



Future of ERTMS

For ERTMS 2022 Conference

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What do we need for rail?

- Meet evolving customer requirements
- Improve performance and capacity
- Reduce costs
- More sustainable and resilient transport
- Harmonise evolution and greater adaptability

How to achieve it for CCS/ERTMS?

- A standardised framework
- Game changing functionalities
- Smoother deployment

Standardised fwk = System Pillar

- Europe's rail (joint undertaking) System Pillar will provide:
 - A common vision of the rail network as a system (task 1)
analysis of the system; concept of operations; system architecture and migration roadmap.
 - A focus on CCS and more (full CCS, incl. interlockings and RBCs, traffic management and operations) (task 2)
analysis of the CCS system and related systems; concept of operations; system architecture and migration roadmap.

System Pillar intended result

- Less complexity = higher/full compatibility, more reliability
- Lower costs
- Smoother operations

Game changing solutions

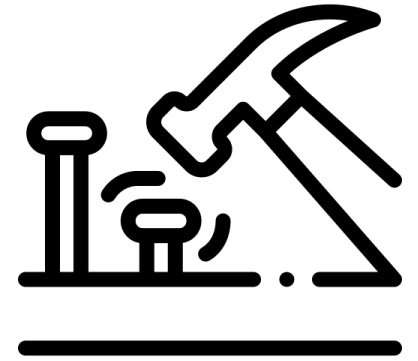
- The innovation pillar will deliver on:
 - Traffic management
 - CCS and ATO
 - Digital and sustainable assets
 - Automated freight
 - Revitalised regional lines

Game changing functionalities for ERTMS

- The innovation pillar (IP) will develop new functionalities:
 - **Automated Train Operations** up to Grade of Operations 4
 - **Advanced Train Positioning**
 - **Freight automation** based on **DAC**
 - All relying on evolution of FRMCS
- The system pillar will incorporate the new functionalities (from the IP and, if need be, from elsewhere) in the system architecture

Smoother deployment 1/2

- For the deployment of CCS the System Pillar will provide:
 - a plan for the evolution of the systems of CCS and more
 - Inputs to the development of TSIs, especially CCS and OPE
 - inputs to standards with roles for the Innovation and System Pillars



Smoother deployment 2/2

- Deployment Group will provide:
 - A roadmap for the coordinated deployment, incl. alternative scenarios, retrofitting options, phasing out legacy systems;
 - Consider human factors, incl. behaviour and operational changes
 - Alignment of deployment and investment plans taking into account the most cost-effective options (mid- and long- term), incl. supporting measures
 - Develop performance scheme to stimulate deployment
 - Coordinate the deployment with other modes, when needed

Thank you



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