

MINUTES SYSTEM PILLAR STEERING GROUP – Meeting 11

WELCOME FROM THE CHAIR AND ADOPTION OF THE AGENDA – Approval of the 10 Minute

Keir FITCH (DG MOVE) welcomed the participants to the 11th System Pillar (SP) Steering Group (STG) meeting and briefly introduced the JU team. He excuses for Ian CONLON who cannot join the meeting.

The agenda was then agreed by the members after he asked to the participants if they have any other business point to add to it. The last meeting minutes were also accepted. Keir Fitch handed over to Giorgio TRAVAINI.

Giorgio TRAVAINI (Europe's Rail) expressed gratitude to the members for their approval of the Annual Work Programme (AWP) 2026 and explained that because ERA made a request for a project on electro-magnetic compatibility for train detection systems, an increase in the SP budget was agreed for this work. He then detailed another part of the AWP which contains the second call for the flagships project (FP) and informed the members of the possibility to launch a project with the SNS JU, related to 5G and 6G connectivity. Mr. TRAVAINI eventually shared that the JU results of the JU associated members will be shared with the members by the beginning of next year that will influence our AWP and will require to slightly amend it in mid-2025. Nonetheless, it should not impact the SP activities.

Michel RUESEN (EUG) asked for more details concerning the partnership between SNS and Europe's Rail.

Giorgio TRAVAINI explained that SNS industrial members were in the first place not convinced but are now persuaded.

Keir FITCH thanked Giorgio TRAVAINI and asked to the members if they wanted to share any information to the members.

Bardo SCHETTINI GHERARDINI (EIM) informed that EIM has just signed an MoU with "6G Infrastructure Association" (6GIA), which is active in the SNS JU.

Johannes GRAEBER (UNIFE) shared that they will provide a short information on the task 5.

Keir FITCH thanked Johannes GRAEBER and handed over to Kraft SOENKE (Europe's Rail) to present the summary of the activities of the second year of the SP.

SP 2nd year summary and STIP

KRAFT SOENKE gave an overview on the performed activities and stated that most of the SP activities are finalized as planned. Nevertheless, there are some delays explained by the lack of resources. There are 7 delayed activities in the task 2, 1 in the task 3 and 3 in the task 4.. Discussions between the SP Consortium and Europe's Rail are taking place to tackle these delays.

Soenke KRAFT then gave an update about the Standardisation and TSI Input Plan (STIP) and the coordination with ERA about the TSI revision process. He emphasised Europe's Rail commitment to facilitate the transfer of outcomes of the JU to the harmonisation channels (i.e., TSI, standardization) and emphasized the need for members' feedback on the STIP process. He then detailed that Europe's Rail will launch a request for the revision of the STIP and explained that the JU will need some time for the collections of updates from the actors. Soenke KRAFT explained that the JU will align with the European Railway Agency (ERA) and the European Commission (EC) planning to create a new STIP version until June next year. He clarified that the STIP update and alignment will not require the same amount of time as for the first version since most of the input delivered for version 1 remains valid. He

finally asked to the members whether they consider a sector review of the updated STIP (version 2.0) needed. They affirmed this.

Nicolas FURIO (UNIFE) said that it will not be easy in terms of time although the required amount of it is less. He pointed out that the fact to consult the different sector bodies was missing on the slides.

Bardo SCHETTINI GHERARDINI (EIM) told the members that he aligned with Nicolas FURIO and underlined the importance to be involved in the process. He emphasized the need for fine tuning of the STIP and the need for information and visibility about the process (i.e. what they should do, etc.).

Aude CHAILLEY (SNCF) aligned with Nicolas FURIO.

Michel RUESEN expressed that, in his opinion, priorities are not clear enough, and claimed that the definition of priorities could facilitate the process.

Soenke KRAFT replied that the focus should be on short term topics as ERA is requesting for a more detailed planning.

Miroslav HALTUF (SRG) warned not to forget the role of Member States (MS) in the management process to avoid conflicts between the SP and MS positions. Therefore, he suggested to consult them before doing any change in the management process.

Wawrzyniec PERSCHKE (MOVE) aligned with Miroslav HALTUF as he detailed that in many activities (including FRMCS) the SP STG group is pushing for more coordination between MS, especially in this specific area. He concluded and claimed for more meetings with MS representatives.

Josef DOPPELBAUER (ERA) expressed his concerns about Mr. Haltuf's proposal, as he thinks that additional and parallel meetings and groups should be avoided. There already several bodies, another committee would lead to misunderstandings.

Keir FITCH agreed with Josef DOPPELBAUER and added there is no necessity to have another committee to enable a better communication with MS. After that, he emphasized the need for representative bodies to pass opinions of their members. He pointed out that on several occasion there was a disconnection between what has been discussed in the working groups and what was said during the high-level meetings. He eventually claimed for a strong connection among the members favouring a more unified opinion to build a Single European Railway Area (SERA).

Michel RUESEN insisted that the real priorities are not defined well enough. He added that if it is not the role of the JU then the priorities need to be better defined at sector level.

Keir FITCH reiterated the achieved work to provide a strong basis for rail innovations and technologies. He stated that it is a long term and collective effort to deliver a vision for the future and that our work is understood by the different bodies and stakeholders.

Herald REISINGER thanked Keir FITCH for his reply.

Soenke KRAFT then introduced the second presenter, Roman TREYDEL (EUG).

Task 2

Traffic CS

Roman TREYDEL presented the Traffic CS work and the high-level requirements for the system design they are currently doing, and the difficulties faced to harmonise with ETCS. He reminded the target of their current work, which is to achieve the most efficient and reliable system architecture for the future

of European railways. To illustrate his point, Roman TREYDEL explained several technical aspects, such as the EULYNX system, used for the control of the trackside assets and the signal interfaces. He emphasised the strong emphasis put on degraded modes, defined as an auto generic mode about how to perform operations.

Roman TREYDEL then introduced the Traffic CS system architecture (*for further details, please refer to the slides*). He described the architecture itself and explained that at the top layer is the TMS, where all timetables and calculations will be done, and detailed more broadly the safety systems and how it functionates. He claimed for the importance to have a scalable solution and the capability to implement TMS decisions in real time.

Roman TREYDEL next detailed the approach for the architecture decision, where they evaluated 30 criteria to identify the most adequate number and functionalities of subsystems within the target architecture, proposed to be the foundation for the following specification work. He specified that links to documentation are available in the slide which provide more details about the architecture.

Roman TREYDEL then described the proposed system design, focusing on a flexible but purely train centric approach. His team first presented the operation process and technical requirement to ensure the safe movement of the train. He added that a non-harmonised virtual block strategy can be a useful step on the national level whereas pure harmonisation would require huge efforts with lower potential benefits. Roman TREYDEL then explained that the train centric safety approach can be implemented in two variants: one with pre-defined routes (as in CBTC) and the other one with a geometric safety logic.

There is a need to investigate which system design is the most suitable and efficient. A document about the design decision is in preparation. Traffic CS wants to get a consensus with the direction they should take and detailed on which aspects we must agree on. Roman TREYDEL concluded that although they know there are some concerns about their approach, they are confident in their ability to address them and added that this is the reason why they try to finalise the document as soon as possible. Then they will offer 2 extended mirror group workshops in February.

Keir FITCH thanked Roman TREYDEL and acknowledged that this is a crucial point where we need to make sure that we all agree on.

Steffen Schmidt (SBB) informed the team that they currently doing an economic analysis where have been listing the advantages and disadvantages of this structure for 2 months.

Keir FITCH thanked Stefan SCHMIDT and reminded the participants that it will be crucial that everybody recalls that we are trying to design the future European system.

Harald Reisinger (RNE) replied that they will consider this for task 3. Need to make sure that it will be still appropriate in 10 or 15 years.

Bardo SCHETTINI GHERARDINI (EIM) thanked the presenter and welcomed the proposal of not taking a decision today as this document needs a lot of discussion and amendment. He highlighted the importance to reach a consensus among the members by March 2025. He then made a comment about the process described by Roman TREYDEL: there is, in his opinion, a fundamental issue to address which is the way the SP domain is linked to the sector through the mirror groups. He added that there have been mismatches between comments in the mirror groups provided to the domain and the way it has been handled as the provided comments were not addressed in a clear way. He elaborated that in the meanwhile the document evolved. These facts create confusion for experts and generates tensions.

Bardo SCHETTINI GHERARDINI continued and then addressed the content of the Traffic CS presentation. He declared that it is not clear which elements are for decisions and which for information, he claimed for the need for a clear visibility and also expressed his concerns about migration and safety aspects that need to be clarified. He welcomed the workshops idea to facilitate the decision-making process and suggested to prepare them in a way to allow the sector to provide feedback on the key issues. He suggested that the experts should be allowed time to provide replies before the workshop meeting, so that it can directly go into the substance, which would ultimately help to reach a consensus in a more efficient way.

Keir FITCH replied that the fundamental choice is deciding between harmonised or non-harmonised blocks.

Klaus MINDEL (UNIFE) thanked Roman TREYDEL for his presentation and underlined the numerous interesting and relevant discussion items in it. He informed the steering group that UNIFE has published its position paper about this topic. He summarised it as a balance between the market focus for short- or medium-term development and the target configuration. He added that this is first a question what we are doing in the SP, which he described as ambitious and realistic, and a question of timing. He invited the Members to read what has been published by UNIFE.

Aude CHAILLEY argued to have this discussion when there are strategic decisions to take and issues to address and reminded to the Members that it is not only about the system technology but also about the financing of the system. For CER members, before a decision can be taken, a clear summary must be produced, with explicit benefits and risks assessment, as well as migration feasibility and safety aspects. Eventually, the ROCs must understand how they they can check in detail the implementation and what subsystems black box mean concretely, especially in regard to their responsibilities. She expressed concerns as Roman TREYDEL said that the safety strategy will be done after, as this is an important matter. She welcomed the workshop approach and claimed for the outcomes to be understandable for high decision makers but said that February is short in time.

Miroslav HALTUF raised that the word “timetable” and “controller” were used in a unclear way in the presentation, as they have a different meaning in the rail context. He proposed the idea to create a register to understand what is mentioned and hidden in the wording, which would make ultimately easier to agree and reach a consensus.

Keir FITCH recognised the need to work on the ontology to make sure that we all have the same understanding.

Josef DOPPELBAUER claimed to avoid as much as possible to create 3 different systems.

Giorgio TRAVAINI confirmed that there is a need for more clarity and a better ontology on this decision point. He recognised that we still do not have a consensus but reminded that the aim is to reach one.

Keir FITCH asked top Soenke KRAFT if he has all the resources he needs.

Soenke replied by the affirmative.

Operational

Renato RODRIGUES (Europe’s Rail) presented the operational domain. He first reminded that the operational harmonisation is a prerequisite for the harmonisation of systems (including TS CCS) and

the target to have prototypes ready by 2026 and operational by 2030. He then briefly exposed the scope of OD (i.e., usage restrictions, transitions, and the normal and degraded operations).

Renato RODRIGUES then presented an example concerning the level crossings aspect of the harmonisation concept. To do so, they stated a problem and explained how they solved it. He detailed that there is already a solution in the TSI for non-protected level crossings, using packet 88 and based on the “Full Supervision” mode plus a LX icon, but explained the trackside implementation was not used in many countries as national differences are small but diverse. One way to solve these issues is to make TSI solutions mandatory on the SERA compatible lines. More specifically, concerning the level crossings speed, his work recommends implementing an IM-defined parameter for them.

Renato RODRIGUES continued his presentation with the TSI OPE aspects of a possible future additional Annex. He explained that the basic approach is to have an additional TSI OPE annex for lines equipped with the System Pillar target system (standard products). He elaborated that this annex goes deeper in terms of operational process description to assure that the system functionality needed for the processes has a clear and completely harmonized basis. He detailed the scope of actors with an emphasis on the signalers and the rules, which will be a harmonized rulebook with a consideration of harmonized degraded modes and added that the operational rules will follow a scenario-based structure. Renato Rodrigues eventually addressed the rulebook design and stated that his team aims to set up a database that allows different outputs and formats to serve different needs.

Bardo SCHETTINI GHERARDINI thanked Renato RODRIGUES for his presentation and brought to the attention to the Members that, according to their expert, there is a gap in the communication. He elaborated that, for instance, the concept of non-protected level crossings was not discussed in the mirror group. He added that the May June July and October meetings with the mirror group were cancelled, which he perceives as a key communication gap. Additionally, he asked if in the longer run the hosting of the database would be linked to any organisation, as costs will be associated to the management of it.

Renato RODRIGUES replied that it is challenging to set up new processed to reach an agreement. He thanked Bardo SCHETTINI GHERARDINI for his feedback and elaborated that the non-protected level crossings have been presented several times.

Steffen SCHMIDT answered Mr. SCHETTINI GHERARDINI that the hosting of the database still needs to be discussed.

Keir FITCH expressed his wish to reach a consensus. He thanked Renato RODRIGUES and reminded that the hosting of the dataset needs also to be discussed with the EU institutions (i.e., ERA, EC) and handed over the Friedemann BITSCH.

Release management

Friedemann BITSCH (UNIFE, Hitachi) presented the architecture Change Request (CR) pre-assessment bundles. He recalled the participants that there is an ERA request for CR pre-assessment and claimed to show a strategic mission for certain CRs with the objective to achieve for the next ETCS baseline release enhancements compatible with the version 3.0 for TSI 2027 and 3.1 for TSI 2029. He detailed the process and highlighted the derivation from STIP items. He added that SP (Silvia Dominguez) made a presentation on October 3rd to present the draft milestone plan to the ERA ERMTS Control Group. Friedmann BITSCH then briefly presented the content of the pre-assessments and specified that they performed an economic assessment. He eventually gave the deadlines for the different CR bundles

milestones and informed the members that the Polarion link in the slides provides a description of the pre-assessments bundles.

Keir FITCH thanked Friedemann BITSCH and asked to the Members if they have any questions.

Bardo SCHETTINI GHERARDINI asked how to coordinate with the ERA concerning the economic assessment.

Silvia FERNANDEZ DOMINGEZ replied that they are in contact with ERA.

Architecture

Davinder BHATIA (Network Rail) presented the high-level CCS logical architecture and started by recalling the work performed to determine the operational needs and capabilities that Renato RODRIGUES showed before and the harmonization targets. He then described different levels of this architecture to enable a common understanding among the different domains and specified that 21 system capabilities were described and that each of them includes the appropriate control loops. He next explained to the members that the operational, the ARC team and the other domains are working together within the CCS. He eventually concluded they provided some links about the system definition and the CCS logical system architecture.

After Keir FITCH asked for questions and comments and none were asked, he handed over to Zeeshan ANSAR.

Computing environment

Zeeshan ANSAR (Deutsche Bahn) presented the computing environment and reminded that it aims at standardizing the computing platforms host safety and non-safety critical application. He added that in their previous work, they defined an overall architecture for this platform. In their second deliverable, they go deeper and start the operational analysis, including operational scenarios, operational context and a first set of requirements. He then described the platform overall architecture, composed of 5 different layers.

Next, Zeeshan ANSAR talked about the operational context and scenarios, which defines how the applications can communicate with the other, what should be the safety required and how this application can be deployed, etc. These scenarios are categorised in 4 categories (i.e., Integration, deployment, update, and recovery). He then provided some examples of the requirements, that are derived from both the operational analysis and the stakeholders needs and added that the specification deliverable will cover the requirements at the sub-system and system levels, from the hardware and safety and availability levels and ultimately presented the proposed next steps.

Klaus MINDEL told Zeeshan ANSAR that the proposed next steps were, in his opinion, unclear and underlined the need for an impact assessment.

Zeeshan ANSAR replied that the impact assessment was performed in the first deliverable, where they highlighted what would the impact and specification for interface be.

Klaus MINDEL replied that this impact assessment was not quantitative.

Steffen SCHMIDT replied that it is difficult to get the right numbers but recognised that this work needs to be done.

Wawrzyniec PERSCHKE supports Klaus MINDEL's point and declared this computing principle has to be taking into account by the suppliers.

Keir FITCH said that all developments need to have a business case behind to make sure they are viable. He added that it is in development but needs to be discussed.

Klaus MINDEL shared that he would be happy to involve himself.

Giorgio TRAVAINI thanked Klaus MINDEL but reminded that it needs to be approved at high-level first.

Migration

Philipp NIENHEYSEN (Deutsche Bahn) first presented the migration processes and the decision-making. He first reminded the design of these processes, with the decisions at the European level that defined the requirement set for the System Pillar Reference Architecture, with the suppliers deciding which products will be offered, these leading to the uptake or harmonised products according to national plans. He defined the scope of his team as deciding the tools and the timing of their implementation. He underlined the need to ensure that it is possible to integrate them in the legacy environment. To do so, his team has produced 3 deliverables (D1: CCS features packages indivisible for deployment, D2: Scope for System Pillar Architecture Baseline 1 Release 1 (SPRA B1R1) and D3: Migration Requirements for Target System). He focused on the latter and explained that they started to define the objectives, in green on the slides (i.e., meeting involving customer requirements, improved performance and capacity, reduced costs, etc.) to better understand the high-level migration challenges (i.e., to ensure viable and feasible migration paths for all stakeholders, safeguard investments, etc.). He particularly underlined the need to think about safeguarding investments and to ensure the compatibility exchangeability and simplified integration. As his team wanted to make its work even more concrete, Philipp NIENHEYSEN explained that they performed a case study. He reminded the Members that the Trackside Protection System (TPS) is still under development and not yet fully specified. In this case study, they performed an analysis of the existing handover scenarios of different implementations from 5 different countries. He then presented the general conclusions from D3's handover analysis. He stated that the communication is almost already standardised and highlights the dependency between TPS and. Philipp NIENHEYSEN ultimately showed the possible adaptation strategies, the adaptation of the harmonised system (to be avoided) and the adaptation of the legacy system or adaptor in between, that should be preferred. All the results are available in Polarion.

Carole COUNE (AERRL) claimed to change "EU" in the slides to something broader to better represent AERRL as they are very important investors in the migration activities.

Keir FITCH said it would be better to discuss it after the meeting.

TASK 3: CMS / TMS

Patrick KONIX (RNE) presented the Task 3 deliverables and status. He detailed that all documents have been released and processed by an internal commenting cycle. They received the documents from the mirror groups with some delays and are now processing the comments and draw to the attention of the Members that there is a link to a summary of the goals and main take aways of SC2.3 which can be found in the slides. He declared that his team is now more focused on the capacity management and the concepts of the integration of the TTR messages, linked with the STIP_16 and ensured the Members that they are aligned with the work performed within the SP. He then discussed the STIP_18 and reminded that the aim is to define how the interface will work precisely. Finally, he discussed the CCS TMS interface and described the link between them.

Bardo SCHETTINI GHERARDINI and Michel RUESEN highlighted the importance to have a focus on processed rather than IT tools and to tackle the link with task 1 and 3.

Philippe KONIX replied that this was right and that his team is already aligning with them. They will make another version of their presentation with both the IT and processes aspects.

Keir FITCH asked if their activities could be impacted by the EU legal framework.

Philippe KONIX replied that they are facing no legal framework issues so far.

Aude CHAILLEY claimed for the importance of task 1 and 3 to better coordinate.

TASK 5

Andreeva MOSCHEN EMILIA (ÖBB) introduced briefly the task 5 and reminded its purposes (i.e., to ensure the design of the new standard procedure to harmonise European railway diagnostics, to generate a set of proven harmonised use cases with harmonised diagnostic data as the functional specification for railway diagnostic systems for optimised railway asset management, etc.) and its objectives (i.e., evaluation of the existing railway diagnostic systems based on selected use cases in terms of data quality, interfaces, benefits (safety, interoperability, competitiveness, sustainability, etc.), standardisation gaps, etc., harmonisation of the description of use cases (to achieve a common understanding of the respective different use cases and their benefits). She added that they do not focus on CCS and TMS. She declared that Task 5 started to work intensively with the Innovation Pillar especially concerning FP1 (data management) and in FP3 as well (in the WP7 and WP29) to have a better alignment and coordination. Andreeva MOSCHEN EMILIA then presented a map where she highlighted that data is very diverse across the European continent, in terms of quality, sources and access and demonstrated a harmonised data architecture would benefit to every stakeholder. She then highlighted that they analysed the railway market and identified the gaps. They then defined the set of diagnostics parameters but underlined that their resources are limited and that they are trying to use them is the most efficient way. She concluded that they are intending to find a way to start a pilot project for the use case 1 together with FP1 and FP3, although this is not an easy task.

Miroslav HALTUF asked whether it would be possible to include colleagues from the framework programme 7.

Giorgio TRAVAINI replied that the project is now finished, and the outcomes are published on our website.

Wawrzyniec PERSCHKE underlined that as the cost of maintenance is a big concern for the EC, this project matters a lot to them.

Giorgio TRAVAINI added that a lot of data will come from the supply industry. Andreeva MOSCHEN EMILIA agreed with Giorgi TRAVAINI as many members and suppliers are very active and contribute to the project in a very strong way.

PRAMS

Markus SPINDLER (Hitachi) presented a concern have about the need for NB rail involvement.

It was agreed that this presentation will start again later when Julien BOIS will be back in the meeting.

EGNOS – sector review.

Daniel LOPOUR (EUSPA) claimed for the need to trigger an increased cooperation between EGNOS4RAIL project and particular groups of the System Pillar in order to proceed towards adoption of satellite-based localization in Europe's railways system. He informed that EGNOS4RAIL project, within which EUSPA, ESA, ERA and EU-RAIL work together on addressing the satellite-based localization

elements of ASTP is currently defining the **Overall certification and authorization approach for introduction of EGNOS in ERTMS and EGNOS4RAIL Service Level Agreement**, with the objective to reach an agreement at sector level on the way how EGNOS Service is going to be provided to the railways and certified. Similarly, as in case of Aviation, where such activities took place before adoption of EGNOS, he underlined the need to have more support from the railway sector and especially the SP to make sure this service can be utilized in the future.

Valentin BARREAU added that there is a need to define the legal framework with all the stakeholders and to ensure of the support of the railway sector. To this, it is necessary that respective groups of System Pillar actively participate to the review of EGNOS4RAIL deliverables, in particular those associated to the two abovementioned topics.

MARIA JOSÉ GARCIA PRIETO said ERA, ERJU-SP and EUSPA are addressing the certification approach and service provisioning aspects of the future EGNOS system and presented a new scenario for the certification approach they will study. She recognized that, so far, they have been working on assumptions as the work on ASTP is not finished yet in R2DATO WP22 and SP, therefore they will provide some scenarios for certification. She informed the STG Members that the first version of the document will be circulated in Q2/2025 and her team is expecting feedback and exchanges with the relevant System Pillar groups, that shall help them validate the assumptions they are working with and to reach an agreement on the way forward on the basis of a stable ASTP architecture including satellite-based localization.

MARIA JOSÉ GARCIA PRIETO presented the two above-mentioned documents for which review of the sector is requested.

Keir FITCH declared that System Pillar groups will provide the necessary support as this solution has a lot of potential, especially for the overall safety systems and underlined the importance of interactions within this project.

Nicolas FURIO informed the members that he will leave UNIFE and will join the JU. He introduced his successor.

Miroslav HALTUF communicated that a study about FRMCS from the Czech Republic has been published. He asked to Giorgio TRAVAINI to make it available when the translation will be ready, in a few weeks.

Additional request (following the meeting): Please provide by 17 January to Ian CONLON a response on the participation of the respective Representative Association in the sector review of these outputs. There will then be a discussion between the participating organisations on how to organise this.

Michel RUESEN informed that he will leave the SP in next year.

Giorgio TRAVAINI told Julien BOIS that we will address the issue with NB RAIL.

Keir FITCH closed the meeting.