- Customers and Markets: the capabilities set out to achieve customer satisfaction with the railway mode and its services; it allows railway companies to develop existing markets and to evolve new opportunities
- Society and Economy: the capabilities contribute to fostering social and economic integration thanks to the ability of rail to transport people and goods from A to B. Railways are economically sustainable in their operations
- Environment and Energy: the capabilities set out to support environmental sustainability and encourages the procurement and use of clean energy

Each newsletter edition will explore the building blocks enabling one or more capabilities. Furthermore, in the upcoming months Shift2Rail will unveil its interactive Innovation Capabilities map showcasing the future railway system(s) and its role at the heart of the multimodal European mobility.



## R&I on its way to deliver: ground-breaking improvements in traction and adhesion management

Currently vehicle solutions are getting closer to their enhancement limits and new radical proposals must be envisaged to accomplish the objectives of Shift2Rail. There is a need for ground-breaking improvements in the two key vehicle technology areas, the traction and the adhesion management.

Shift2Rail through its project PINTA from one side brings to the market a new generation of traction drive equipment; on the other side, improves safe brake systems based on adhesion management with higher braking performance, lower life-cycle cost and noise level. The use of SiC (silicon carbide) technology opens up a lot of new possibilities and is a great example on how to accomplish these objectives. Besides improved energy efficiency and lower losses in traction system (which are the most obvious driving factors behind the use of SiC technology), it gives other optimization possibilities that improve customer values, such as noise reduction and reduced cooling.

Through making the best use of all these prospects the project has started to develop technologies that allow for the design of trains to be lighter, more energy efficient with a lower impact on the track, thereby contributing to reduce the life-cycle cost for the entire railway system. These innovative technologies are the building blocks helping to achieve the Capabilities that will increase the transport capacity of railway lines and realise the future vision of Shift2Rail.



### Shift2Rail JU updates/key events

- On the 6th of October, the European Commission published the [interim evaluation \(2014-2016\) of the Shift2Rail Joint Undertaking](#). Even though the S2R JU only achieved its autonomy in May 2016, the report has emphasized the significant role the JU has already played in closing many gaps in previously fragmented rail research, while simultaneously providing the private and public sectors with continuity and stability. Through the evaluation, the Commission confirms its strong support to the S2R JU and the programme of research it has set out generating outputs which will assist the development of EU Transport policy.
- Starting September, the projects stemming from the [Call for Proposals 2017](#) have been kicked off and underway to deliver their planned results.
- Call for a new [S2R JU Scientific Committee member](#) – Deadline

extended

The new deadline for applications: 29 October 2017, 23:59 Brussels Time. For more information, we invite you to consult the full text of the Call for expressions of interest [here](#).

- Shift2Rail's Project, Near2050 focusing on determining the long-term needs of different actors in the railway sector has launched its second survey. This questionnaire will determine the user's choice of future perspectives of different influencing factors that affect the rail system. We are encouraging the rail sector to respond to Near2050's survey [here](#).

- Vacancies at Shift2Rail: Shift2Rail JU is currently looking for a Programme Manager. The deadline for application is: 24/10/2017 17h Brussels Time. For further information please click [here](#).

- Carlo Borghini participated in the [CyberSecurity4Rail Conference](#) which focused on awareness and responses to growing exposure to cyber threats. The main message shared by the participants: build trust and work together looking on what is going on and learning from other sectors.



### Upcoming events

**23-25 Oct:** Innovation in Action: Joint JU event in European Parliament

**27 Oct:** Governing Board meeting

**8-10 Nov:** Digital Transport days in Tallinn

**12 Dec:** S2R Call for proposals 2018 Info day

**13 Dec:** Governing Board meeting

### Shift2Rail in the news

[Shift2Rail at the heart of the Railway Innovation process](#) International Railway Summit

[Shift2Rail among European most successful research partnerships](#) RailwayPro Magazine

[Shift2Rail and Clean Sky: Part of the multimodal and competitive future EU transport](#) Skyline Magazine



