Minutes of Meeting – 10th meeting of the Scientific Committee of Shift2Rail

Shift2Rail Scientific Committee

Project:	SC	**Date/Time:**	20 September 2018 13:45-15:45
Meeting Type:	Scientific Committee	**Location:**	Innotrans 2018 Messe Berlin, Germany
Meeting Coordinator:	Valerie Lorgé, Léa Paties	**Issue Date:**	

Summary of the Meeting	
Topic	
Item 1	**Opening and Introduction of the new Chairperson, welcome from the S2R JU Executive Director** The S2R JU Executive Director welcomed the participants to the 10th meeting of the Scientific Committee (SC) and introduced the new Chairperson, Mrs Angela di Febbraro. Professor Angela Di Febbraro's mandate as S2R JU SC Chairperson runs from 8 May 2018 to 16 September 2019. The Chairperson presented herself and invited the new SC member, Mr Klaus Moessner, to present himself. The S2R JU Executive Director invited the SC members to the S2R JU stand at the Innotrans trade fair to witness the progress accomplished by S2R in the past two years, including preliminary Demonstrations (quick wins).
Item 2	**Approval of the meeting Agenda and previous MoM** The agenda of the meeting was approved. The minutes of the previous meeting were approved, with no request for additional changes.
Item 3	**Conflict of Interest: declarations** The declarations for Conflict of Interest (CoI) were sent together with the agenda. The members of the SC signed them and handed them in to the Secretariat.
Item 4	**Role of the SC members and proposal for a new set-up** *Please refer to the PowerPoint presentation* The Executive Director stated that in the specific context of the future S2R2, of the two vacant SC positions, as well as the appointment of Professor Moessner introducing a new perspective to the SC on telecommunications and connectivity, a discussion on a more active role of the SC members and a proposal for a new set-up of the SC appears pertinent. He explained that subject to verification with the S2R Governing Board and the Commission, the S2R JU wishes to have interested S2R JU SC

members contracted as individual experts by the S2R JU. SC experts would be contracted individually by S2R JU for a determined number of days per year, with reimbursement of expenses. This mechanism would be foreseen for tasks other than those listed for the SC members in Article 13 of S2R JU Statutes. The aim of this amendment would be to foster the involvement of SC members in the full S2R JU cycle of activities, allowing them to challenge the results, and thereby enhancing overall coherence. It would moreover prove beneficial, *inter alia*, for the management and supervision of IPX1, IPX2 and IPX3. A rotational mechanism would have to be implemented for S2R, for example a rotation of one third of the Committee every three years. SC members' involvement could also be operationalized under confidentiality agreements.

This modification would entail an amendment of the current rules of procedure of S2R SC, as defined in the Decision n°SC 1/2015, which would be put forward for decision at the Governing Board meeting of 4th December 2018. The Executive Director emphasized that implementing this new *modus operandi* using 2019 and 2020 as a test bed for S2R2 would represent an interesting opportunity. Subject to the GB's approval, a wider proposal on the future governance scheme of S2R2 could be presented to the Commission. With multimodality in mind, this would also be an opportunity to introduce experts from other transport sectors.

The Executive Director indicated that, should SC members wish to have a *huis clos* discussion on this issue, the S2R JU staff and himself would be willing to abstain from these private deliberations. The SC members expressed no need for *huis clos* deliberations, as they agreed with the added-value of the proposal and the need to improve the involvement of the SC in the S2R JU global governance scheme and project life-cycle. Professor Pyrgidis wished for a three-tiered involvement of the SC members, i.e. before, during project implementation, and after during the assessment of results. The Chairperson indicated her support to this proposal. The Executive Director stressed that it would be taken into account in the tabled amendment.

In response to this consensus, the Executive Director stated that an amendment of the SC Rules of Procedure would be tabled for GB decision, with the Commission's preliminary support. Furthermore, he highlighted that the lighthouse projects are closing by end 2018.

The Chairperson thanked the S2R JU Executive Director for providing the SC with this information and for his presentation. The S2R JU Executive Director being expected at InnoTrans, he was replaced in the SC meeting by the S2R JU staff members Léa Paties (LP) and Valerie Lorgé (VL).

| Item 5 | **Presentation of the draft Strategic Research and Innovation Agenda (STRIA)** |

The SC Chairperson invited Vincent Blervaque (Head of Program Autonomous Train, FCS Railenium) to present the draft Strategic Research and Innovation Agenda (STRIA) for Connected and Automated Transport (CAT), commissioned by DG Research & Innovation. The first STRIA roadmap on CAT was published on 9 November 2016. The Commission Staff Working Document "Towards clean, competitive and connected mobility: The contribution of Transport Research and Innovation to the Mobility Package" was published in May 2017. The STRIA's aim is to deliver strategic guidance to the European Commission for future research and innovation programs.

Mr. Blervaque presented the nine thematic areas of the draft roadmap:

1. Rolling stock enablers for remote control of train operation and autonomous train operation

   - Reliable environment perception to detect trackside signals and to identify all external hazards enabling on-board decision-making intelligence

- Reliable train positioning

- Enhanced Train Control and Management System

2. Environment and operational monitoring

- Reliable external and internal environment perception (outside ATO)

- Enhanced Decision and Advisory Support

- Interactions with all road users

3. Large scale demonstrations to enable deployment

- Deployment of autonomous passenger trains in real conditions and mixed railway traffic environment

- Deployment of autonomous freight trains in real conditions and mixed railway traffic environment

- EU-wide common experiment/testing agenda and common framework on testing and deployment

4. Railway network information, management, maintenance and control

- Smart maintenance and asset management

- Logistics on demand and increased last mile handling

- Smart traffic management

- Mobility as a service and Intelligent stations

- Management of interactions with passengers for safe and secure operation

5. Socio-economic impacts –User/public acceptance

- Impact assessment of connected and automated train (passenger & freight)

6. Human factors

- Driver tasks for remote train operation and highly automated train operation

- Communication and interaction between automated passenger train / tramway and users / workers

7. Physical and digital infrastructure & secure connectivity

- Development of digital model of railway infrastructure

- Fast, safe, reliable and high-capacity connectivity between all parts of the rail system and its environment

- Cyber security for connected and automated railway system

8. Big data, AI and their applications

- Create more value from data in connected and automated railway system

	▪ Further development and use of AI in connected and automated railway system
	9. Safety and security
	▪ EU-wide testing procedures for connected and automated train
	▪ EU-wide safety assessment program for connected and automated train
	The Commission representative (DG MOVE) underlined, in relation to thematic area 6, the importance of considering the impact on the certification scheme for train drivers of the transition towards automation. The SC members shared their views on automation, artificial intelligence and multimodality with Mr Blervaque.
	The SC Chairperson thanked Mr. Blervaque for the highly interesting presentation and the possible follow-up to be given by the SC within the next couple of weeks.
Item 6	**State of play – information from the Shift2Rail JU** Latest developments, ongoing activities followed by an exchange of views (feedback from the June GB meeting, etc.) *Please refer to the PowerPoint presentation* VL then presented the <u>state of play of the S2R JU</u>. In terms of <u>project reviews</u>, more or less 50 projects are running. 39 reviews have been completed - involving 26 projects, and 21 projects have received payment. In total, more than 26 million euros have been paid to projects so far. The S2R JU invested 157 million in R&I cumulatively from 1/09/2016 to the end of the year. Four lighthouse projects are undertaken for final review. All are due to be completed by end of September 2018. VL provided an update on the main issues discussed and decisions approved by the <u>Governing Board</u> during the meeting held on 29 June 2018. Regarding the matter of the HaCon membership to the S2R JU, following the acquisition of HaCon by Siemens, the consultation of the Legal Service of the Commission concluded that there is no legal basis for ceasing the Associated Membership of HaCon following the acquisition by Siemens. The provisions on changes to membership (Article 4 of the Annex to the Regulation) do not cover this kind of cases. Therefore HaCon should maintain their status as Associated Member and be entitled to a seat in the Governing Board. This requires a limited amendment of the Decision on outcome of the Invitation to the Associated Members and a discussion with HaCon on their participation to the 2018 projects resulting from the outcome of the 2018 Call. The final legal issues linked to the membership and the invitation to the Associated Members will be dealt with in the next couple of weeks and the activities will be awarded in the upcoming weeks. VL provided the representatives with an update on the event "S2R Dialogue on the future of Rail R&I" held on 19 June 2018. The event successfully kick-started the public discussion on the future of rail R&I beyond 2020 and was an ideal platform for railway stakeholders to address policy and industry expectations. Participants expressed their strong support for the continuation of rail research and innovation within the Shift2Rail Joint Undertaking during the next EU programming period 2021-27. The next Governing Board meeting will be held on 4 December 2018. The AWP2019 will be submitted to the GB for approval.

VL presented the results of <u>the S2R R&I awards</u>:

- Women in rail R&I Award – awarded on the 18th of September to Network Rail

- The S2R Rail Research & Innovation Awards – awarded on the 18th September to CONNECTA for project management, to OPEUS for decarbonisation and to IT2RAIL for digitalisation.

- PhD Grants' signature (part of Call 2018) – postponed, as the award results of the call were postponed.

Item 7	**Annual Work Plan (AWP) 2019 – update**
	As regards the AWP2019, VL stressed that the aim is to develop an AWP2019 and an AWP2020 ensuring priority policy alignment with the EU, and looking at operational/functional requirements of IM/RU and matching with business needs of industry - and subsequently to accelerate on specific items, i.e. in principle without a Call in 2021. Focus will be placed on the evolving needs of operators, e.g. on digitalization and automation, advanced signalling system.
	In terms of AWP2019, there is a need for a thorough revision of the topic contents before adoption by the GB to ensure consistency with the ongoing work on the MAAP and budget availabilities. Discussions are ongoing namely with respect to IP2. The next steps are for the S2R JU to release the full draft version to the SC by 15th October 2018. **The SC technical and scientific feedback on the full draft version is expected by 24th October 2018**.
	On a related topic, the SC members expressed their wish to have more information about the projects ongoing, in order for instance to better link them with new AWPs (follow-up of activities). LP explained that the JU had developed for the Annual Activity Report 2017 (available on the S2R website at the following link: https://shift2rail.org/wp-content/uploads/2018/07/Decision-13-2018-Annex_S2R-JU-AAR-2017.pdf) the details of the current achievements and ongoing activities of each TD/WA and the linked projects (both CFM and OC). This was done in order to give better visibility to the contribution of the different projects to the work of the TD.
	Christos Pyrgidis explained that a matrix showing the contribution of each project to each TD and each TD to the different market segments could be useful for the SC members.
Item 8	**Monitoring and implementation of the IPX1, IPX2 and IPX3 awarded projects**
	LP provided the SC members with an overview on the monitoring and implementation of the IPX1, IPX2 and IPX3 awarded projects, highlighting that a closer involvement of the SC members should be pursued.
	<u>IPX1: Paradigm shifts for railway (Up to TRL 2 – max funding 2,2 Million EUR)</u> Scope: • Concepts for the future autonomous railway vehicles "train-centric" • Promising disruptive technologies impacting automation systems and maintenance concepts • *Railway 4.0*

	IPX2: Transversal exploratory research activities and knowledge transfer (max funding 0,5 Million EUR)
	Scope:
	   • Delivery of a Rail Sector observatory and roadmap.
	   • Delivery of compiled and analysed data and statistics on the rail advantages/benefits in Europe.
	   • Benchmarking activities and support to the creation and organization of innovative rail initiatives in close cooperation with the S2R JU coupled with the rail R&I funded at EU level under H2020 such as S2R Science Awards, S2R Hackaton events, TRA.
	
	IPX3: Innovative/breakthrough mobility concepts (with rail as backbone) (max funding 0,5 Million EUR)
	Scope:
	   • PhD research for indicatively a period between 12 to 36 months on the following thematic: Innovative/breakthrough mobility concepts that keep rail as backbone of a sustainable European Transport system.
	   • The PhD researchers are expected regularly to liaise with the S2R JU and to present their research findings to the S2R events, including those organized with the European rail Research Technological Platform and submit scientific papers to relevant conferences (e.g. TRA, WCRR, etc. but also non-rail related).

Item 9	**International activities: TRB2019, WCRR2019**
	
	Please refer to the PowerPoint presentation
	
	Building upon the results achieved during 2019, the S2R JU intends to bring demos to events such as the Transportation Research Board Annual Meeting, on 13-17th January in Washington DC, the Global Public Transport Summit in Stockholm on 9-12 June 2019 and the 12th World Congress on Railway Research (WCRR) on 28 October -1st November in Tokyo.
	
	In this respect, LP indicated that the following WCRR papers were submitted:
	
	IP1:PLASA: Smart Planning Simulation Model
	
	IP2:
	
	   • One Adaptable Communication System for all Railways
	
	   • SHIFT2RAIL IP2: Communication & Signalling Innovations.
	
	   • Comprehensive and standardised approach for railway cyber security
	
	IP3/CCA: Approach for integration of maintenance planning into capacity management
	
	IP4/CCA: A methodology to assess the impact of end-user centric innovations on railway transportation attractiveness.

Item 10	**Horizon Europe programme and S2R** VL presented the Commission proposal for the "Horizon Europe" programme, the next EU R&I programme for 2021-2027. Horizon Europe is the Commission proposal for a € 100 billion research and innovation funding programme for seven years (2021-2027) to strengthen the EU's scientific and technological bases, to boost Europe's innovation capacity, competitiveness and jobs and to deliver on citizens' priorities and sustain Europe's socio-economic model.

The specific objectives of the Programme are to: i.) Foster all forms of innovation and strengthen market deployment; ii.) Strengthen the impact of R&I in supporting EU policies; and iii.) Support the creation and diffusion of high-quality knowledge.

To optimise the Programme's delivery for impact in a strengthened ERA, these objectives are structured into three pillars, respectively: (i.) pillar 1 on open science; (ii.) pillar 2 on global challenges and industrial competitiveness; (iii.) and pillar 3 on open innovation. Pillar two "global challenges" is itself divided into five clusters. The Commission highlighted two of these five clusters: "climate, energy and mobility" and "digital and industry". In terms of budget, half of the budget is dedicated, in the Commission's proposal, to global challenges and industrial competitiveness.

Key novelties involve the European Innovation Council, R&I missions, extended association possibilities; open science policy; and a new approach to partnerships.

In particular, the new approach to partnerships seeks to promote a rationalization, e.g. a new generation of objective-driven and more ambitious partnerships in support of agreed EU policy objectives. This new approach to partnerships presents a three-fold operational implementation. The first means of implementation is to achieve objectives via *co-programming*, i.e. based on Memoranda of Understanding / contractual arrangements, and implemented independently by the partners and by Horizon Europe. The second priority means of implementation should be *co-funding*, i.e. based on a joint programming agreed by partners; commitment of partners for financial and in-kind contributions & financial contribution by Horizon Europe. And finally, the third means of implementation is that of *institutionalized partnerships*, i.e. based on long-term dimension and a need for high integration partnerships.

For the latter to be mobilized, there should be evidence that institutionalized partnerships are: a.) more effective to reach scientific and technical objectives; b.) characterized by transparency; and c.) coherent with the ecosystem of programmes in Member States. Each partner needs to demonstrate long-term commitments and a minimum share of investments.

Regarding the budget, VL underlined that the budget allocated to the "climate, energy and mobility" cluster within pillar 2 of the Commission's proposal for Horizon Europe is 15 Billion Euros, the same as for the proposed cluster on "digital and industry". To strengthen the European Research Area, resources have been doubled in the Commission proposal for "sharing excellence", which encompasses teaming (institution building); twinning (institutional networking); ERA chairs bringing excellence to institutions; and COST.

As regards strategic planning to define multiannual work programmes and calls for proposals, the Commission is keen on involving stakeholders in the design of R&I actions, and seeks to enhance transparency, prioritisation and flexibility to align to political priorities, as well as internal programme coherence & synergies with other programmes.

In this respect, a document entitled "Multiannual Strategic R&I Plan" will be presented by the end of 2018, stating the multiannual orientations and priorities, and identifying areas for partnerships and missions, with the provision of indicative budgets for the next seven years and the targeted sectors of action. As the accompanying legislative proposals on the upcoming Multiannual Financial Framework will not enter in specific details on Joint Undertakings - only including criteria for partnerships without providing details on the areas nor forms of partnerships, this "Multiannual Strategic R&I Plan" will prove essential in providing both budgetary indications and targeted areas for partnerships.

The next steps will involve the on-going European Parliament and Council negotiations on the EU budget 2021-2027, including the Horizon Europe budget, as well as the European Parliament and

	Council negotiations on the European Commission's proposal for Horizon Europe. In the second half of 2018, spanning through 2019, work will be carried out to design strategic planning to prepare the first work programmes under Horizon Europe, including the co-design of missions and setting up of partnerships. The Impact Assessment on the Commission proposals on Joint Undertakings will be launched beginning of 2019 and the proposal will then be adopted by the next College. The envisaged start of Horizon Europe is set for 1st January 2021. The Commission representative (DG Move) stated that missions could be understood as a concrete problem to be solved, whilst partnerships were to be designed as the mechanism to implement the priority areas for R&I, which are currently identified. The Horizon Europe proposal does not contain indications of areas of partnerships. More in-depth discussions will be held at later stage. The SC Chairperson further highlighted the recent developments within the Transport Committee of the Council on the possible splitting of cluster 4 between energy and transport. The Chairperson thanked the participants and closed the meeting at 15:40.
Item 11	**AOB and conclusions** **Next meeting:** It was proposed to hold a conference call in November to discuss and approve the amended Rules of Procedures to be submitted to the GB of 4th December. The next S2R SC meeting will be held in March 2019. The JU will come back to the SC members with a fixed date, based on availability of SC members not present during the meeting, but also on the JU programme and other side events already planned .

Annex

Agenda 10th meeting SC (adopted)

Action nr.	Action	Related Topic	Due date	Action Owner
1	Send final draft AWP2019	Item 7	15th October	JU
2	Provide comments to JU on draft AWP 2019	Item 7	24th October 2018	S2R SC members
3	Send amended SC RoP	Item 4	November 2018	JU
4	Validate amended SC RoP	Item 4	November 2018	S2R SC members
5	Set the date of the next meeting of the S2R SC	Item 11	ASAP	JU