
CER
*The Voice of European Railways*

# FRMCS: a key enabler for rail transport digitalisation

## How trains communicate

⚠ **Mobile communications** are essential to digital rail operations, enabling trains, signalling systems and traffic managers to exchange data.

✖ Since the 2000s, this has relied on **GSM-R**, a 1990s-era 2G radio technology providing voice and limited data communications, due to be **discontinued in 2030** and obsolete by 2035.

✔ **The Future Railway Mobile Communications System (FRMCS)** is a new future-proof successor to GSM-R, being designed by the sector based on 5G technology. It is a key digital enabler that will strengthen rail competitiveness and efficiency.

The European Rail Traffic Management System (ERTMS) depends on stable mobile communications.
By providing a single signalling, speed control and train protection system, ERTMS improves interoperability, maximum speeds, capacity and safety across national rail networks.
FRMCS delivery is therefore essential to smooth rail operations across Europe.

## FRMCS, the new rail communication system needed by 2030

### Development, testing and legal basis of FRMCS

As FRMCS is not an existing commercial product, the specifications for this technology are currently being prepared:

**Development**

The European Commission (EC), via Europe's Rail JU, has mandated UIC to develop the FRMCS specifications

**Validation**

The MORANE-2 project validates the FRMCS specifications and target requirements under realistic operational conditions

**Testing**

The specifications must be tested in real operations before a full-scale roll-out can take place

**Sector Effort**

Additional tests should be carried out and reported to the European Union Agency for Railways (ERA) to ensure transparency across the sector*

*See Article 10 CCS TSI

**Recommendation**

Based on UIC specifications validated through field tests, ERA will issue an ad hoc recommendation for changes to the Technical Specifications for Interoperability (TSIs)

**Revision**

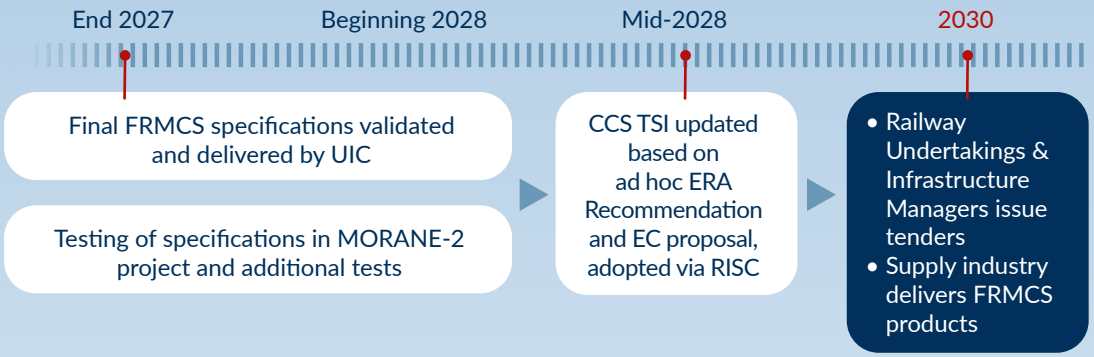
Based on ERA's recommendation, the European Commission will propose a revision of the Control-Command and Signalling (CCS) TSI, which will then be adopted by Member States via RISC*

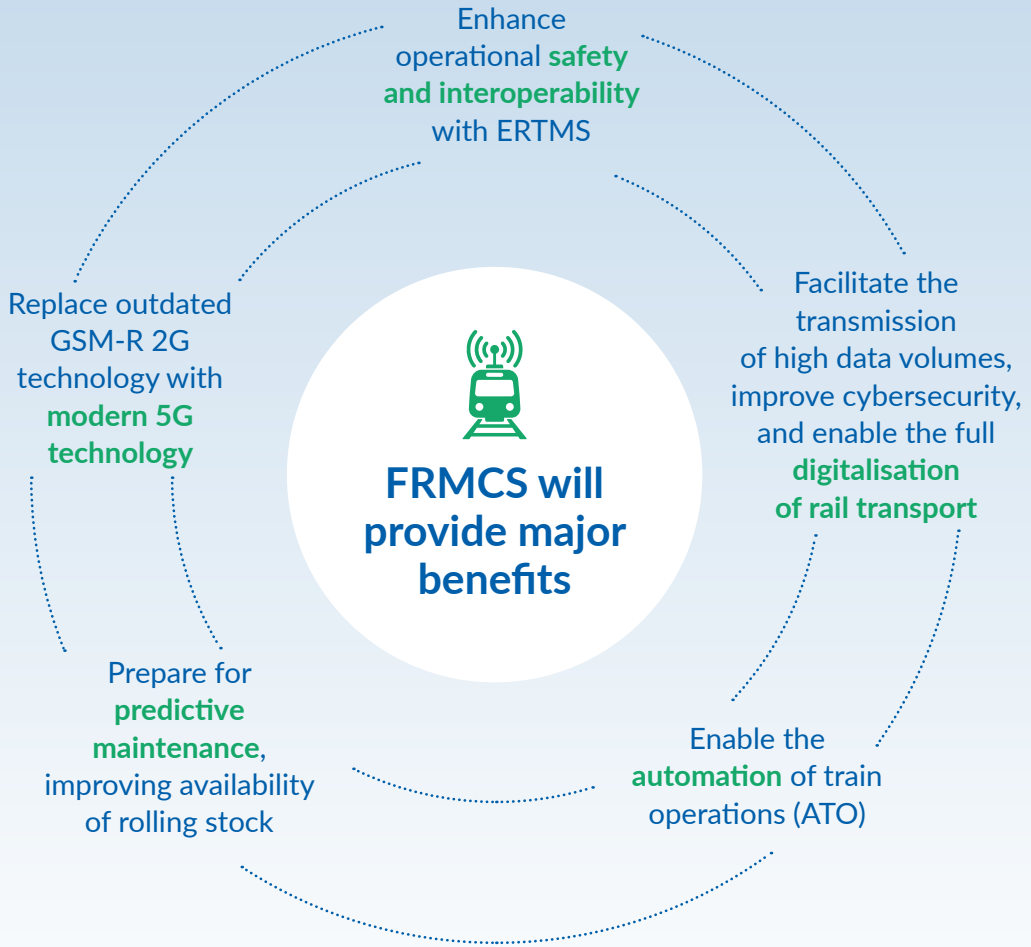
*RISC: Railway Interoperability and Safety Committee

**Roll-out**

Based on the revised TSI, the European rail industry will develop products for trackside and on-board equipment, enabling Railway Undertakings and Infrastructure Managers to organise procurement procedures

## FRMCS Indicative Timeline




# CER recommendations for a smooth development and roll out of FRMCS

### 1. Backward compatibility

Existing onboard communication units (ETCS OBUs) should be upgradeable to FRMCS through software updates, avoiding hardware replacement and protecting early investments.

### 2. Need for certainty

Railway Undertakings and Infrastructure Managers need better visibility of FRMCS development and deployment. Certainty is essential for planning and investing in major rail projects (e.g. Rail Baltica).

### 3. Ensure a transition period

Strategies for double standard GSM-R/FRMCS operation should be supported to enable a smooth migration and deployment phase.

### 4. A single European system

FRMCS should be deployed as a harmonised European system without incompatible national variations, supporting the Single European Railway Area.

### 5. Readiness by 2030

CER urges all stakeholders to join forces under Europe's Rail JU to ensure FRMCS is operational by 2030, before GSM-R becomes obsolete.