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The projects CONNECTA-2 and Safe4RAIL-2 have received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 826098 (CONNECTA-2) and No. 826073 (Safe4RAIL-2) respectively. The information and views set out in this document are those of the author(s) and do not necessarily reflect the official opinion of Shift2Rail Joint Undertaking. The JU does not guarantee the accuracy of the data included in this article. Neither the JU nor any person acting on the JU's behalf may be held responsible for the use which may be made of the information contained therein.



CONtributing to Shift2Rail's
NExt generation of high
Capable and safe TCMS.
Phase 2



SAFE architecture for
Robust distributed
Application Integration
in roLLing Stock 2

CONNECTA-2 project

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Technical Seminar on Advanced Architectures and Components for Next-Generation TCMS

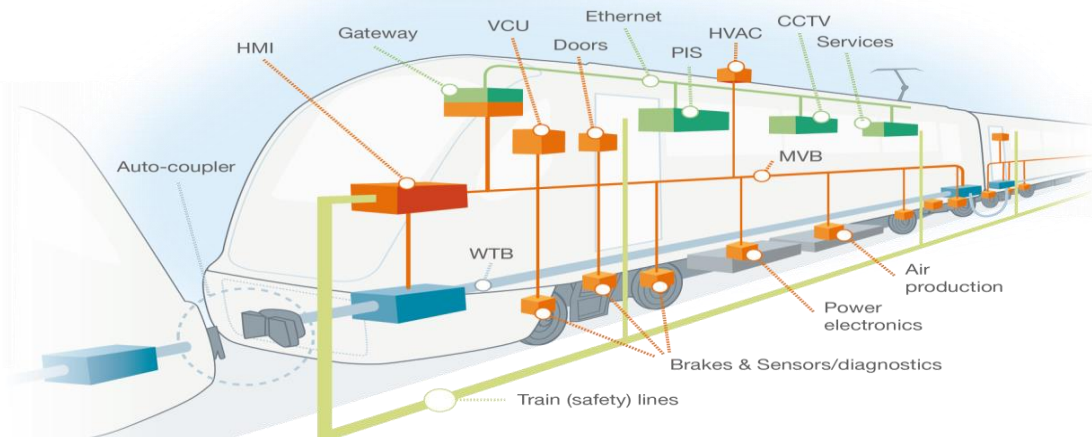
January 21st 2020, Brussels

CONNECTA-2 consortium

- CONSTRUCCIONES Y AUXILIAR DE FERROCARRILES (CAF)
- ALSTOM TRANSPORT
- BOMBARDIER TRANSPORTATION
- DEUTSCHE BAHN
- SIEMENS Mobility
- SNCF MOBILITES

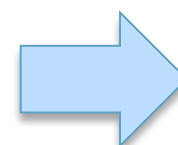
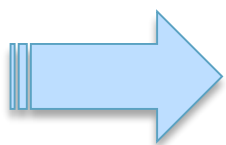
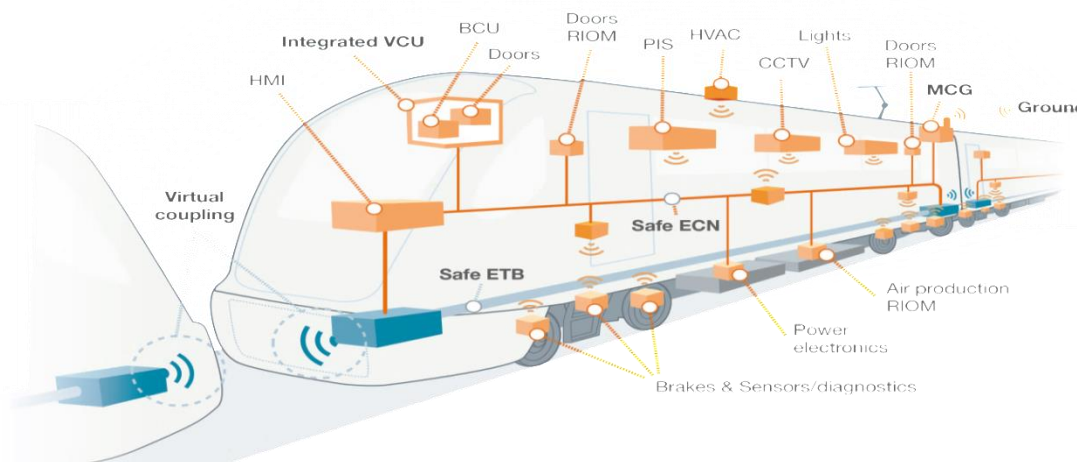


Roadmap for New Generation TCMS (I)



- SIL4 ready system. TSN wired network.
- No train lines.
- Wireless Train Backbone (WLTB) for coupled units (allows Virtual Coupling).
- Wireless Consist Network (WLCN).
- Integrated VCU with Functional Distributed Framework (fdf).

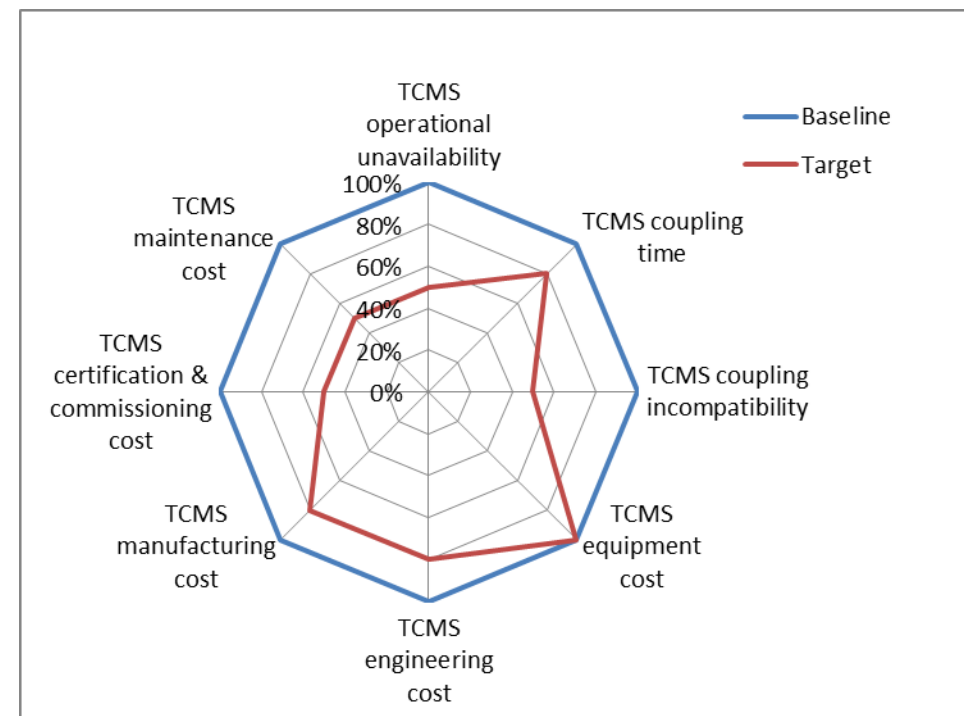
- Multiple wired networks.
- Train lines for safety applications.
- Each subsystem its control unit.
- Only mechanical coupling.



CONNECTA-2 Objectives

Laboratory demonstrators for urban and regional train

- ◆ WLTB, WLCN, T2G communication
- ◆ Drive-by-Data
 - Safe train inauguration
 - Scheduled data traffic
 - Safe communication
- ◆ FDF and FOC (Functional Open Coupling)
- ◆ Simulation framework













Project status (I)

WPn	WP / Task Title	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	M13	M14	M15	M16	M17	M18	M19	M20	M21	M22	M23	M24	M25	M26	M27	M28	M29	M30
WP1	General Specification and updated requirements definition																														
Task 1.1	Specification of the evolved Wireless TCMS																														
Task 1.2	Definition of new application profiles																														
Task 1.3	Definition of new FDF requirements																														
Task 1.4	Definition of functions for DMI for standardisation																														
Task 1.5	Review and completion of FOC regarding visualization																														
WP2	Deployment of transversal technologies and analysis of new technologies																														
Task 2.1	Train-to-ground deployment																														
Task 2.2	Train-to-ground interoperability tests																														
Task 2.3	Implementation of new application profiles																														
WP3	Technical specification and implementation of components for lab demonstrators																														
Task 3.1	Technical specification for urban demonstrator																														
Task 3.2	Design and implementation of components for urban demonstrator																														
Task 3.3	Technical specification for regional demonstrator																														
Task 3.4	Design and implementation of components for regional demonstrator																														
WP4	Test definition for lab demonstrators																														
Task 4.1	Test definition for urban demonstrator																														
Task 4.2	Test definition for regional demonstrator																														
WP5	Implementation and test execution in urban lab demonstrator																														
Task 5.1	Implementation of tests for urban scenario																														
Task 5.2	Execution of tests for urban scenario																														
WP6	Implementation and test execution in regional lab demonstrator																														
Task 6.1	Implementation of tests for regional scenario																														
Task 6.2	Execution of tests for regional scenario																														
WP7	Dissemination and Exploitation																														
Task 7.1	Interaction with the complementary action & Shift2Rail																														
Task 7.2	External dissemination																														
Task 7.3	Interaction with expert's groups and contribution to standardisation																														
Task 7.4	Innotrans 2020 demonstrator																														
WP8	Project Management and Technical Coordination																														
Task 8.1	Project Management																														
Task 8.2	Technical Coordination																														
Task 8.3	KPI Assessment																														



Project status (II)

- Prototypes of VCUs with the FDF  Done
- TRDP/OPC-UA over TSN integrated in the FDF  Done
- New safe train inauguration without train lines  Done
- New SDTv4 layer  Done
- Adapted ETBN for WLTBN  Done
- Wireless Consist Network  Done
- Integration of Application Profile based HVAC application  Done
- T2G Mobile Communication Gateway  In progress
- Integration of TSN consist switches and ETBNs in TCMS demonstrators  In progress
- Build up Urban and Regional Demonstrators  In progress

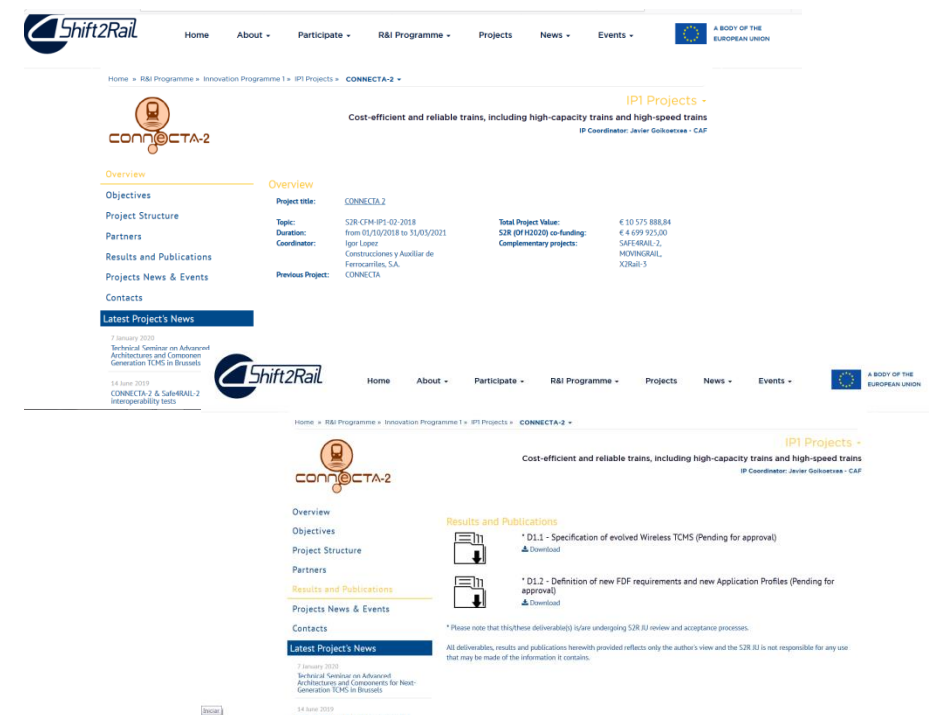
Information on CONNECTA-2

- Public deliverables: <http://s2r-connecta.eu>

- Project Newsletter:
 - Issue 1 – September 2019



- Public events:
 - WCCR2019: <https://wccr2019.org/>
 - TRA 2020: <https://traconference.eu/>





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