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THE EUROPEAN RAIL INDUSTRY

ERTMS Deployment in Europe: Progress Since 2024 and the Role of the Rail Supply Industry

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What did we ask for in 2024?

- At the ERA ERTMS 2024 Conference, we presented the following points to improve cost efficiency and accelerate ERTMS rollout:
  - Focus on requirements:
    - Technical: abstain from project specific and national requirements
    - Operational: develop harmonised operational rules for Europe
      - The elimination of trackside signals and use of cab signalling enable the implementation of harmonised operational rules.
  - Regulatory: Simplify authorisation process

“In 2026, these points remain just as relevant and valid as when they were presented in 2024.”

Where do we stand in 2026?

- As of the end of 2024, **only 17% of the TEN-T core network is equipped with ETCS** (approx. 10,600–12,400 km) and **around 19% of the EU railway fleet** (≈8,730 vehicles) equipped.

- The 2026 Third ERTMS Work Plan, by the European ERTMS Coordinator, and associated TEN-T monitoring documents provide a very clear message: *“deployment on the TEN-T network remains significantly behind schedule and structurally uneven across Member States”.*

- The **transition away from legacy Class B national signalling systems is progressing too slowly** to comply with TEN-T regulatory obligations and to ensure timely interoperability.

Insights from the latest NIPs

- Despite alignment with EU targets, delays, fragmented coordination, slow onboard uptake, and national differences continue to hinder effective ETCS deployment.
- For the radio part, the situation is no better:
  - no homogeneous, Europe-wide approach to FRMCS migration and GSM-R decommissioning
- This lack of alignment results in
  - long GSM-R/FRMCS coexistence periods
  - an uncoordinated phase-out,
  - timelines stretching from the early 2030s well into the 2040s
  - increasing cross-border complexity and coordination risks.

Consequence: Defining a FRMCS transition roadmap for existing vehicles is challenging under these circumstances.

FRMCS upgrade of existing ETCS on-board

- Not only creating the FRMCS specifications is a challenge. We have to have a roadmap how to migrate existing vehicles to FRMCS.
  - Acknowledge the need for FRMCS readiness as a top priority
  - Scale up industrial capacity based on demand
- Major transition steps need to be carefully assessed and discussed.

> **“The industry is ready to increase the capacity if the demand is clear.”**

Deployment status

- Stronger political support
  - The debate is no longer whether to deploy ERTMS, but how and when
- However, major challenges remain
  - Evolution of regulatory framework
  - Need for stable and sufficient financing
  - Need for better coordination
  - Fragmented implementation across countries
  - Need to move from project-based to network-wide deployment
  - Complexity of upgrading existing infrastructure

> **“ERTMS momentum is clear. Execution, coordination, and financing are the true bottlenecks.”**

The role of the rail supply industry

- Over the past 25 years, companies have invested heavily in helping to create and maintain the specifications.
- Since the beginning of ERTMS, the supply industry has consistently proposed improvements, both in terms of technical requirements and authorisation processes.
- The industry has repeatedly highlighted that the volume of requirements is excessively high.
- A key example is FRMCS, where the focus on the essential scope is not correct; priority should first be given to equivalence with GSM-R.
- Funding has been continuously reduced despite the increasing complexity.
- Core issue: these concerns and recommendations are not being effectively heard or addressed.

UNIFE/UNISIG Main priorities for ERTMS success

Topic	Recommendation
Harmonisation and reduction of requirements	Harmonise operational and trackside engineering rules and define the European Trackside Protection System to ensure consistent, efficient deployments and reduce ETCS on-board design, testing, and maintenance effort.
Maturity of requirements	Maintain CCS TSI stability by reducing and consolidating requirements, and ensure new requirements reach an agreed TRL before legal adoption to minimise later corrections.
Simplified authorisation processes	Streamline authorisation by removing unnecessary steps and redundant assessments, applying best practices, and creating authorisation-free areas.
Reduce risk and market fragmentation	Reduce project and market fragmentation risks, both significant implicit cost drivers, by accelerating the phase-out of legacy national signalling systems. This will eliminate transitional complexities, substantially lower dual-system maintenance costs, and enable broader supplier participation.
Stability	Slow the pace of the ERTMS system evolution. It reduces functional, formal, and political impacts, thereby freeing up resources for meaningful supplier-internal improvements.

ERTMS and high-risk suppliers

- ETCS products are highly complex systems, combining advanced digital components and safety-critical functionalities.
- European companies use advanced formal methods to achieve very high safety levels, reflecting the strong expertise of Europe's rail industry in safety-critical engineering.
- The integrity of rail signalling, control, and operational technologies is non-negotiable when it comes to ensuring the safety of passengers, the protection of goods, and the reliability of train operations across the continent.
- UNIFE urges decisive action to prevent interference from high-risk third-country actors, emphasizing risks tied to foreign dependencies, potential backdoors, and strategic vulnerabilities in embedded digital systems for signalling, control, and communications.

> **"For safety-critical systems, proximity, trust, and proven reliability must come before uncertainty and risk."**

ERTMS outside Europe – Global Gateway

- Global Gateway provides a strategic platform to position ERTMS as the preferred signalling system in EU third partner countries.
- Support from the European Commission and ERA is essential to anchor ERTMS and the broader EU rail regulatory framework within the Global Gateway Strategy.
- South Africa, Latin America and Southeast Asia offer strong Global Gateway opportunities, creating favourable conditions for deploying European rail technologies such as ERTMS.
- UNIFE is actively engaged in the Global Gateway agenda, ensuring industry priorities are reflected in the Commission's implementation.
- These activities need to be included in the ERA mandate.

"We aim to take ETCS deployment beyond Europe."

Takeaways

- We all know what has to be done:
  - Reduce scope & requirements of the system, prioritise the essential .
  - Harmonise trackside, technically and operationally.
  - Cut red tape in the authorisation process.

Let's ensure we don't have to say this all over again in 2028!

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See you soon

THANK YOU

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