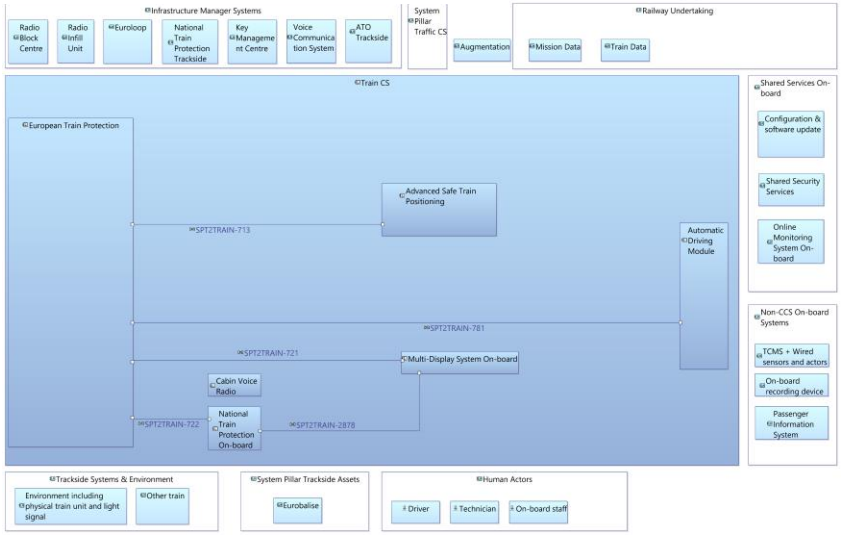
Task 2: Train CS

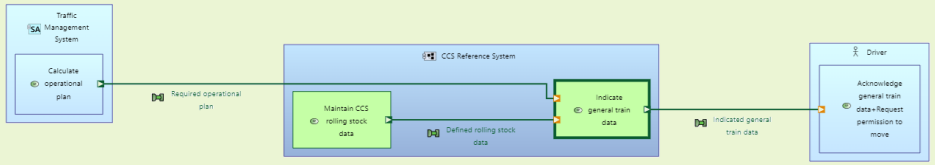
The target functionality of Train CS aims to develop specifications that enable CCS onboard equipment based on harmonised operating rules in expandable and digestible migration / evolution steps improvements towards the goal of SERA.

Modularity Onboard, enabling simplified improvements with functions such as high precision localization, automated up to autonomous train operation, new communication technologies as well as the support of digital automated coupler.

Train CS Logical architecture (components view)



System Function: Indicate general Train Data



Evolution of Train CS and focus of work

Train CS focus on changes and adaption of present known CCS Onboard equipment to enabling quick and simplified improvements of new function and technologies for the “Harmonized European Rail Operation” under Single European Rail Area (SERA).

The work is strongly focused on the global ERJU goals:

- Improved performance, capacity and More sustainable transport
- Reduced CCS Onboard (life cycle) costs
- Harmonized approach to quick and cost-effective evolution and greater adaptability

Present technical enablers, new/extended functions, interfaces and simple, fast and cost-effective expandability to meet the changed market demands were processed, such as

- Interoperable harmonized CCS Onboard architecture based on Harmonized train Operation rules
- New Radio communication: GSM-R and FRMCS, dual at both side
- Enhancement up to precise safe train position
- Automated up to autonomous train operation
- Full support of new digital coupler & related functionalities

Task 2: Train CS

Lead STIP Deliverables

- **STIP_68 - Ethernet CCS consist network (full stack) -** 2025
- **STIP_71 - Train interfaces enhancement –** 2025
- **STIP_072: On board modularity and upgradability / API for other applications** (2025)
- **STIP_030: Support to the EGNOS Project**
- **STIP_69 - TDS FFFIS update -** 2026
- **STIP_73 - Train intef. adaption for integrity handling and train length/overall consist length -** 2026
- **STIP_29 - Basic advanced safe train positioning: Odometry enhancement -** 2027

Deliverables Request for Service (SC2.4) – Year 3 [Oct-24 – Oct-25]

D01	**Ethernet CCS consist network (full stack)**– Q3 2025
D02	**Train interfaces enhancement**– Q3 2025
D03	**Multiple Display Concept** – Q3 2025
D04	**Train interface adaption for integrity handling and train length / overall consist length**– Q3 2025
D05	**On board modularity and upgradability**– Q3 2025
D06	**Basic ASTP: Odometry performance and robustness enhancement**– Q3 2025
D07	**Basic ASTP: a) General Architecture Analysis; b) Interf. Spec.**– Q3 2025
D08	**Support to the EGNOS Project** – Q3 2025

Latest Achievements, Challenges and Design Decisions *(to be filled periodically by the domain)*

- **Latest Achievements:** The following achievements have been accomplished by the domain:
  - **General:**
    a) Phase 2.4 deliverables team-setup and remits analysis done.
    Taks groups for Odometry topics (Remit 10.3.6, 7A, 7B & 8) and Train Interface Enhancement (Remit 10.3.2 & 10.3.4) defined.
    b) First domain exchange with Transversal domain (alignment work / workshare)
  - **Train CS logical architecture:** Train CS logical architecture released
  - **CR Ethernet CCS Consist Network:** Change Request "CR Ethernet_CCS_Consist_Network_v05" generated and reviewed
  - **Major Presentation:** Presentation for CG Meeting elaborated and delivered
- **Domain Current challenges:** The domain is facing the following challenges:
  - **RfS 2.4:** Agreement of Phase 2.4 Remits, delivery dates and manpower budget. Changes requested and focus of work. → Strong focus of present defined remits and migration targe 1 → No Changes in the train – track airgap
  - **Domain stability:** New Domain members need some time to familiarize themselves with the train CS topics
- **Design Decisions:** The domain has made the following design decisions that impact the Overall Model: None

Expected outcomes for sector review in the next 3 months

- **Closeout Phase 2.3**
  - Closeout: Deliverables according the required process (Dec. 2024)
- **Prepare Phase 2.4**
  - Update Polarion Structure for Phase 2.4 (domain management, remits topics,..)
  - Remit Task detail Planning.
  - Setup Remit & topic teams also with mirror group members and external (not domain member) specialists.