

ACTION PLAN IN RESPONSE TO THE RECOMMENDATIONS OF THE INTERIM EVALUATION OF THE SHIFT2RAIL JU

Updated on 12 March 2018

#	Interim Evaluation Recommendations	Industry Members' Comments of 15 September	Action Plan	Actors	Deadline
1	<p>9.1 Transfer of knowledge between transport JUs</p> <p>In this respect, it is noted that there is little transfer of knowledge between transport JUs and this is considered to be an area where improvements could be made. There are many complementary aspects that could be usefully shared between JUs. The usual complaints of how to be more inclusive, getting SMEs on board, achieving good geographical balance, complicated management processes and reporting processes etc. are common to all transport JUs, however this learning was not really transferred despite S2R being largely based on CS. Indeed part of the success of the new Executive Director is because he has been able to use his previous experience from SESAR in this way. The experience of how others are able to comply with the regulations yet broaden the players and eco-system is another example. Compared to CS and in some respects SESAR, the number of players in S2R is still very small but this does not mean that they should remain so, and the learning of how others have managed this is considered to be useful. Another example is the Technology Evaluator, part of the Clean Sky JU that uses modelling to estimate the combined impact of the research from the JU with variable uptake values. S2R also has a technology evaluator, not exactly the same but with similar objectives. The same organisation (DLR) is responsible for both the Clean Sky and S2R ones, but currently it has not shared any experience or been asked to do so. Although one technology evaluator cannot be copied directly to another JU, the experience from Clean Sky could also be valid for S2R, where the effectiveness of an innovation strongly depends on its interaction with other parts of the subsystem.</p> <p>There is a common problem with the IT tools across all JUs imposed by H2020 and this could be an area that a joint, rather than individually per JU, solution</p>	<p>With regard to the relation with other JUs (in particular FCH but also CleanSky and SESAR), it should be underlined the opportunities that the S2R JU offered in the easier transfer of knowledge, already happening in some specific activities and the constructive collaboration through Industry Members participation to different initiatives.</p>	<ul style="list-style-type: none"> - S2R JU already provided opportunities facilitating the transfer of knowledge with other JUs (in particular FCH, but also Clean Sky and SESAR). Moreover, the European Commission and the Industry Members participating in the various initiatives contribute to a constructive collaboration between the JUs. - Regular meetings between the JU Executive Directors contribute to creating synergies between the initiatives. - Regular meetings between Head of Administration in order to among others share administrative practices and IT approaches. - Ad-hoc Programme Offices meetings create synergies between projects and create additional value and leverage effect cross-sectors (e.g. the ad-hoc meeting with FCH Members and public workshop to gather input on a possible collaboration regarding the use of hydrogen on trains and its eco-systems). - Regular meetings take place with the participation of JUs and DG RTD/Unit R.4 in order to ensure harmonized use of tools and approaches. - With regard to Horizon2020 IT tools, the JUs worked together to update the reporting fields and include the in-kind contributions. - The exchange between the JUs will continue 	<p>S2R Executive Director S2R Members S2R Programme Office</p>	<p>implemented</p> <p>Continuous process to be reported back to the GB as part of the yearly AAR</p>

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	<p>could be found. In short, there is a tendency for each JU to reinvent the wheel when there is already useful learning that can be used, not necessary to copy but to accelerate solutions and therefore increase efficient use of resources. The trick will be to make this process of exchange meaningful without being cumbersome.</p> <p>The current joint JU meeting is not the right forum for this type of exchange and an annual or biannual meeting between like-minded JUs could be very productive and also create a better community where sharing may occur naturally. Currently this is not formalised and relies on personal contacts. We therefore recommend that the management of S2R investigates with others how knowledge can be transferred and incorporated into the future.</p>		<p>in the future, in various settings and at all levels.</p> <ul style="list-style-type: none"> - A specific example on KPI, comes from DLR organisation sharing experience between internal departments (rail and aeronautics) and contributing to the S2R KPIs activities under the Cross-Cutting Action. Also based on this, the S2R JU brought the KPI at the Governing Board level to foster the evaluation of the technology currently developed in the S2R R&I activities and highlight the subsystem interactions. 		
2	<p>9.2 Improving the balance of the eco-system</p> <p>The system wide balance of the actors in SR2 is currently rather poor. Ultimately it is important that both the research outputs and the demonstrators are relevant to a wide range of players and currently there are weak links with the operational side of both passenger and freight as well as gaps in urban rail players. Increasing the participation of a greater number of railway undertakings, increasing the presence of the urban sector and encouraging more Member States especially SMEs to be involved is recommended. Currently this can only be achieved through the open calls. This is considered to be a constraint to achieving excellence, as S2R members are not able to contribute substantively to research in any other IP or the open calls. This exclusion is seen as a problem due to H2020 rules and the way the JU has been set up. A review of the framework for Associate Members to be able to participate in open calls is also recommended.</p> <p>There is a lack of incentive, especially for non-traditional actors to take part in the open calls due to the administrative burden involved (perceived or real). Consortia members need to provide a lot of information that could be streamlined. We also recommend that the issues of administrative burden be examined by the Commission (it has been mentioned by a majority of those involved in this evaluation and employs time which could be more productively spent). Ideally simplification of processes, while retaining the integrity of the H2020</p>	<p>Concerning the coverage of the whole rail sector, in particular the lack of some operators and urban sector, an initiative such as S2R shall achieve a balance between representativeness and participation - having the right stakeholders fit for purpose - and "manageability" to avoid the risk of inefficiency, lack of commitment and focus. It is the JU Members opinion, and beyond, that the result of the Membership process consequently achieved this balanced approach. In addition, the Programme includes opportunities for the different segments' operators to participate to R&I through advisory/users groups, open calls and other instances that possibly did not appear so evident to the evaluators in their analysis.</p> <p>Consequently, the enlargement of the membership as such is not necessarily the way forward because it would dilute accountability not bringing</p>	<ul style="list-style-type: none"> - On-going Invitation to the Associated Members to increase or adjust their commitment to the JU (Ref. S2R.17.AM, 20 June 2017): it allows third parties to join the R&I activities of the Associated Members (in existing consortia or as linked third party). The results were discussed at the S2R Governing Board meeting of December 13, and are expected to be adopted in Q1 2018. - The User Requirement, Implementation and Deployment (UR-ID) working group discussed on 22 November 2017 the question of the active role of different actors not represented in the S2R Membership. As a follow up, the members of the group will liaise with the entity they represent to ensure their adequate participation to R&I activities not only through open calls but also through the different projects' advisory committees. - The statement contained in the Interim Evaluation on the fact that third entities, in particular, different categories of operators cannot participate to the R&I activities is not providing the correct views on the situation. Not all operators invest in R&I and many of them are more interested to be involved in demos than low TRL. In 	<p>S2R Executive Director S2R Members S2R Programme Office</p>	<p>partially implemented, some actions planned for end 2018 With regard to the R&I post 2020, this will be part of the discussions on the new Programming Period.</p>

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	<p>requirement could be developed that would be more attractive for rail and non-rail players to respond to the open calls. Currently there is no additional advantage of responding to a JU or H2020 call. This is seen as being attractive to SME participation and could result in increased innovation potential.</p>	<p>added value to the representativeness. In order to address the expert point, for example, the work ongoing in the Users groups is already under assessment and their evolution will ensure a better interaction between the railway operators, those associated and the others at the European level, with the Commission, ERRAC and Executive Director support.</p> <p>It should not also be neglected the key role of the manufacturers who have very strong links with their clients (other S2R Industry Members and/or other operators and infrastructure managers of different segments) which strongly contribute to shape and prioritise the innovative solutions which are on the way to be delivered by the S2R Programme.</p> <p>In the set-up of S2R 2, there will be a need to address further the question looking at the Programme design and maintaining the balance between inclusion and competent, committed and focused membership.</p> <p>In terms of geographical balance, the following calls to the ones assessed by the experts are showing an enlarged participation from entities from less represented Member States which result from the actions undertaken by the Membership together with the Executive Director in the past months.</p> <p>It has to be underlined that the Programme should become more agile for its implementation, including</p>	<p>addition, many entities already today work with the S2R Members in Projects as LTP or subcontractors. These recommendations will be further reassessed in the discussions related to the continuation of the programme.</p> <ul style="list-style-type: none"> - In terms of making the Programme more agile, the AWP2018 includes the Pilot Lump Sum Model for Calls for Members, which would allow focusing on R&I results and reduce the administrative reporting burden. <p>This is only an intermediary step towards meeting the Interim Evaluation recommendation and Industry Members views. In fact, the current implementation of the Programme is based on a matrix: on the one hand, the set up by IP/TDs designed in the S2R Regulation and, on the other hand, the implementation by yearly launched Projects in accordance with H2020 which results in slicing the TDs in a piecemeal approach. The Pilot Lump Sum Model is a starting point, but the JU is looking for possible solutions that would allow more effective Programme implementation, harvesting fully the benefits of the joint venture.</p> <ul style="list-style-type: none"> - The S2R will discuss with the Commission Services possible way forward in the current Programme, anticipating and testing solutions for a possible new Programme after 2020, beyond the Lump Sum Model. In addition, the need for reduced administrative burdens, more flexible procedures and efficient implementation of the Programme is addressed as well in the current discussions on a possible S2R-2. A first discussion took place at the S2R GB meeting of 27 October. - The need to ensure the highest possible inclusiveness, from a geographical and sectoral point of view, is already a priority in S2R. The JU is in working on - an MoU with SEESARI (South East 		

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		<p>multi-annuality, to allow accelerating where needed R&I and exploiting the key advantages of the nature of the joint undertaking. In addition it will be required looking at aspects related to IPRs too. The S2R JU is already looking into it for the current Programme and this will be essential for the next one.</p> <p>This approach would also allow reducing the administrative effort, embedding a "start-up" spirit and disruption mode, where necessary (eg SMEs, Research Centres, Universities and their spin-off, but also manufacturers), to pave the way for more efficient and perceptible results.</p>	<p>Europea Alliance for Rail Innovation) which including non EU States,</p> <ul style="list-style-type: none"> - an MoU for regional cooperation similar to the ones developed by the Clean Sky JU, with Czech Republic, - a stronger collaboration with the Rail Baltica project covering the Baltic States and Poland. <p>Inclusiveness will remain a top priority in the discussions on a possible S2R-2.</p>		
3	<p>9.3 Addressing the societal aspects</p> <p>S2R has been set up to address the technical aspects of part of the railway system. The current structure and the input of the lighthouse projects overall addresses these aspects well. Yet a number of the EU policy objectives are not uniquely based on technical aspects of the system but also include societal and inter-modal aspects in line with a holistic and integrated approach to seamless mobility. This is partly addressed in one IP but not yet included in S2R in any substantive fashion and we strongly recommend that a whole system approach be developed with more attention paid to societal aspects. There are a number of ways that this can be integrated into S2R, as well as included in a more formal way in S2R 2. For example, it is recommended that non-rail players with relevant experience and knowledge are able to help guide the future development of S2R and its bodies that advise it on visioning. Secondly, a greater use of the scientific committee and a broadening of its membership is also recommended. Thirdly better use generally of the advisory bodies to provide technical and strategic advice is recommended – although it is recognised that this may also come as the JU matures.</p>	<p>The objectives and scope of the S2R JU are the result of the "political" negotiations and resources made available by the Union at the moment of its establishment. As a consequence, the S2R Programme does not cover the entire scope of railways and it is on the contrary an opportunity to have a Programme much more focused on specific areas. S2R 2.0 may be the opportunity to embed some new key areas – e.g. more focus on urban rail if matched by the necessary commitment – considering the evolution of the overall sector while maintaining a strong focus on delivering deployable results.</p>	<ul style="list-style-type: none"> - The S2R JU launched on 10 July 2017 a new Call for expressions of interest for the selection of a member of the Scientific Committee (SC) of the Shift2Rail Joint Undertaking. The new member hold expertise in the fields of telecommunication. - In addition, the SC is currently examining the possibility for a partial review of its mandate and participation in line with the recommendation. The aim is to make this Committee more agile and align its activities to those being carried out at technical level. A formal proposal will be submitted to the Governing Board by the end of 2018. - The Scientific Committee is currently working to provide relevant inputs for the preparation of the AWP 2019 and 2020, to ensure that the Multi-Annual Action Plan implementation takes into account the most recent advancements in technology and science, as requested by the Executive Director at the Scientific Committee meeting on 24 November 2017. 	<p>S2R Executive Director S2R Members S2R Programme Office</p>	<p>Partially implemented. Further progress to be achieved during 2018.</p>

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			<ul style="list-style-type: none"> - The S2R Governance and Process Handbook, published in November 2017 on the S2R website, provides guidance to optimise the contribution of S2R JU Advisory Bodies. - In terms of advisory bodies, the JU discussed the matter within the UR-ID (see above). During the meeting on 5 March 2018, members of the UR_ID confirmed the establishment with contacts with specific Projects in order to provide a coherent contribution to the R&I work. - Beyond the work already performed in S2R, more emphasis will be put in the context of the next possible Programme definition. 		
4	<p>9.4 Visioning and outward looking</p> <p>The current management is functioning well however it is difficult for the expert group to make any substantive recommendations as it has observed the impressive progress made in a short time since the Executive Director has taken up his position. Therefore, we recommend in that care is taken in ensuring that there is good communication and outreach to those interested in rail but who are outside of S2R and possibly even outside the rail sector. For historical reasons, it is recognised that there is a legacy of mistrust from those that are not involved, which over time also needs to be dissipated.</p> <p>The expert team observed that the longer-term strategic view of the railway research agenda is somewhat weak in the current structure. This might be improved by a more proactive scientific committee and by reform of ERRAC with a clear steer on its role as a strategic advisor to the commission and to the JU. Because the S2R JU has been charged with the management of all EU railway research, the question arises on who advises on the strategy? This role should be fulfilled by ERRAC, but it is not able to do this effectively at the current time and we therefore recommend that it be strengthened in budget and membership. We also recommend that it should be recognised as an observer on the S2R Governing Board and that its membership should not be a mere subset of S2R</p>	<p>With regard to the relation S2R JU and ERRAC, the Industry Members consider that there are clear role identified for both bodies and that there are no overlaps. This is also the result of the work undertaken by the ERRAC Chair with its members. ERRAC has now been restructured to provide the longer term vision of the future railway and its research and development needs. This supports the S2R MAAP that is the delivery and management instrument of the vision through the defined timeline of the S2R Programme, which further extend its capabilities (part A) for R&I in S2R 2. The JU Members agree that ERRAC must have a close working relationship with the JU. The JU Members believe that the arrangements are now in place, with ERRAC providing vision and strategy documents from its membership. To guarantee this in the long term an</p>	<ul style="list-style-type: none"> - On 27 October 2017, the S2R JU Governing Board adopted the MAAP – Executive View, which is the new vision on how S2R JU will contribute to deliver the new railway systems of the future through research and innovation. - At the same time, the Governing Board agreed to launch a review exercise of the MAAP Part B to ensure the alignment of the R&I activities to the new vision especially in the context of the AWP 2019 and 2020. - On 23 November 2017, ERRAC adopted the Railway Vision 2050, which provides a long-term view of the sector on how railway will drastically change in order to maintain and enhance its role of backbone of mobility, integrating and federating around itself the different modes of transports. - The relation between ERRAC and the JU is stronger and clearer, following the work put in place by the ERRAC Chair to reform it. The AWP 2018 approved by the S2R GB on October 2017 creates also opportunity to build stronger connections by the means of a supporting CSA Action (S2R-OC-IPX-02-2018 – Transversal exploratory research 	<p>S2R JU Executive Director S2R JU Members, S2R JU Programme Office ERRAC</p>	<p>Implemented and, at the same time, the recommendation implementation is an ongoing process</p>

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	<p>members. In addition, the Transport Advisory Group (TAG), which should advise the Commission on taking transport forward with H2020, is not involved in S2R. This is seen as a missed opportunity as there should be close integration between the H2020 and the S2R calls. Creating more inclusive processes for supporting a future orientated planning for S2R could go some way to addressing the perception of exclusion by some players.</p>	<p>observer seat for an ERRAC representative on the GB should be established, although it is recognised that it is most likely that the ERRAC leadership will be part of the Membership engaged in S2R in any case.</p>	<p>activities and knowledge transfer).</p> <ul style="list-style-type: none"> - In strategic terms, ERRAC and S2R have their own specific objectives and scope and they integrate perfectly to each other: <ul style="list-style-type: none"> o ERRAC provides the long-term vision of the sector, encompassing all rail actors representatives well beyond the S2R membership. o The S2R JU has a mid-term vision on how R&I will contribute to deliver the long-term vision of ERRAC. The collaboration between ERRAC and the S2R JU will evolve together with its scope and objectives. - The S2R JU is developing together with DG MOVE and the Members communication and dissemination activities that will contribute to creating a sense of inclusiveness, such as: <ul style="list-style-type: none"> o The increased rail participation in TRA 2018, where all S2R technical activities in the IPs/CCA are represented by at least one scientific paper; o S2R institutional participation in both TRA 2018 and InnoTrans 2018 with a dedicated stand. InnoTrans 2018 provides also a good opportunity to showcase the commitment of the Industry Members as well as the progress made in delivering the most promising S2R results with the delivery of the S2R early Demonstrations/ Quick Wins. 		
5	<p>9.5 Improving innovation and efficiency</p> <p>Railways, like all transport modes, use innovations from everywhere and not only those developed in Europe. From a technical perspective one could</p>	<p>The report indicates that there is a need to find ways to consider the new trends in R&I.</p>	<ul style="list-style-type: none"> - The adoption of the MAAP Part A at the GB on 27 October will be followed by assessing the impacts of the new technologies on the 	<p>S2R JU Executive Director S2R JU Members,</p>	<p>Implemented and the work on MAAP Part B</p>

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	<p>argue that the only true independent railway research interest areas are at the interfaces which define the railway system: between the wheel and rail, the current collector of the pantograph and between the wayside and on board elements of the control-command and signalling systems. It is therefore essential that a close watch is made of useful developments elsewhere, a task probably best undertaken by "outsiders", as these potentially useful developments may come from, for example, the digital society, from materials science and from evolving societal demands. It is a recommendation that sufficient capabilities and budget are retained with the JU to conduct this outward looking search. It is noted that when it was decided that S2R would manage all rail research the budget from the initial JTI was not increased – this should be revisited in a second edition.</p> <p>The recommendation for the creation of a transverse IP on IT and telecommunications could be an element of this strategy as well as creating an instrument that (as yet) unforeseen research or areas of interest could be incorporated into current research. The present structure for introducing research is extremely rigid in this respect and there is no space for new or innovative thinking to be included. As the technology cycles for rail are usually rather long this poses no immediate threat. But as new and different, non-traditional areas, such as telecommunications and IT based innovations take a more central role in railways service delivery, and where the development cycles are much shorter, there are risks of obsolescence and redundancy.</p> <p>In building the current innovation program of S2R more attention has been put on passenger transportation rather than on freight (even though the 83 M€ budget of IP5 is significantly higher than what has been spent in railway freight focused research in the scope of any previous FP). While the European policy agenda also requires significant shift of freight from road to rail, IP5's programme was created after the constitution of the JU membership and its efficiency is partly jeopardised by a lack of continuity with the lighthouse project concerned. The quality of its outcomes will also depend on collaboration schemes to be built retroactively with other IP and JU members. It is recommended that the issues of concern to freight transportation are more pro actively addressed in a</p>	<p>It is unfortunate that the evaluation could not cover the period up to the early months of 2017, because this would have allowed the experts to assess the work ongoing in the S2R JU to revise the Multi-Annual Action Plan (MAAP). The initial part of the MAAP (part A) has been re-written to provide a more strategic top-down view on how S2R railway R&I will deliver a disruptive change in the railway system and it is expected to be adopted by the Governing Board in October 2017. The more technological part of the MAAP will go through a review process, following the adoption of "part A", to ensure that initially planned activities are shaped by the new trends in R&I, which may result also in the re-alignment of ongoing projects.</p> <p>The Industry Members would like to highlight the importance of this PPP in fostering visibility and the competitiveness of the European industry, which with EU solutions and know-how operate in global markets beyond the Union borders, supported by effective European regulations and recognized standards.</p>	<p>MAAP Part B and possible re-focus of some R&I activities and projects in view of the AWP's 2019/2020. The latter is ongoing and expected to be adopted by the GB in the next few months.</p> <ul style="list-style-type: none"> - The S2R GB approved in the AWP2018 the launch of forward looking activities addressing breakthrough innovations and possible disruptors coming from outside the rail sector: <ul style="list-style-type: none"> • <i>S2R-OC-IPX-01-2018 - Paradigm shifts for railway</i> addressing: (a) concepts for the future autonomous railway vehicles "train-centric"; (b) promising disruptive technologies impacting automation systems and maintenance concepts and New operational principles and industrial concepts that will be digital and service oriented ("railway 4.0") • <i>S2R-OC-IPX-03-2018: Innovative/breakthrough mobility concepts (with rail as backbone)</i> addressing new disruptive concepts can accelerate the pace or deviate the path of the currently planned S2R developments, challenging the traditional rail approach with a non-linear approach to existing technological evolution. a. With regard to R&I beyond 2020, the MAAP Part A is a strong base to shape future R&I activities taking benefit from the progress achieved by then as well as the phasing in of telecommunications, satellites, artificial intelligence, new materials, overall digitalization in the railway system. 	<p>S2R JU Programme Office</p>	<p>review by year end 2018, incorporated in AWP 2019 and AWP 2020</p>

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	S2R-2 and that ERRAC and S2R jointly undertake a strategic investigation to prepare for this.				
6	<p>9.6 Review of performance metrics</p> <p>Transport is a highly inter dependant and inter related sector, more so than many other industrial sectors. If one part of a journey does not connect or serve the customer properly the whole system does not deliver. Therefore by only viewing leverage in financial terms for transport does not provide the certainty that the higher levels of EU Added value have been achieved. In our view we recommend that a number of the KPIs should also be reviewed. The current set of KPIs are considered to be too many and in some respects inappropriate. This is more fully expanded in the discussion paper on Cross JU Learning.</p>	<p>With regard to the so-called "leverage effect", the JU Members underline that already now the current funding scheme demonstrates it (each Euro of R&I invested by the Industry Members is matched by a maximum of 41 Eurocents net co-funding; and this without considering the additional activities IKAA). On top, the S2R JU creates greater multiplier effects by bringing together stakeholders, enabling new ideas, projects and partnerships to flourish to the benefit of all the value chain, up to the final users (passengers and freight).</p>	<p>With regard to the leverage effect, the figures demonstrate unequivocally that the JUs multiplier effect is not only financial; the agility the S2R JU actively looking for will contribute to further enhance the JU as recognized Union platform for railway R&I in a multimodal context. The S2R JU shall continue</p> <p>On the financial leverage effect, the current official documents mention a leverage effect of 1.49 (excluding Open Calls) while in reality is almost 1.9 due to the fact that the Lighthouse Projects (resulting from the H2020 call 2014) remained excluded from the JU Budget but part of the overall initiative.</p> <p>As already mentioned in the actions undertaken for the Recommendation n.1, the S2R JU has fostered the work on KPIs and their update, with the active involvement of the Executive Director and the Governing Board members. A first draft KPIs model has been presented to the Governing Board on 13 December 2017; a revised version will be presented in the Governing Board meeting in March 2018.</p>	<p>S2R JU Executive Director S2R JU Members, S2R JU Programme Office</p>	<p>ongoing</p>