

ERTMS – the European perspective from the European Union Agency for Railways

Railtech ERTMS Conference, Utrecht, 28 March 2017

Pio Guido

Head of Unit ERTMS



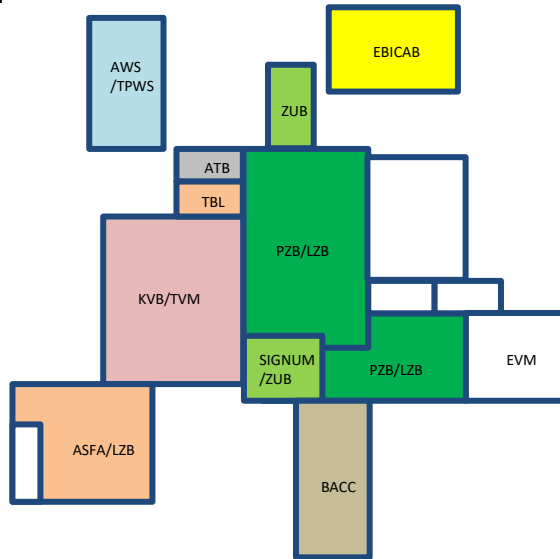
Railways are changing – signalling too

Local Optimization

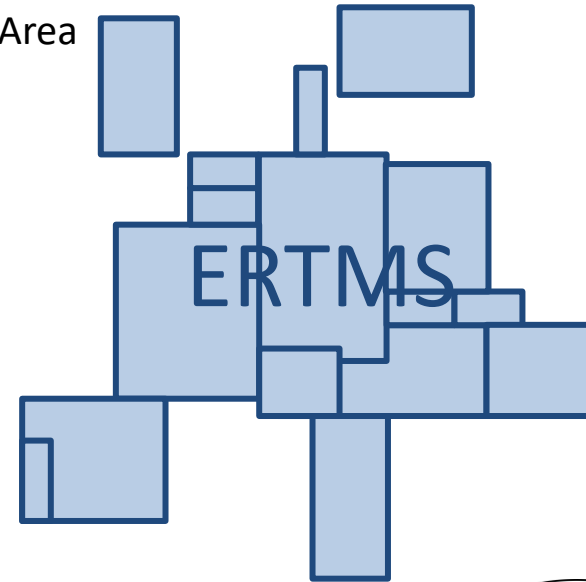
Bespoke solutions
for national
situations

Fragmented
market

Fragmented
innovation

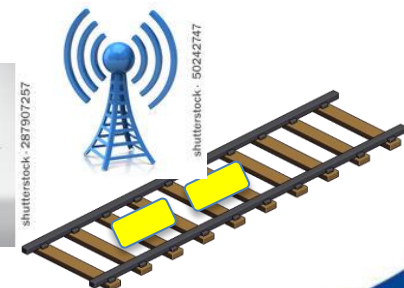
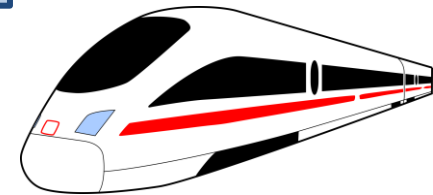


Single European
Railway Area

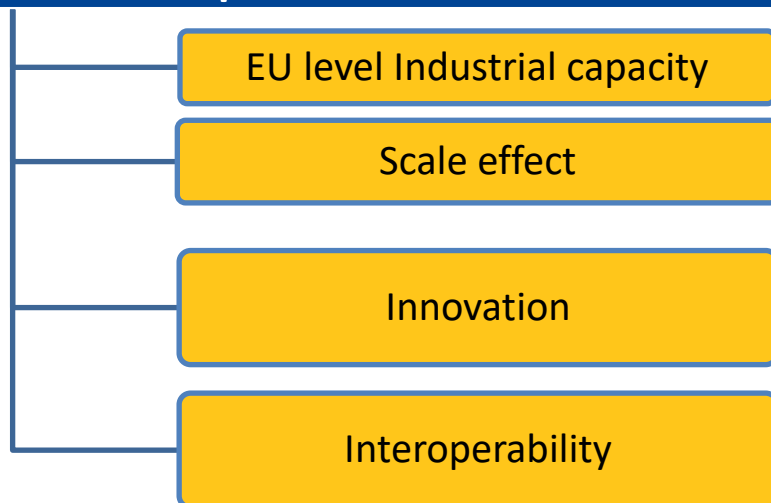


Integrated
solution
Onboard +Trackside

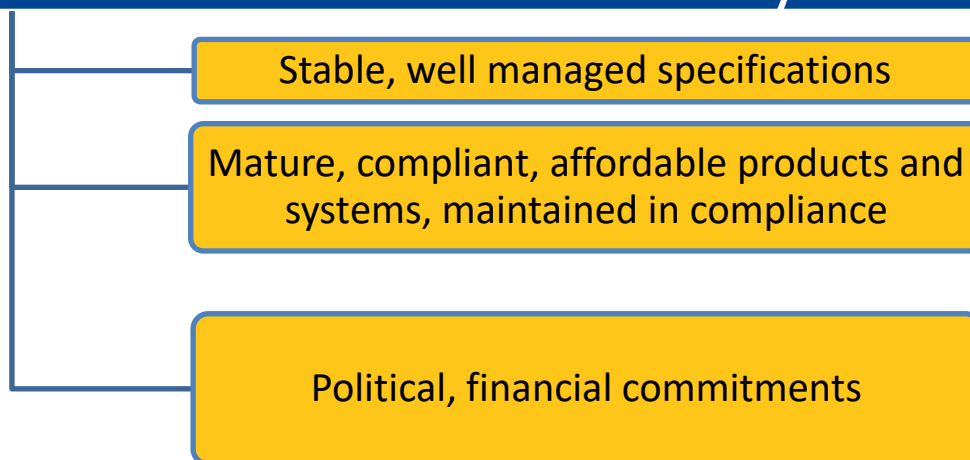
Clear interface
track train
Multiple actors



Single train protection and communication system



Which conditions are necessary to make it happen?



Baseline 2 released in 2008

Reference proven in revenue service

- High Speed
- Dedicated Freight (Betuweroute)
- Alpine tunnels (Loetschberg, Gotthard)
- Suburban network (Cercanias Madrid)



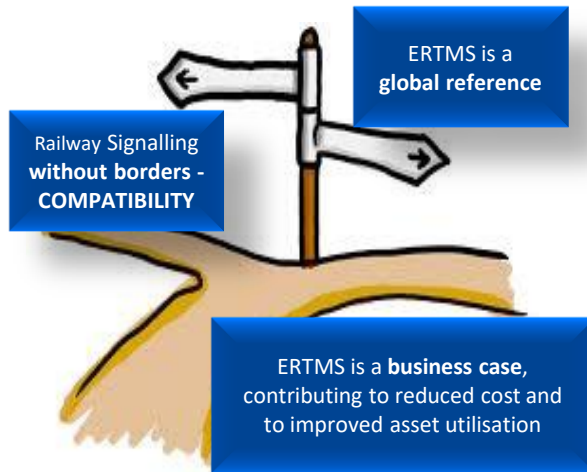
More ETCS km and trains than comparable legacy systems !



EU implementation	
Total Railway Network (km)	218 726
GSM-R planned (km)	162 978
GSM-R constructed (km)	114 782
Cabradio (stable figure)	64 000
ETCS radio (increasing)	6 000



ERTMS – Where Are We?



ETCS B3-R2

GSM-R B1

legally in force July 5th, 2016

MoU signed September 20th 2016

European Deployment Plan adopted as Regulation 05/01/2017

With the 4th Railway Package, the Agency has new powers for
trackside approval and vehicle authorisation

- › **Long-term evolution of ERTMS**
- › Agency observer in **S2R** Board
- › Technical aspects of ERTMS are now governed by the **ERTMS Stakeholders Platform**
- › Focus now has to shift to **harmonised** implementation and migration

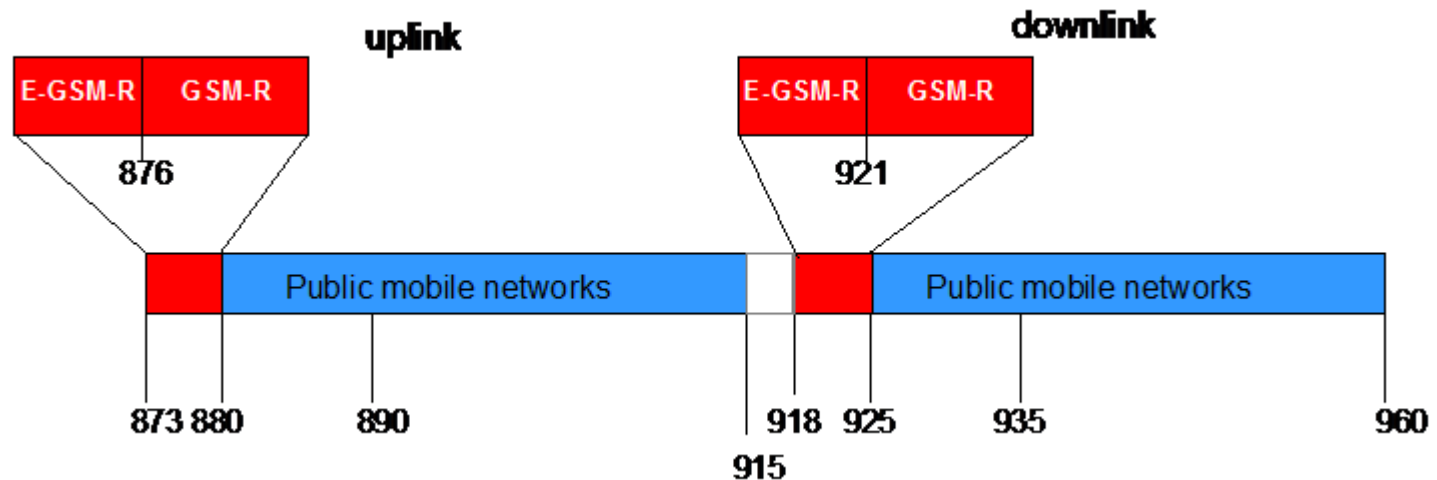
Spoiled railways ?

Harmonised R-GSM frequency band **dedicated** to GSM-R

- › Used in all MS for operational and safety-related applications

Additional ER-GSM frequency band

- › 2x3 MHz [873-876 / 918-921 MHz] only on a National basis
- › Current usage very limited



Radio Spectrum is not railway asset...

Migration phase (2022-2032), coexistence of GSM-R and the successor (FRMCS)

- › Additional radio spectrum is needed
- › Preferred solution from railway stakeholders is to use the ER-GSM band, enabling reuse of existing assets
- › However, in many MS this band is not reserved for Rail
 - › Military applications are primary services
 - › Short Range Devices (**Internet Of Things**) requested to use it

Way forward

- › CEPT has launched a specific WG for Rail spectrum: FM 56
- › To assess railway needs and spectrum options
- › Report with recommendations to MS expected end 2018

Railways must act now!



ERTMS success can only result from a collective, disciplined approach.

Specifications

- CCM, error correction, game changers
- Cleaning National Rules

Products, Projects

- Software maintenance
- Mitigation Measures when relevant
- Engineering Rules
- Avoid Class B exporting constraints

Processes

- Engineering Rules standardized
- Pre-tested pre-approved error corrections
- NSA-ERA cooperation for effective Vehicle Authorization and Trackside Approval

How to cooperate better?

ERTMS Stakeholders Platform

- To facilitate a synchronized approach for ERTMS development, with decision makers from users and suppliers
- Covering all aspects of ERTMS products and systems to ensure EU-wide compatibility and interoperability

MoU

- (7) The Suppliers agree to propose, for future projects, updated software releases to their customers, to automatically include the corrections of errors in the specifications...
- (10) Infrastructure Managers commit, for any future project, to cooperate with the Agency providing ... the information in the 4th RP necessary to issue a positive approval for ERTMS trackside implementations.

ERA working groups

- Future Radio System: Spectrum, 3GPP standards
- Operational Harmonization
- CCM processes
- Game Changers

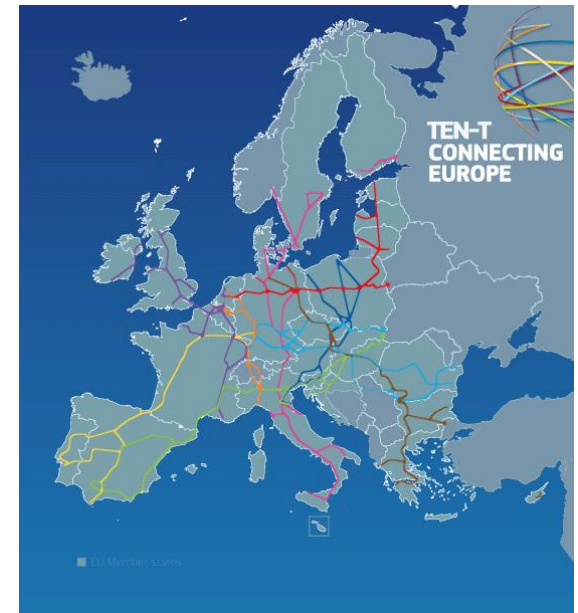
Vision 2030 – 54,000 km Core Network with ETCS

The **whole Core Network** in service with ETCS
A clear **deployment calendar** is followed.

Trackside installations deployed with modular pre-tested configurations, with **network-wide engineering rules**:
out-contracting of field works, maintaining tight control over the final results in terms of quality, safety and interoperability.

On-board installations based on generic, pre-tested, **pre-validated kernel from each supplier**, reducing the amount of testing in line.

ERTMS as software products: regular, scheduled updates with pre-tested configurations to eliminate errors, maintaining all the products and system throughout EU interoperable.





Making the railway system work better for society.

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