

Message from the Coordinator

The first year, and therefore already half of the Safe4RAIL project duration has passed. Therefore, the consortium can already look back onto a successful and productive 1st year.

The Safe4RAIL project started intensively by analyzing the State of the Art for various domains such as avionic, automotive and railway in different levels i.e. safety-critical and mixed-critical Ethernet networking, functional distribution architectures, and distributed simulation frameworks.

Based on that, the concept for design and methodology for next generation TCMS including all relevant technologies, and integration of deterministic Ethernet with software platform that support for critical (up to SIL4) and non-critical networked function are established. This includes the Drive-by-Data networking platform and the Functional Distribution Framework middleware concept.

Furthermore, the high-level distributed simulation framework concept supporting efficient co-simulation at different sites, SIL/HIL testing, mechanisms for observation of messages, remote testing and fault injection is designed. Besides, a concept of a simulation environment for the validation of TCMS interfaces to ground systems including testing of compliance to relevant railway standards is defined. Moreover, the application domain "Brake-by-Wire" is focused on the safety aspects related to the development of a Brake-by-wire system, specifically when integrated in a next-generation TCMS platform. The activities concentrate on the Electronic Control subsystem involved in the execution of the brake function(s).

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Date & Venue

Date: Thursday, 25th of January, 2018

Time: 9:30—16:30 CET

Venue: Courtyard Marriott Hotel
Lucemburská 46
Prague, Czech Republic



Registration

For your registration please send an e-mail until Monday, 15th of January, 2018.

Mid-Term Conference on 25th January 2018 (09:30-approx. 16:30 CET)

We are pleased to invite you to attend the Safe4RAIL Mid-Term Conference in Prague, which will provide an overview on the next-generation TCMS that has been developed in the 1st year of the Safe4RAIL project. The concepts for the Integrated Modular Platform, as well as supporting simulations and demonstrations will be presented. The conference welcomes participants from railway technology suppliers and manufacturers, safety experts, and authorities as well as academic participants in the domain of train control and communication systems. The conference will be hosted by our partner UniControls.

Participation for the event is free of charge, but registration is obligatory. You can register for the conference via an e-mail to technikon@safe4rail.eu

Key Data:

Start Date:	1 st of October, 2016
End Date:	30 th of September, 2018
Duration:	24 months
Project Reference:	730830
Project Costs:	€ 6,681,211.25
Project Funding:	€ 6,681,211.25
Complementary Project:	CONNECTA (Ref: 730539)

Consortium:

Project Coordinator:

Contact Person at Technikon:

Project Website:

11 partners (6 countries)

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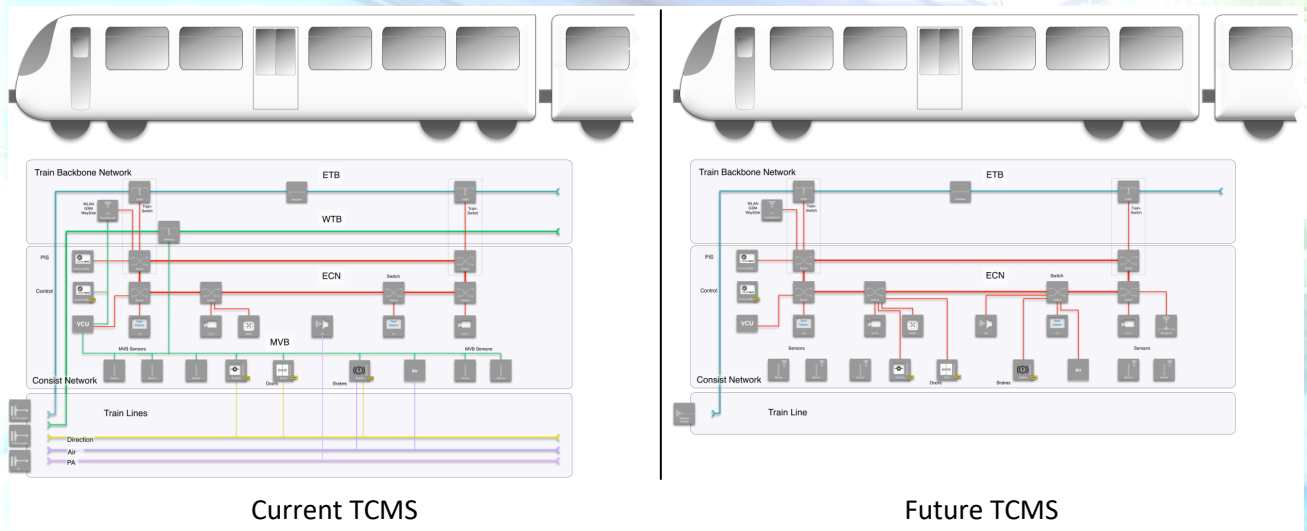
Ongoing Activities

Since the last newsletter (Issue 1) in May 2017, the partners have continued their work in their tasks made some progress in order to achieve the project objectives.

WP1: Based on the results of the SOTA activities in the first half of the first project period, technology capabilities and constraints for networking were developed and described as well as preliminary concepts proposed. Among others, the work on concepts and constraints includes

- Evaluation of various physical train-wide (ETB) and consist-wide (ECN) topologies
- Description of system architecture and Drive-by-Data communication services
- Clock synchronization concepts for different architectures and topologies
- Reliability, Availability and Security assessment of the different options
- Concept for the connecting of end-devices to the network and integration into the Functional Distribution Framework described in WP2

Besides the work on concepts and constraints, a first implementation of the fault injection framework as well as an initial implementation of the simulation environment could be established. Further analysis was performed to identify necessary changes in train inauguration mechanisms in order to adjust the mechanisms on the new networking concepts, requirements and constraints.



WP2: After the initial activities regarding the achievement on the SOTA in terms of the Functional Distribution Framework (FDF) in WP2, the work on the FDF, respectively the elaboration of the corresponding requirements was performed and completed successfully. Besides the requirements, an intermediate concept design of the Functional Distribution Framework was created. Further work on the Functional Distribution Framework includes concepts in different areas, such as: framework, safety, security and integration. The latter will include the integration of the FDF within the Integrated Modular Platform (IMP), which is designed and focused within WP1.

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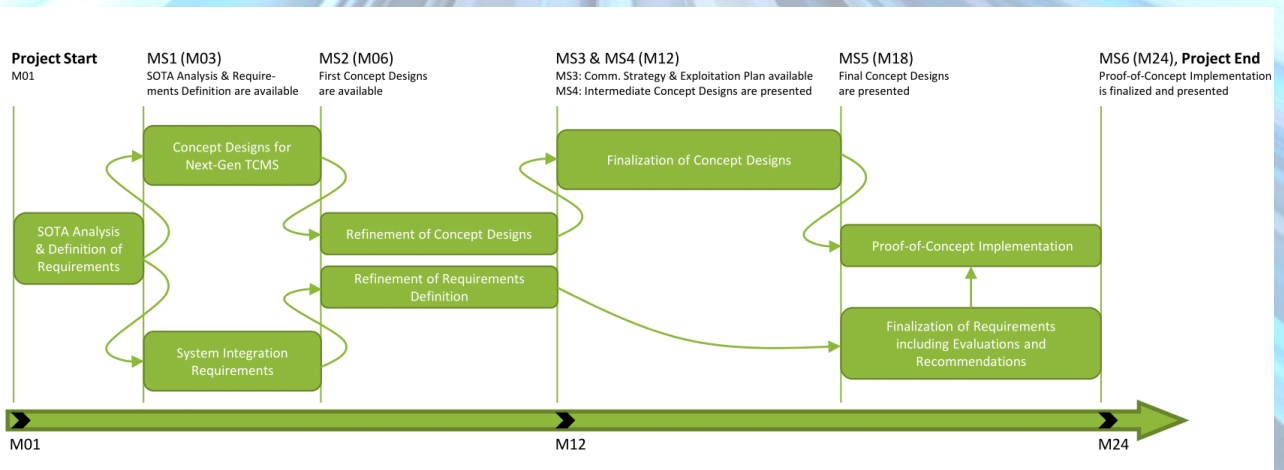


WP3: As already part of the initial phase in WP1 and WP2, also the WP3 was accompanied by the SOTA analyses and the definition of high-level requirements with respect to the virtual placement in the market and thereby the related Distributed Simulation Framework (DSF). These activities include the work on the design of the DSF as well as on the related testing environment. In addition, WP3 partners already started their work on proof-of-concept implementations. These implementations are dedicated to subsystems of the Distributed Simulation Framework and cover among others parts of the communication, (co-) simulation and fault injection.

WP4: The last technical-related work package of Safe4RAIL, WP4, is mainly focused on the Brake-by-Wire domain. Therefore, also WP4 has performed a SOTA analysis and defined functional requirements for the railway braking system. Besides that, partners of WP4 were involved in activities in the field of safety verification and validation with respect to the Brake-by-Wire application and the corresponding hazard analysis. Due to this analysis, safety requirements for the braking system will be specified.

WP5: Regular communication via the project website and social media channels increased awareness about the project. In total, there have been 19 dissemination activities within the first 12 month. The Safe4RAIL partners participated in 6 events including conferences, exhibitions and workshops during the first project year. Furthermore, 4 press releases have been published. In the following table, all the activities are listed, reporting the type of activity and the dissemination target, and all the details about the event. Additionally, 4 blog entries have been published on the official project website (<https://Safe4RAIL.eu/blog>) and 9 tweets have been posted on the project Twitter page (<https://twitter.com/SAFE4RAIL>).

WP6: The organization and facilitation of interactions between project partners were handled by means of telephone conferences and face-to-face meetings. Besides that, monthly project-wide telephone conferences were held for overall project status coordination. Furthermore, the internal and external coordination of Consortium Agreement, Grant Agreement and Collaboration agreement were performed.



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Public Deliverables Submitted [M07-M12]

From M07 to M12 five public deliverables have been submitted to the European Commission and two further milestones (MS3 and MS4) have been achieved.

D2.2: Report on analysis of 'functional distribution architecture' frameworks and solutions (M07) contains the results of analysing the feasibility of COTS frameworks and solutions for the deployment for next generation TCMS systems and the gaps to overcome.

D3.2: Report on design of TCMS distributed simulation framework concept (M10) elucidates the high-level distributed simulation framework concept supporting efficient co-simulation at different sites, SIL/HIL testing, mechanisms for observation of messages, remote testing and fault injection.

D3.3: Report on design of T2G Test Environment (M10) delivers a concept of a simulation environment for the validation of TCMS interfaces to ground systems including testing of compliance to relevant railway standards.

D5.2: Initial report and updates on dissemination, exploitation and standardisation activities (M12) includes a record of activities related to dissemination and exploitation that have been undertaken and those still planned as well as a report of completed and planned communication activities.

D6.2: Risk Assessment plan (M12) shows how potential risks are assessed and mitigated in order to avoid any negative influence on the Safe4RAIL project objectives.

Technical Meeting in Spain



After a successful 2nd technical meeting in March, the consortium met again from 20th to 21st September in Hernani (Spain). Each WP-leader presented the work done and some in-depth and ground laying technical discussions took place. The second day was dedicated to more technical discussions, focusing on brake-by-wire, drive-by-data, the functional distribution framework, as well as the IMP integration.

Advisory Board meeting in Austria

On 5th of October 2017, the Safe4RAIL and CONNECTA consortium met together in Vienna (Austria) for the 1st Joint Advisory Board meeting, which was organized and hosted by our project coordinator TTech. After an introduction and overview of both projects, Safe4RAIL and CONNECTA, including their main targets, dedicated technical sessions were held. These include sessions for integrated modular platform, brake-by-wire as well as virtual homologation. Overall, the presented status has shown how smooth and flawless the synchronization of work packages and the corresponding work between Safe4RAIL and CONNECTA passed off. Conversely, the work package leaders of Safe4RAIL and CONNECTA received a valuable feedback and comments from the external advisors.



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