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# APPLICATION OF THE TSIs

*(Control Command and  
Signalling - CCS)*

27.05.2025





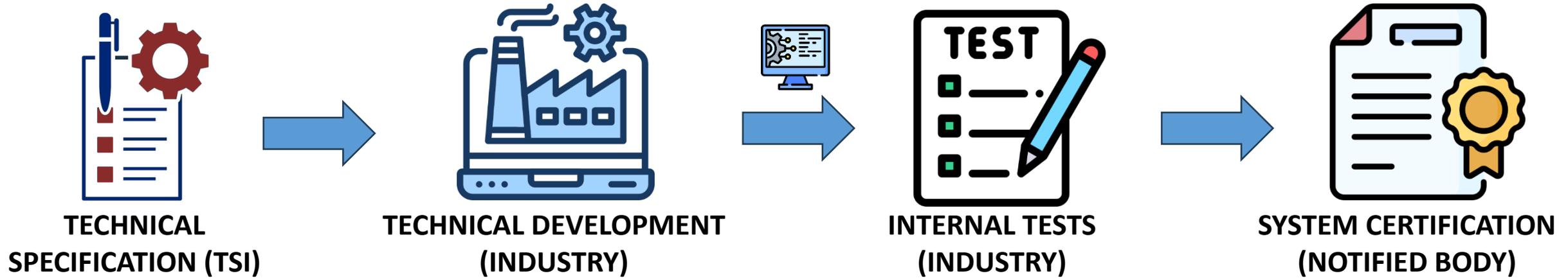
## ERTMS (On-Board)

Implements ALL (ERTMS) functionalities  
Follows trackside orders  
Communication with trackside (L1 – balises, L2 radio)

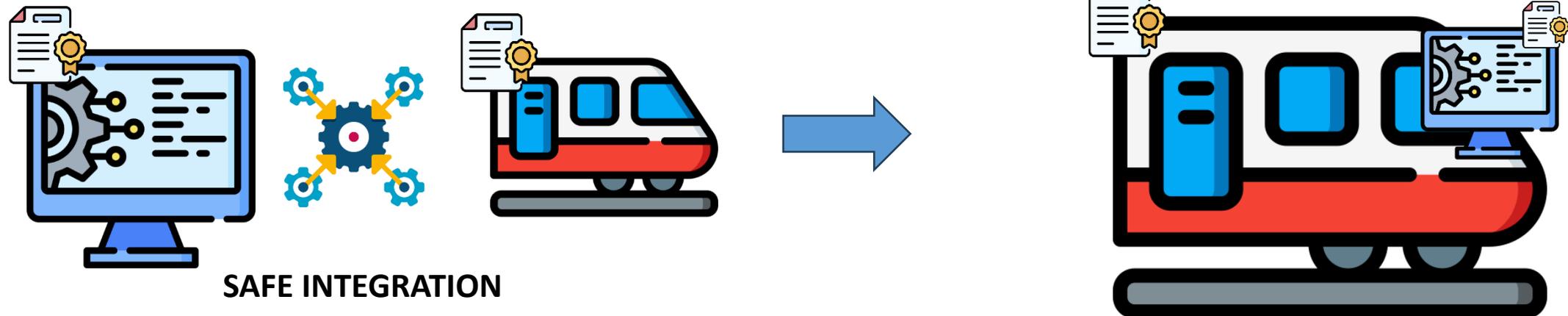
## ERTMS (Trackside) - Infrastructure

Implements a set of functions  
Decides what to do, when and where  
Defines operational rules & Engineering

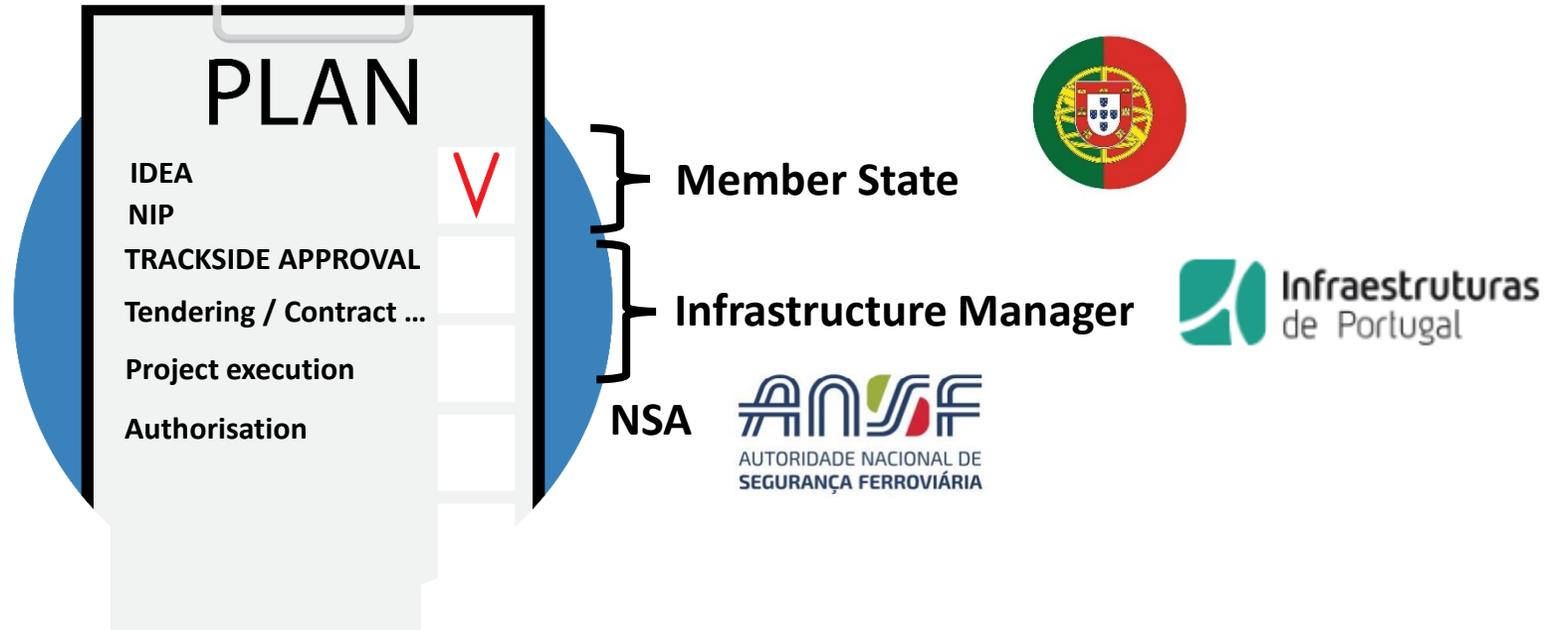
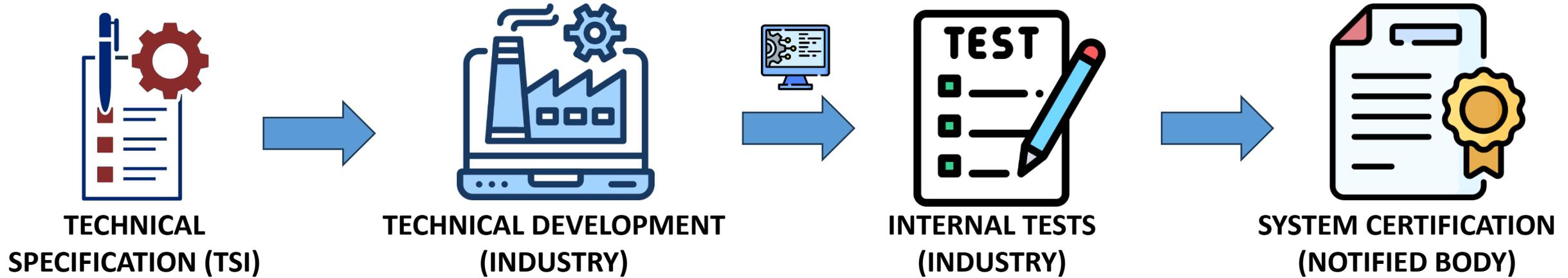
## On-board process (hyper simplified)



**AUTHORISED VEHICLE = ROLLING STOCK + AUTOMATIC TRAIN PROTECTION SYSTEM**



## Trackside process (hyper simplified)



- New vehicles **SHALL** be equipped with ETCS (some exceptions apply)
- From September 2023 Regulation (EU) 2023/1695 applies (CCS TSI 2023)  
→ Transition periods from Appendix B apply
- National Technical Rules for Vehicle Authorisation have been reviewed, up to date
- Vehicles running **ONLY** in Portugal → Can be authorised by the Portuguese National Safety Authority OR ERA

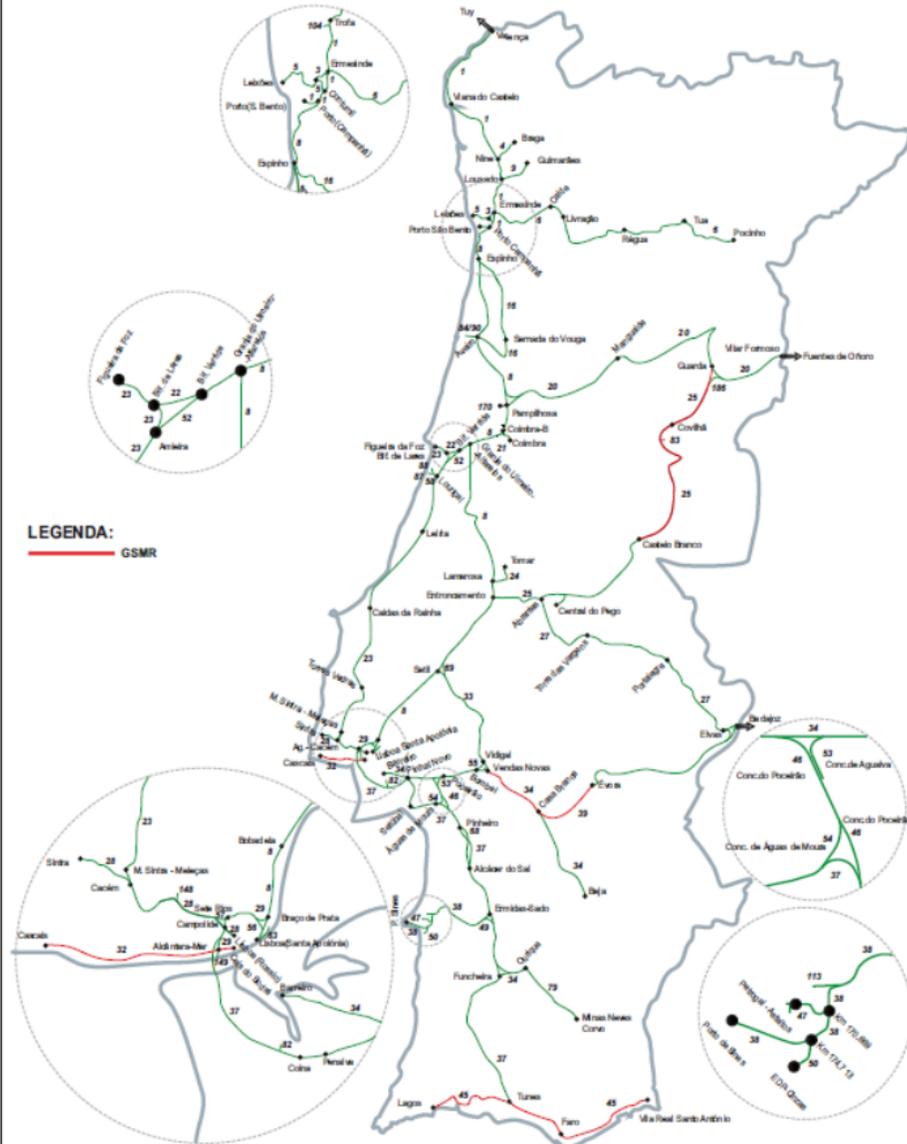


Figure 2 - Current status of GSM-R deployment (In Service)

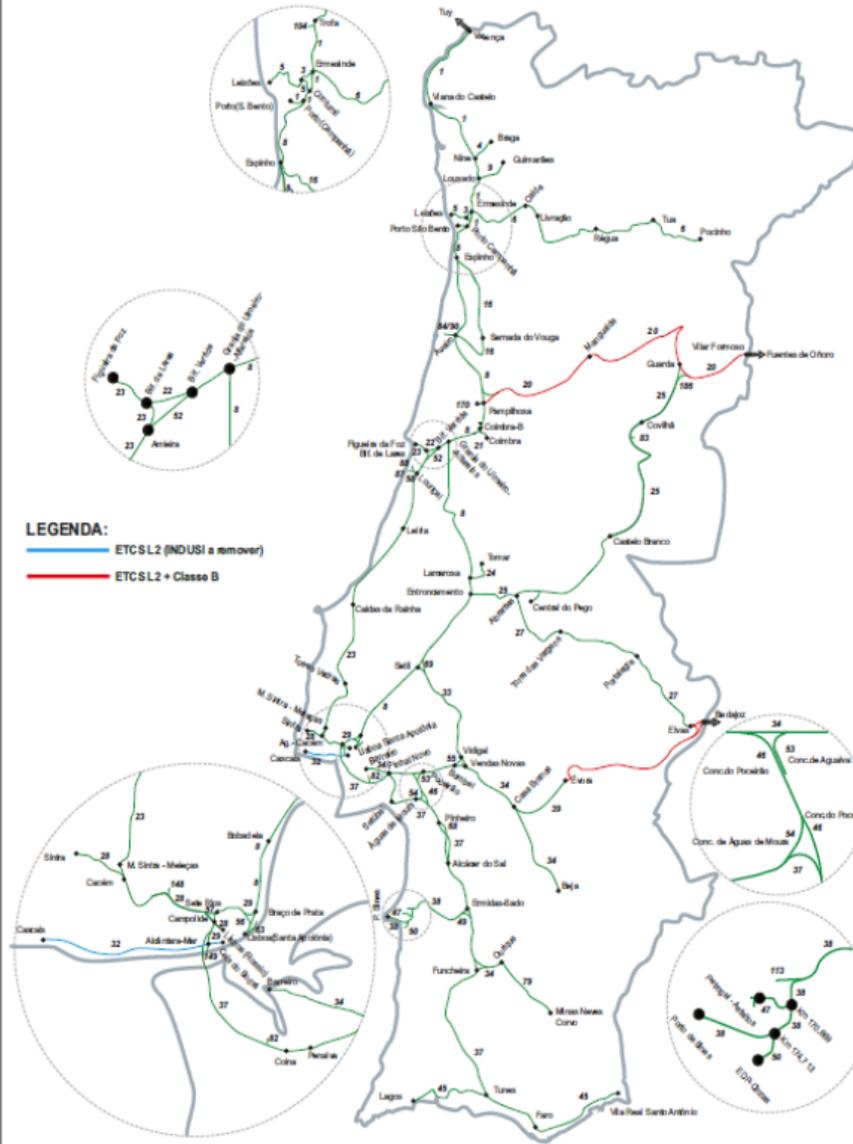


Figure 1 - Current status of ETCS deployment (Projects in progress)

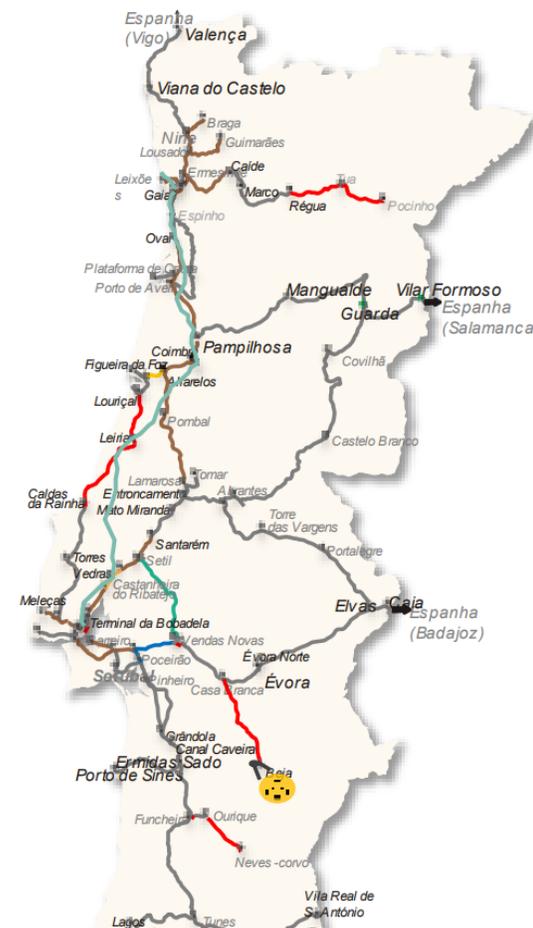
## Trackside (Current)

- New lines shall be equipped with ERTMS = ETCS + RMR
- Follow the trackside approval process before tendering
- Class B decommissioning foreseen for 2040 2050
- ETCS deployment foreseen from 2030
- Automatic Train Operation under evaluation

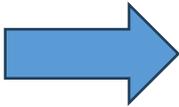
## Signalling Projects to be concluded at end of 2030



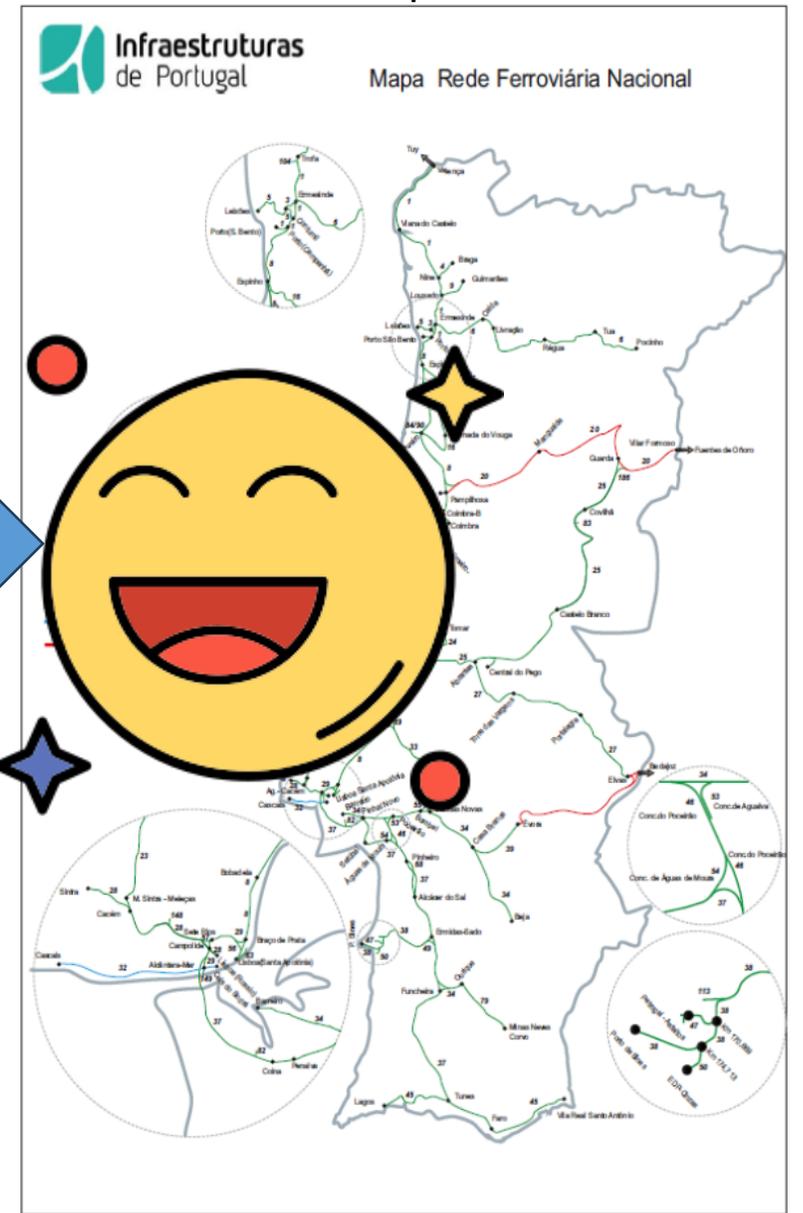
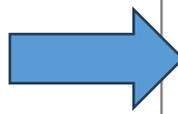
-  Lote F – Régua-Pocinho, Caldas da Rainha Louriçal, Casa Branca Beja e Ramal da Neves Corvo;
-  Poceirão– Bombele Poceirão– Águas de Moura;
-  Alfarelos – Marujal e Verride– Bif. Lares;
-  Oriente – Azambuja;
-  New Interlockings
-  New line Porto – Lisboa;



### TSI COMPLIANT SIGNALLING / TRAIN DETECTION



### AUTHORISATION PROCESS



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