

**PRIME-RUD Meeting
19 November 2020**

**Information point:
ERTMS state of play, Level 3, next steps**

From: EC

– For Information –

1. OBJECTIVES AND BACKGROUND

- ERTMS (European Rail Traffic Management System) is a rail system aimed at achieving interoperability of railways in Europe. ERTMS refers to two systems:
 - The ETCS (European Train Control System) that is based on on-board equipment able to supervise train movements and to stop the train if the permitted speed is exceeded.
 - GSM-R (Global System for Mobile Communications - Railways) is the European radio communications standard for railway.
- Some benefits of ERTMS:
 - Increased safety
 - Higher reliability and capacity
 - Interoperability - access to a larger market
 - Lower maintenance costs (as one system only)
 - Enabler for the digitalization of the railway system
- The TEN-T Guidelines¹ set out a deadline for ERTMS deployment on the Core Network by 2030 and on the Comprehensive Network by 2050. The ERTMS European Deployment Plan (EDP)², adopted in early 2017, lays down deadlines for deploying ERTMS on certain sections of the Core Network Corridors (CNC) in the period 2017-2023.
- By mid-2020, 12% of the CNC was in operation with ETCS (i.e. 6.120 km) and 63% with GSM-R. Out of the 15.682 km to be put in operation by 2023 according to the EDP, 5.906 km (or 38%) have been commissioned. 78% of what was planned in the EDP by end 2019 has been achieved until present. Some 9.000 km are under construction on the CNC alone; and overall more than 20.000 km are under construction/contracted in Europe.
- Regarding ETCS, out of the 9 CNC, the RALP is the most advanced with 28% of its length already in operation, whilst ETCS deployment on the other corridors ranges between 7% and 18%. With respect to GSM-R the most advanced in deployment is also RALP, with 99% of its length already equipped, while deployment on other corridors ranges between 45% and 87% (See Figure 1). The progress can be also measured in comparison to deadlines set out in the EDP and the actual length of each of the corridors (See Figure 2).

¹ Regulation (EU) No 1315/2013 of the European Parliament and of the Council of 11 December 2013 on Union guidelines for the development of the trans-European transport network

² Commission Implementing Regulation (EU) 2017/6 on the European Rail Traffic Management System European deployment plan of 5 January 2017

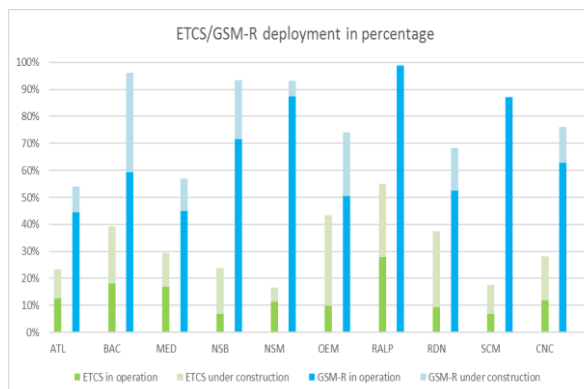


Figure 1 ETCS/GSM-R deployment by corridor (expressed in %)

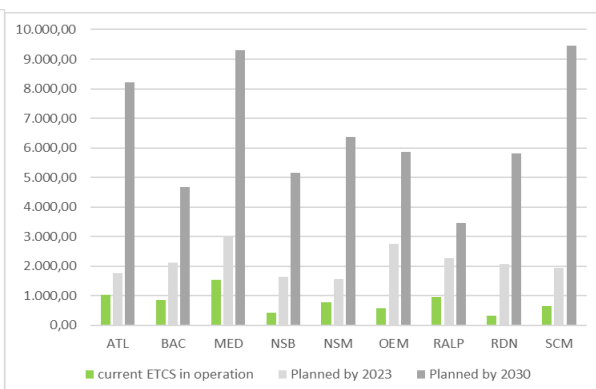
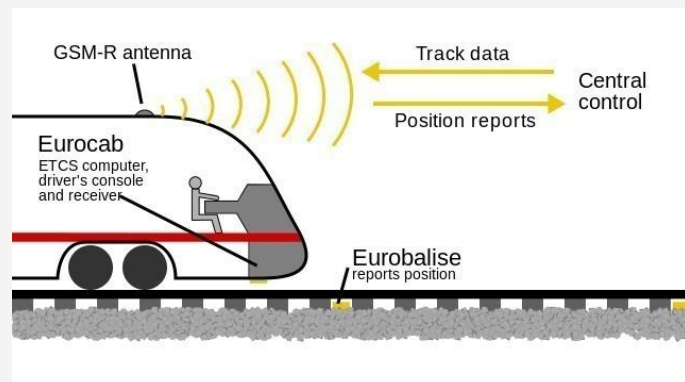


Figure 2 ETCS deployment by corridor (expressed in km)

- The ERTMS business case analysis showed that a dual on-board migration strategy has the most advantageous economic outcome. The dual on-board strategy aims at equipping the fleet with ERTMS what will allow decommissioning of the old, national (so-called class B) systems trackside.
- The total fleet to be equipped in Europe by 2030 to materialise the dual on-board migration strategy is estimated to be in the range between 27.500 and 38.500 vehicles (to be either renewed or retrofitted³). The number of vehicles already equipped in the EU amounts to some 3.600 vehicles only.
- The levels and operation modes are fundamental concepts of the ETCS system. A short explanation of Level 3 is as follows:

Level 3 involves continuous train supervision with continuous communication between the train and trackside. There is no need for lineside signals or train detection systems on the trackside other than Eurobalises. Train integrity is supervised by the train itself.



2. NEXT STEPS

- There is a need to set out a regulatory deadline at EU level for decommissioning of class B systems trackside.
- To start the decommissioning class B trackside, rolling stock has to be equipped with ERTMS.
- Railway undertakings, especially freight operators, cannot be left alone. As a result, there is a necessity to provide a tangible public support for retrofitting, including at EU level, as for operators the benefits of ERTMS might come several years later while the costs are incurred now.
- The Commission services have recently published a study providing a consolidated view on the ERTMS on-board deployment. This paper can guide Member States in adopting their national strategies while taking into account national specificities. It can be found [here](#).

³ Retrofitting means equipping the existing rolling stock with ERTMS

- Furthermore, there is a need to render ERTMS more modular (plug and play system). Modularisation and standardisation will facilitate upgrades through creation of independent life cycles for the different components and allowing their exchangeability. This will allow faster deployment and integration of new functionalities e.g. ETCS Level 3, automatic train operation (ATO), new radio system (FRMCS). These changes should be part of the 2022 revision of the technical specification for interoperability (CCS TSI).
- In defining the evolution of the system, it is important that investments in new functionalities and changes to the CCS system must be enabled but past investments made, should, within reason, be preserved. This is why any changes need to be accompanied by a worked out transition and migration strategy.

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