

The ERTMS Newsletter

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## Did you know ...

... ERA is mandated to issue single safety certificates



Please visit ...

[https://www.era.europa.eu/activities/european-rail-traffic-management-system-ertms\\_en](https://www.era.europa.eu/activities/european-rail-traffic-management-system-ertms_en)  
and get to know their ERTMS activities in detail.

## In the spotlight:

# Interview with Mr. Doppelbauer, Executive Director at ERA



**You have been at the helm of ERA for the past 6 years. Regarding ERTMS, how would you compare the situation today with the one when you were appointed as Executive Director?**

Several important milestones for ERTMS have been reached since 2015. Certainly, the main difference is that, at the time of my arrival at ERA, the Fourth Railway Package was not yet implemented – in other words, there were no strong means of ensuring full compatibility of ERTMS equipment onboard and on track. Now, with the Fourth Railway Package being transposed in all EU Member States, ERA has a better position to act upon its role as ERTMS system authority. We can rely on the new processes to ensure ERTMS compatibility – via the vehicle authorisation process for onboard equipment, and through the ERTMS trackside approval process for rail infrastructure.

Other important milestones of the past six years include the Technical Specification for Interoperability (TSI) introducing ETCS Baseline 3 and GSM-R Baseline 1 in 2016, followed by an MoU signed with the Sector in the same year, giving us a solid definition of compatibility. Finally, the TSI revision in 2019 introduced the ETCS and Radio System compatibility processes ESC and RSC.

The main weakness in the ERTMS program was never the technological side – it was that ERTMS was not defined and accepted as a standard. Today, we have the instruments to treat ERTMS as de-facto standard, and we are beginning to see the positive results from this situation.

Moreover, the ERTMS implementation programme launched by the European Commission, which allocates huge financial resources to create transnational rail corridors in Europe, is bearing fruit. Compared to when I started in 2015, we have now more than 6.000 track kilometres in operation. If you read the implementation plan of the European Commission's ERTMS Coordinator Matthias Ruete, the commitment to ERTMS deployment will not cease until some 50.000 track kilometres will be deployed by 2030.<sup>1</sup>

**What are the lessons learned from the first year of ERA as the ERTMS system authority. What worked well and what might be improved?**

First of all, we notice that the new processes invoke a new kind of thinking in the sector, a European mind set taking root. European rules and standards no longer lead a niche existence, an unwelcome add-on to national rules, as was the case before. There is a realisation in the sector that EU rules and standards are the building blocks of a rail system that is fit for the future, because it creates economies of scale – and only with economies of scale rail can be efficient and competitive. Interoperability is the essential condition for seamless movement of trains across European borders.

Another aspect is the huge amount of return from experience available with ERTMS – we have lessons learned that are valuable for the whole EU rail community of suppliers, clients and service providers, in terms of engineering, operations, maintenance and migration, market conditions, all along the system life cycle – this amount of collective learning and building on experience is simply not available with legacy national systems.

Thanks to the hard work and good collaboration between ERA, national safety authorities, and the European rail sector, we have managed to reduce national technical rules for vehicle authorisation in Europe from over 14.000 to below 1.000 as of today – and it is our ambition to reduce this number further in the years to come.

This kind of European thinking has to supersede national planning and thinking, if we ever wish to create a truly harmonised and connected European rail market – and make the best use of rail as the most environmentally friendly form of mass transportation.

**The ERTMS business case analysis showed that a dual on-board migration strategy has the most advantageous economic outcome. What can be done to make sure the fleet is equipped in time? Should Member States consider scrapping schemes for locomotives in order to accelerate the on board deployment of ERTMS? Is there enough industrial capacity in Europe?**

In my view, we clearly need to prioritise the on-board fitment of ERTMS. The more vehicles are fitted, the more attractive it becomes to install ERTMS along the tracks as well. The possibility to equip lines with pure ETCS, without a parallel/fall-back legacy system gives much more attractive CAPEX/OPEX to infrastructure managers (IM) and allows leaner operations and maintenance, as well as reducing downtime caused by old systems unavailability. The challenge is to ensure the benefits for the system as a whole are shared between IM and RUs. Therefore, a scrapping scheme for old locomotives could be a welcome initiative. Indeed, industrial capacity may become critical – however, if more standard off-the-shelf systems are considered, this issue could be managed more easily.

<sup>1</sup> [https://ec.europa.eu/transport/sites/default/files/work\\_plan\\_ertms\\_2020.pdf](https://ec.europa.eu/transport/sites/default/files/work_plan_ertms_2020.pdf)

### **What can be done to accelerate the deployment on regional lines?**

Again, a harmonised rail market with standardised products will make rolling stock and equipment more affordable – so that the financial threshold to enter the market, also for regional lines, should be considerably lower. Regional governments, operators, and financial investors should make sure they make the best use of the funding opportunities provided by the European Union. On the trackside, ERTMS offers scalability, on the basis of Limited Supervision. Such cost effective installations can be based on balises, but in future also on radio-based transmission of signal aspects.

### **Should Infrastructure Managers continue deploying Level 1 or only Level 2 ?**

Originally, Level 1 was conceived as an overlay system to facilitate migration to ERTMS. On the other hand, Level 1 has significant disadvantages – starting from the strong influence of legacy systems, the high lifecycle cost of trackside installations, and finally the sub-optimum impact on capacity. A forward looking approach thus should focus on radio based implementation, ranging from Level 2 over hybrid approaches to ultimately Level 3.

### **Will investments in balises provide sufficient return if there is a satellite positioning round the corner?**

Balises, in particular those installed solely as position reference, are quite costly. Satellite technology will play an important role in future traffic management for rail, in particular also for cost efficient train localisation; however, in certain situations we will still have to rely on balises, e.g. in tunnels and in dense urban areas with high-rise buildings.

### **What is the outcome of the ETCS and Radio System compatibility exercise. Is there a genuine interoperable ERTMS system in Europe?**

As I said before, once ERTMS is treated as a European standard – as it is more and more thanks to the new authorisation processes of the Fourth Railway Package - there can be no more different ‘versions’ of ERTMS, at least for the onboard. On the other hand, the trackside still needs to reflect the national situation. In practice – and we know this from experience of ERTMS implementation along European corridors – onboard/trackside compatibility will always be necessary to guarantee seamless operation across borders. The ESC and RSC processes will certainly help to streamline this procedure. We are just at the beginning here, but ESC and RSC will facilitate genuine end-to-end interoperability with ERTMS in Europe.

### **Many operators complain about the current procedures related to the certification to type. How can this issue be addressed?**

Since the entry into force of the Fourth Railway Package, the Agency has already authorised several hundreds of locomotives with ERTMS changes or upgrades, we have so far never received any complaints from any of these applicants. As background information, it might be helpful to recall that the Fourth Railway Package has modified certain basic principles, in particular it is now the applicant who decides whether a new authorisation is necessary or not (before, it was a decision of the authority). With the TSI 2019, clear conditions were introduced when an authorisation following a SW change is necessary and when it is not. In case where there is no new authorisation, there obviously is very limited impact on the operators.

In those cases in which a new authorisation is necessary, a step-wise procedure appears to be most adequate: following the authorisation of the type, a first small number of vehicles may be authorised in conformity to this type – this may usually take a couple of days. Any subsequent authorisation in conformity can then be processed very rapidly, as the documentation has already been validated.

We are constantly dialoguing with sector representatives to make the new processes as lean as possible and to deliver authorisation decisions within the shortest timeframe possible. As a general rule, the more an applicant knows about how the approval processes work, and how the One-Stop-Shop tool works, the faster we can process any application.

We are aware of the importance of the retrofitting cases and do our best to process these cases as fast as possible.

# Factsheets

## ERTMS deployment plans by 2040 (EU27+NO+CH)

The analysis of the ERTMS deployment plans by 2040 focusses on the core and comprehensive network, as defined in TENtec, based on the information provided by the plans of the Member States (e.g. NIP, Network statements, etc.).



There are **4 categories**:

1. Entire network equipped with ETCS by 2040:

- Belgium;
- Czechia;
- Estonia;
- Finland
- Germany
- Italy
- Norway;
- Luxemburg;
- Sweden;
- Switzerland

2. Class B will not be required by 2040 (main lines equipped with ETCS by 2040 but some lines not equipped)

- Bulgaria;
- Denmark;
- Greece;
- Slovenia

3. No obligation and no plan to equip the network with ETCS except for some sections

- Ireland;
- Latvia;
- Lithuania

4. Class B system will be needed to run on same lines beyond 2040

- Austria;
- Croatia;
- France;
- Hungary;
- The Netherlands;
- Poland;
- Portugal;
- Romania;
- Slovakia;
- Spain

## ERTMS deployment status according to the European Deployment Plan

The below charts provide an overview of the ETCS Status (in km) on the Core Network Corridor (CNC) on the total sections planned by 2023 and by 2030 ) in the European Deployment Plan (EDP).

From the total sections planned by 2023 (15,703km), 43% is currently in operation (6,713km) and 45% is still under construction (7,097km).

From the total sections planned by 2030 (57,170km) in the EDP, 69% is currently not in operation nor under construction (39,210km), while 14% is currently in operation (8,068km) and 17% under construction (9,892km).



Sections planned by 2023 – current status (Source: DMT elaboration)



Sections planned by 2030 – current status (Source: DMT elaboration)

## Overview per Core Network Corridor

The following map provides an overview of the ETCS deployment status.



ETCS status: no ETCS, ETCS under construction & ETCS in operation (Source: DMT elaboration)

Core Network Corridor	ETCS status (km) by 2023			ETCS status (km) by 2030		
	In operation	Under construction	No ETCS	In operation	Under construction	No ETCS
Atlantic Corridor (ATL)	60% ; 1,053km	29%; 518km	11%; 188km	11%; 1,184km	10%; 1,162km	79%; 8,785km
Baltic-Adriatic Corridor (BAC)	62%; 1,294km	23%; 482km	15%; 325km	29%; 1,406km	10%; 513km	61%; 2,994km
Mediterranean Corridor (MED)	52%; 1,621km	43%; 1,344km	5%; 170km	18%; 2,005km	15%; 1,687km	67%; 7,633km
North Sea-Baltic Corridor (NSB)	32%; 565km	61%; 1,076km	8%; 136km	12%; 941km	18%; 1,406km	70%; 5,524km
North Sea-Mediterranean (NSM)	51%; 799km	27%; 429km	22%; 338km	16%; 799km	9%; 429km	76%; 3,798km
Orient/East-Med Corridor (OEM)	24%; 674km	65%; 1,806km	10%; 283km	11%; 700km	32%; 2,102mk	57%; 3,677km
Rhine-Alpine Corridor (RALP)	42%; 957km	46%; 1,046km	12%; 270km	28%; 957km	33%; 1,129km	40%; 1,376km
Rhine-Danube Corridor (RDN)	30%; 620km	68%; 1,403km	2%; 40km	11%; 620km	30%; 1,725km	60%; 3,458km
Scandinavian-Mediterranean Corridor (SCM)	37%; 684km	34%; 630km	29%; 535km	10%; 1,241km	12%; 1,457km	77%; 9,216km



CNC ATL, BAC & RALP ETCS status: no ETCS, ETCS under construction & ETCS in operation (Source: DMT elaboration)

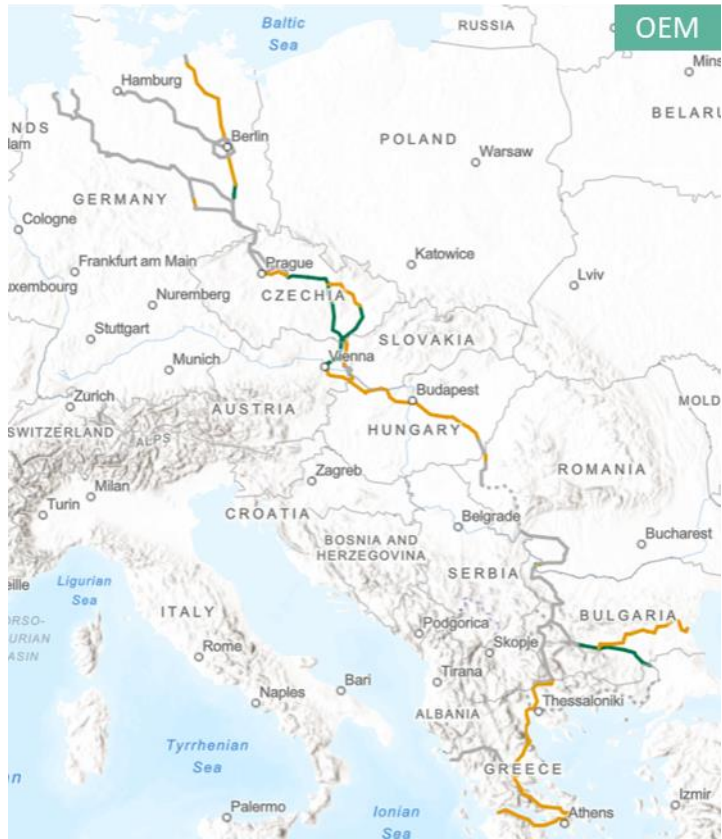


CNC RDN ETCS status: no ETCS, ETCS under construction & ETCS in operation (Source: DMT elaboration)



CNC SCM & NSM ETCS status: no ETCS, ETCS under construction & ETCS in operation (Source: DMT elaboration)





CNC OEM ETCS status: no ETCS, ETCS under construction & ETCS in operation (Source: DMT elaboration)



CNC NSB ETCS status: no ETCS, ETCS under construction & ETCS in operation (Source: DMT elaboration)

## Overview of the delayed sections according to the European Deployment Plan

The map below provides an overview of the delayed sections on the CNC by considering the deadlines set in the EDP.

According to the EDP, the following delays occurred in the past years

- **2017:** 102 km delayed, which represents 7% of the sections planned in 2017 according to the EDP;
- **2018:** 847 km delayed, which represents 47% of the sections planned in 2018 according to the EDP;
- **2019:** 188 km delayed, which represents 100% of the sections planned in 2019 according to the EDP;
- **2020:** 3,299 km delayed which represents 84% of the sections planned in 2020 according to the EDP.



Overview of the delayed ETCS sections on the CNC according to the EDP (Source: DMT elaboration)

# Breaking news

## *Disclaimer*

*All articles included in this press review were sourced from publicly available websites.*

*Authorship of all articles remains with the individual publishers, in case of quotations the original authors of the individual news items should be quoted as source.*

*The Deployment Management Team and the European Commission do not take any responsibility for the correctness of the information provided.*

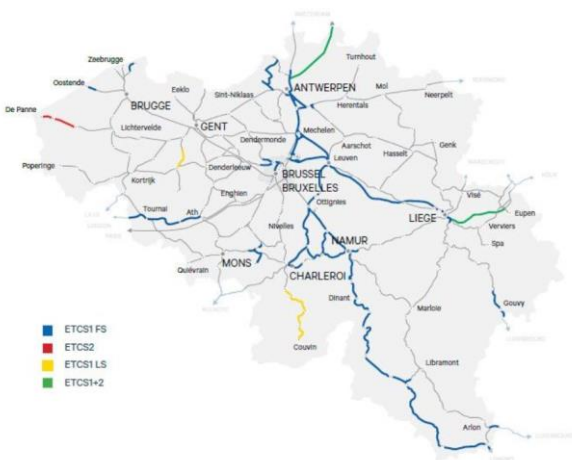
## Belgium - Infrabel has installed ERTMS on 30 percent of the main lines

February 2021

The Belgian rail operator Infrabel has now equipped 1,915 kilometres of track with ERTMS. This is almost 30 percent of the main rail network, which consists of almost 6,400 kilometres of track. Infrabel wants to have the main rail network equipped with at least ERTMS Level 1 by 2025. The last installation was on the night of 28 to 29 January, when Infrabel installed ETCS Level 1 with Full Supervision on 32 kilometres of track between La Louvière and Binche in the south of the country.

With the recent ETCS installation, Infrabel added another part to the Belgian ERTMS network. The Belgian network will have mixed ERTMS levels; some lines will be equipped with ERTMS Level 1, such as the Brussels - Leuven line, and others with ERTMS Level 2, such as the Halle - Lille high-speed line.

ETCS is the core component of the ERTMS train control system, the European Rail Traffic Management System. The ETCS system continuously calculates a safe maximum speed for each train, with cab signalling for the driver and on-board systems taking control if the permitted speed is exceeded. In combination with GSM-R, which is used for communication between trains and traffic control, it makes ERTMS. GSM-R is already installed on the Belgian railway system and available on all lines of the Infrabel network.



(source: Infrabel)

### Masterplan

Infrabel has planned the rollout of ERTMS step by step for the entire rail network. The rail manager's ambition is that trains in Belgium will only run under ETCS by the end of 2025. The master plan states which type of ETCS each railway line will have. For the Belgian network, Infrabel opted for a combination of ETCS level 1 Full Supervision, ETCS level 1 Limited Supervision and ETCS level 2 Full Supervision.

### How it works

ETCS Level 1 can be used on top of the existing national signalling system and provides cabin signalling. Route data is sent to the ETCS system on board the train. With the

received data, both the maximum speed and the braking curves are calculated. ETCS Level 1 Full Supervision, which is currently largely installed by Infrabel, requires supervision at every signal, in other words: the on-board system continuously monitors the maximum permitted speed and calculates the braking curve.

With ETCS Level 1 Limited Supervision, only part of the signals can be included and the installation of equipment can be fine-tuned at points of the network where the increase in functionality justifies the cost. Because there is not supervision at every signal, the train driver still has to watch out for signals along the track. For this reason, the safety level is less high, as not all signals are included and the driver is still dependent on the side-track signalling.

Source: <https://www.spoorpro.nl/spoorbouw/2021/02/08/infrabel-heeft-ertms-op-30-procent-van-het-hoofdspoor-geinstalleerd/>

## Bulgaria - Bulgaria's tender for building ERTMS on railway to Serbia border draws 3 bids

February 2021

Bulgaria's state-owned National Railway Infrastructure Company (NRIC) said that its 18.7 million leva (USD 11.4 million/EUR 9.6 million) tender for construction of an European Railway Traffic Management System (ERTMS) has attracted three offers.

Bids were tabled by a tie-up between Spain's CAF Signalling and Bulgaria's Atomenergoremont, a tie-up comprising Czech-based AZD Praha and Bulgaria's Syscom Engineering, and a consortium comprising Thales Austria and Bulgaria's Balkantel, NRIC said in a notice.

The ERTMS will cover eight railway stations in the railway section connecting the village of Voluyak with the village of Dragoman and the border with Serbia. The section is part of the railway connecting the capital Sofia to the border with Serbia.

The project will benefit from EU financing under operational programme Transport and Transport Infrastructure 2014-2020.

Source: <https://seenews.com/news/bulgarias-tender-for-building-ertms-on-railway-to-serbia-border-draws-3-bids-732451>

## Czechia – The section of the second corridor from Petrovice u Karviné to Břeclav is equipped with ETCS

March 2021

The Railway Administration (SŽ) has completed the installation of the European ETCS interlocking on the line section from Petrovice u Karviné to Břeclav. As a result, another 204 km of lines have been added to the Czech railway network, which are equipped with a modern security system. Construction work began in mid-2017 and lasted three and a half years.

Three line sections were equipped with the most modern security system: from Petrovice u Karviné to Bohumín (14 km), from Bohumín to Přerov (92 km) and from Přerov to Břeclav (98 km). In total, there are 204 km of lines that were

previously completely covered by the GSM-R mobile radio network. Together with ETCS, it creates a compact unit that can be used throughout the European network.

The introduction of a single European system required technical modifications at the central control room in Přeřov, from which a large area in the affected section of the second transit railway corridor is managed. The device works with so-called fixed balises located in the track. These serve as a reference point for the exact location of the vehicle so that the train protection system determines exactly where the train is located.

If sensors on the underside of the vehicle detect balise, the ETCS mobile part located in the vehicle shall ensure that this information is sent to the RBC via the GSM-R mobile radio network. It sends the driver information on the permitted speed and other necessary instructions. The mobile part of the ETCS system then determines the ideal speed curve and ensures safe monitoring of the vehicle speed, if it can stop it if necessary. Thanks to the continuous radio connection, the driver is constantly checked to ensure that he follows all instructions.

The contractor of the investment project called ETCS Petrovice u Karviné - Ostrava - Přeřov - Břeclav was the company AŽD. The construction is co-financed by the European Union from the Connecting Europe Facility (CEF) program. The total investment costs of the project reached CZK 730,514,497 excluding VAT. The EU support rate is 85% of the eligible costs. The amount of the subsidy amounts to a maximum of EUR 20,519,708, i.e. approximately CZK 533,811,344.

Source: <http://www.dnoviny.cz/infrastruktura/usek-druheho-koridoru-z-petrovic-u-karvine-do-breclavi-je-vybaven-etcs>

## Denmark - Banedanmark makes progress in signalling rollout

January 2021

DANISH infrastructure manager Banedanmark has announced that it will commission CBTC on two Copenhagen S-Bane lines on January 25, along with ETCS on a mainline on April 2 as part of its troubled signalling upgrade programme.

### **S-Bane**

Banedanmark will commission CBTC on the Copenhagen S-Bane Farum and Ring lines on January 25. As part of the changeover to CBTC, S-Bane services on the Ring Line and on most S-Bane lines north of Østerport will be cancelled on January 24.

For the first three months following commissioning, a provisional timetable will be in operation. Services on the Ring Line will operate at a frequency of six minutes, rather than five minutes under the full timetable. On the Farum Line, only half of all daytime weekday services will initially serve Skovbrynet and Dyssegård stations, compared with the full timetable.

CBTC has already been put into operation on sections of the city's S-Bane network, between Hillerød and Jægersborg since 2016, and the Jægersborg – Klampenborg and Svanemøllen – Ryparken sections since 2019.

Following the commissioning of the two lines, approximately 43% of the S-Bane's 170km network will be operating under CBTC. Work on the remaining sections is expected to be completed in 2022.

The work is being carried out by Siemens, under a €252m contract awarded in 2011. The project was originally set for completion in 2018 but was subsequently delayed due to technological issues and the approval process.

### **Langå – Struer – Holstebro**

Banedanmark is also currently commissioning ETCS on the Langå – Struer – Holstebro main line, with a full rollout of the new signalling scheduled for April 2.

The work is being carried out in stages to minimise disruption to passengers. Additional measures are also in place to minimise transmission of Covid-19 among workers.

“In this way we can keep the traffic running and at the same time reduce the inconvenience to road users,” says Ms Thilde Restofte Pedersen, programme director at Banedanmark. “The remaining physical conversions to the new signalling system will be installed and tested on weekends, so that we do not impact the commuters who use the train on weekdays. Closure of level crossings is planned, so we are only working on a few level crossings at a time.”

Further information on temporary rail and road closures is available on the Banedanmark website.

The work follows the successful implementation of ETCS on the Lindholm – Frederikshavn line in northern Jutland and the Struer – Thisted line in Thy.

The rollout of ETCS across the Danish mainline network was approved in 2009, and was originally scheduled to be completed in 2023. This target was pushed back to 2030 by the government in November 2017, when it became clear that plans for the project were overambitious. Reasons cited included an overestimation of timescales to develop, test and stabilise the system, and an overambitious budget projection.

The project's budget was originally set at Dkr 24.9bn (USD 4bn) but was reduced to Dkr 4.5bn in 2011-12 after Banedanmark received unexpectedly low contract offers. However, as the project as continued, subsequent budget revisions have returned to levels anticipated in the original business case.

Source: <https://www.railjournal.com/signalling/banedanmark-makes-progress-in-etcs-rollout/>

## Finland – Finland moves to launch €1.7b Digirail project

July 2021

Finland has taken an initiative to introduce a modern radio network-based train control system for the entire rail network by the 2040s with the view to achieve safe and efficient train operation.

The Digirail Report published on Friday provided details of how railway technical systems will be modernised in the country, said the Ministry of Transport and Communications in a press release.

The Digirail project is now moving from preparation to practice as digital train control technology is constructed and piloted on the railways.

The European Rail Traffic Management System (ERTMS) will also replace the old system in accordance with EU requirements. The development and verification phase of Digirail will then test new solutions employing 5G-based data transmission.

"The preparatory phase of Digirail provided valuable information on how to replace the train control system as it approaches the end of its service life in the 2030s. .... Pioneering work will now begin as the new system is tested on the Kouvola-Kotka-Hamina track section," said Minister of Transport and Communications Timo Harakka.

Digirail is a significant investment in the future of Finnish rail transport, and concerns far more than technological development alone.

"Digirail will provide more rail network capacity with a view to increasing rail passenger volumes, improving services, reducing disruption and cutting transport emissions," said Project Manager Juha Lehtola of the Finnish Transport Infrastructure Agency.

"The modern Digirail system promises the best technological platform well into the future," said Project Officer Jari Pylvänäinen of Fintraffic Railway Ltd.

Digitalising a railway system is a major reform that requires trials. The first project testing field will be a test track on the Kouvola-Kotka/Hamina railway line together with the ERTMS test laboratory.

These installations will pilot pioneering data transmission on railways in Europe. The test track comprising Finland's first Digirail section and laboratory will be completed as part of a track section improvement project.

The aim is to realise a fully operational test laboratory in 2022 and to build the test track by 2024. Construction of a commercial pilot track is also planned with a view to launching commercial rail transport operations in 2026.

The Digirail project is developing a modern ERTMS train control system for Finland. The project will establish the technological foundations for a system to digitalise train positioning and automatic operation, to update capacity and schedule information, and to manage rail traffic.

This system will require radio network communications between the train and the track infrastructure. The recommended radio network is the Future Railway Mobile Communication System (FRMCS) based on 5G, which would rely on the available radio networks of commercial operators.

The system will apply a uniform operating principle throughout Europe, with functions standardised for the European Union allowing uninterrupted movement of trains across land borders. A unique European trial will begin in Finland when the FRMCS system is tested on a commercial network.

The estimated cost of the development phase in 2021-2027 is EUR 130 million, of which RRF funding would cover EUR 85 million. An authorisation of EUR 130 million and a budget of EUR 5 million have been granted for the project in the third supplementary budget for 2021.

The total cost of Digirail will be EUR 1.7 billion over the period from 2021 to 2040. The Government will contribute EUR 1.4 billion of this, with rolling stock owners financing the remaining EUR 300 million.

The preparation phase has been implemented through a partnership between the Ministry of Transport and Communications, the Finnish Transport Infrastructure Agency, the Finnish Transport and Communications Agency Traficom, the traffic management company Fintraffic Ltd., Fintraffic Railway Ltd., the Finnish railways company VR Group Ltd. and Helsinki Region Transport (HSL).

The development and verification phase of the Digirail project will now begin with a view to studying and testing technological solutions. The Ministry of Transport and Communications will appoint a new steering group to guide the project in 2021-2027.

Source: <https://www.dailyfinland.fi/business/22425/Finland-moves-to-launch-%E2%82%AC1.7b-Digirail-project>

## France - € 31 million to install ERTMS on board trains running on the French rail network

February 2021

SNCF Réseau has obtained a subsidy of 31 million euros from the European Commission to install the ERTMS system on board 252 rail vehicles belonging to its customers and partners. Caisse des Dépôts will also finance the project with an equivalent contribution.

As part of the "Connecting Europe Facility - Transport - Blending Facility" call for projects, the European Commission, through its executive agency for innovation and networks (INEA), has selected a project to harmonize railway signalling carried by SNCF Réseau for the benefit of its customers and their partners. The ambition is to strengthen, thanks to the European rail traffic management system ERTMS (see box below) the regularity, frequency and, where applicable, the ability to cross borders in Europe with no less than 252 vehicles, passenger trains and freight locomotives, which will run partly on the French rail network.

## A project "unique in its scope"

"We are delighted to have obtained this grant which allows our customers, including three Regions \*, to equip their rolling stock fleet more easily and quickly with ERTMS. The equipment of these 252 vehicles is part of a more general approach to the implementation of ERTMS in France. SNCF Réseau is contributing to this through several projects to deploy this system on its infrastructure, for example on the Paris-Lyon high-speed line," said Paul Mazataud, who coordinated the process for SNCF Réseau.

"This project, unique in its scope, makes it possible to strengthen the performance of rail traffic on main lines, freight lines and regional lines, which facilitates the movement of trains in France in the territories as well as in the other States of European Union" declared Laurent Zylberberg, Director of Institutional, International and European Relations at Caisse des Dépôts.

The vehicle equipment phase will now be able to be launched, starting with the development of a prototype for each category of vehicle. All of this equipment work is expected to be completed by the end of 2024.

The implementation of this project will accelerate the ERTMS equipment of circulating materials in France, which will also facilitate the deployment of ERTMS on the infrastructure.

Source: <https://www.sncf-reseau.com/fr/entreprise/newsroom/actualite/31-millions-euros-installer-ertms-bord-trains-circulant-sur-reseau-ferroviaire-francais>

## France – European Commission and Caisse des Dépôts push ERTMS

March 2021

On February 16, 2021, as part of the CEF-Transport-Blending Facility call for projects, the European Commission selected a project via INEA (Executive Agency for Innovation and Networks) SNCF Réseau and officially granted it a subsidy of € 31 million. An amount matched by an equivalent loan from Caisse des Dépôts.

This subsidy and loan are perfectly targeted, since they are intended to finance ERTMS equipment in the driver's cab of no less than 252 self-propelled trainsets and freight and passenger locomotives \*.

Railcars and locomotives which will circulate in France and in neighbouring countries and which will use in particular lines belonging to the pan-European transport network.

But also regional or cross-border lines \*, since vehicles belonging to the motor equipment parks of Bourgogne-Franche-Comté, Grand Est and Sud-PACA will be concerned.

In this context, we think of the Franco-Swiss border lines, as well as the Franco-German cross-border axes which have already been the subject of revival agreements between the Grand Est region and the neighbouring German Länder of Rhineland-Palatinate, Saar and from Baden-Württemberg. As well as the Marseille-Ventimiglia line which must be equipped with ERTMS by 2025.

Source: <https://www.mobilitesmagazine.com/post/commission-europeenne-caisse-des-depots-poussent-ertms>

## Germany - EU funding for ETCS equipment

January 2021

Stuttgart is the first region in Germany to be equipped with the European Train Control System (ETCS).

The state of Baden-Württemberg is receiving EU funding of almost 17 million euros for equipping 119 regional vehicles as part of the pilot project "Digitaler Node Stuttgart". The funds come from the EU funding pot "CEF Transport Blending Facility". State Transport Minister Winfried Hermann (Greens) said after receiving the funding notification: "The EU Commission is confirming the importance of the project and is helping to create the conditions for navigating the "Digital node Stuttgart". The "Digital node Stuttgart" (DKS) is one of three pilot projects from the starter package of "Digital Rail Germany" (DSD).

The essential elements of the pilot project "Digitaler Node Stuttgart" are to be implemented together with the Stuttgart 21 project by 2025. The full implementation is to take place downstream by 2030. This means that the entire Stuttgart S-Bahn network will be equipped with ETCS, digital interlockings (DSTW) and highly automated driving operations (ATO). The funding of exactly 16.775 million euros for the ETCS equipment of the vehicles complements the funding of 200 million euros already promised by the BMVI in January 2020.

Source: <https://www.busundbahn.de/nachrichten/politik-recht/detail/news/eu-mittel-fuer-etcs-ausruestung.html>

## Germany – The high-speed route Cologne – Rhine / Main is to be equipped with ETCS by 2028

January 2021

The 180-kilometer high-speed route Cologne – Rhine / Main is to be equipped with the European train control system ETCS (European Train Control System) by the end of 2028.

When the high-speed lines Hanover – Würzburg and Stuttgart – Mannheim will also receive the new train control technology has not yet been determined, according to a response from the federal government to a request from the Greens. Equipment with ETCS Level 2 is planned for the area rollout.

According to information from Deutsche Bahn AG, the government also writes that there are currently no plans to increase the speed of the Mannheim - Stuttgart high-speed line from currently 280 to 300 km / h. "An increase in speed would lead to a reduction in capacity as the travel time differences increase," it says.

According to the template, a continuous speed of 300 km / h is planned for the new Rhine / Main – Rhine / Neckar line, which is to be built between Frankfurt and Mannheim in a few years. Equipment with ETCS Level 2 without line-side light main signals is planned.

The Federal Ministry of Transport assumes that the German railway lines could be equipped with ETCS by 2040. The first

route on which a partially ETCS-guided train operation is already taking place is the ICE route Munich - Berlin, which was fully commissioned at the end of 2017. The section between Erfurt and Leipzig / Halle (VDE 8.2) was commissioned in December 2015, and the section between Ebensfeld and Erfurt (VDE 8.1) two years later. ICE trains have been running in the Ebensfeld – Erfurt – Leipzig / Halle (Saale) section since then under full ETCS monitoring in Level 2.

The upgraded Berlin - Dresden line will also be equipped with ETCS equipment. The first portion between Neuhof (Zossen) and Rückerdorf (Lower) was already in the December 2020 operation. The new train control technology remains unused for the time being. According to the Parliamentary State Secretary in the Federal Ministry of Transport, Steffen Bilger, test drives and operational trials will take place this year. The CDU politician wrote that a few weeks ago in response to a request from FDP MP Torsten Herbst. According to the answer, the first regular trips in intercity traffic at 200 km / h will be planned from 2022. From 2024, international traffic will also be traveling there at speeds of up to 200 km / h.

With the commissioning of the new Wendlingen – Ulm line, another ICE line with ETCS will go online from the end of 2022.

Source: <https://bahnblogstelle.net/2021/01/06/schnellfahrstrecke-koeln-rhein-main-soll-bis-2028-etcs-ausruestung-erhalten/>

## Greece – ERGOSE: The Budget Contract € 13.3 million was signed for the Completion of the Railway Axis Upgrade Works

March 2021

The Board of Directors of ERGOSE, approved yesterday, Monday, March 29, the signing of the Contract which accelerates the completion of the project "Rearrangement and Upgrading of the Signaling-Remote Control and Replacement System of 70 Track Changes in Located Parts of the Athens-Thessaloniki Axis" A.Σ 717 (except for the section Tithorea - Domokos). It is emphasized that with this approval, which followed that of the Court of Auditors, the cycle of administrative procedures is closed in order to implement the necessary additional work for the safe and complete completion of the project.

It is worth noting that from January 22, 2021 the BoD. of ERGOSE had approved the extension of the duration of the project by 16 months, as during the implementation stage there was a need for additional work for its completion. These works are reprinted in the Contract, the signing of which was approved during yesterday's meeting and their budget amounts to the amount of € 13,320,240.00.

In addition, it is noted that the initial contractual budget of the project is € 41.3 million (after the discount) and is executed by the Consortium TOMI SA. - ALSTOM TRANSPORT SA. The contract was signed in September 2014 and to date 85% of the item has been successfully executed. The project is co-financed by the European Union, under the NSRF program 2014 - 2020, as well as by National Resources.

This contract (717) has a direct interface with the supply contract (10005) which concerns the installation of ETCS (European Control Train System) in the respective departments. The completion of the projects will result in the significant enhancement of the safety of the railway movements in commercial and passenger itineraries while the travel time on the railway axis Athens - Thessaloniki, to be reduced to 3:15 'from 3:57' which is today.

The ETCS system concerns the automatic protection of trains and consists of two subsystems, the Train System and the Line System, which allow:

- The continuous monitoring of the maximum allowed speed of the trains;
- The automatic protection against speed violations with the application of operation braking or emergency braking, as well as the automatic immobilization of the train with emergency braking, in case of violation of a red light
- The display of the light signals in the driver's cab using LEU (Lineside Electronic Units) and beacons (Eurobalises).

On the occasion of this development, the CEO of "ERGOSE", Mr. Christos Vinis stated that the goal of ERGOSE is the completion of the modernization works of the country's railway network in the shortest possible time, but always with absolute commitment to quality, conditions and transport safety. In this direction, we take initiatives and proceed without further delays all the necessary procedures. "

Source : <https://www.energja.gr/article/176254/ergose-ypegrafh-h-symvash-proypologismoy-133-ek-gia-thn-oloklhrsh-ton-ergon-anavathmishs-toy-sidhrodromikoy-axona>

## Hungary – The railway lines around the capital are getting smarter

January 2021

Digital solutions help modern trains get in shape on tracks that have already been upgraded to European standards. ETCS and the GSM-R network, which works closely with it, will enable vehicles capable of up to 160 hours per hour to speed up today's timetable.

In the coming years, railway schedules can be rewritten in turn at the Ministry of Transport, because on the renovated lines, modern trains and locomotives towed by trains will reach their destination in a significantly shorter time than now. The reason is that

The components of the European train control system will be commissioned in 2007, and then vehicles capable of speeds of 160 or even 180-200 kilometers per hour (Flirt and KISS multiple units, Siemens and Bombardier electric locomotives) will be able to use their capabilities.

Of course, this required upgrading or replacing the railway infrastructure hardware, that is, the tracks and rolling stock. But we also need an invisible infrastructure, digital control.



The basic rule of railway traffic management is that only one railway device can be on a given line section at a time. Over time, it has been achieved in many ways that the driver - the driver - knows exactly whether the track is clear in front of him or not.

Through the sensors of the train control system, it detects where on the track the vehicle is, where it is going, at what speed, and accelerates, decelerates or even stops the train accordingly.

He is also aware of the speed limits at all times and adheres to them with the driver. And the communication channel is GSM-R, which differs from the mobile connection we all use in that it must be operational in all conditions and not miss a single moment at speeds of up to 160 or 200 kilometers per hour.

The design and installation of this network has been going on for many decades, but now it has led to tangible results. Prior to the holidays, new electronic safety equipment, state-of-the-art passenger information and telecommunications systems and the ETCS track-side subsystem were installed on the Kelenföld - Százhalombatta railway line 40. The primary task of ETCS (Unified European Train Control System) is to increase the safety of rail traffic. Modern, high-speed space and station electronic equipment has been installed on the Kelenföld – Százhalombatta section, the National Infrastructure Developer (NIF) said.

The central traffic control center (KÖFI) has been built on line 40a, which enables the complete automation and monitoring of train traffic, as well as the control and regulation of traffic from one center. Real-time INFO poles help passengers' comfort and their safety is guaranteed by advanced camera systems.

The move took place only a few weeks after the commissioning of Hungary's first completed ETCS L2 train control system on the line section between Ferencváros and Székesfehérvár. It was built by Siemens Mobility for 63 kilometers on behalf of NIF. The advantage of the system is that it creates a connection that allows the constant exchange of information between the stations and the open line and on-board equipment. The driver receives the instructions on the display on the driver's seat instead of on the open track.

But it is not only the control of individual vehicles in the railway operation that is important, but also the supervision of the whole process of traffic. Therefore, it is significant that a development was completed at the end of the year, which increased the quality, speed, efficiency and safety of rail travel on two important MÁV lines. A central traffic control system was installed on the 40th railway line Püspöcsanak – Dombóvár and on the 120th railway line Rákóczi – Újszász – Szolnok section.

With central traffic control, fixed signaling and interlocking devices can be operated remotely from a center. Through KÖFI, the level of efficiency and service increases.

Source: <https://magyarnemzet.hu/gazdasag/okosodnak-a-fovaros-koruli-vasutvonalak-9197267/>

## Italy - Railways: ERTMS for the entire network and investments throughout Italy (South included)

February 2021

"All 16 thousand km" of the Italian railway network "will be equipped in ERTMS " to respond "also to the logic of not creating two Italies ".

These are the words of the president and managing director of RFI, Vera Fiorani , before the Budget and Transport committees of the Chamber, who said she believed this goal to be "sustainable and achievable by 2035 ".

"We decided to develop" this technology, "not only having as a reference the railway infrastructure that is part of the European network that would have created perhaps two Italys from the point of view of technologies; but we have decided to extend ERTMS to all Italian lines ", he explained

Precisely to avoid the North-South gap, Fiorani stated that "the reduction of the infrastructural gap in the South is one of the elements of the Plan's strategy. A good chunk of the investments are in support of this objective ".

In the Recovery Plan, he added, there are "23.83 billion" for the sector and "of these 14.8 billion will concern high-speed trains, of which 39% in the South " and most of them are destined for the "famous Salerno-Reggio Calabria . We have just over 5 billion for the upgrading of the networks and the development of nodes, then 2.97 billion for the development of the first important pieces of ERTMS by 2026, for the rail accessibility goal there are 700 million for the stations and 230 million for resilience projects ".

This selection of projects, which is a first articulation of the projects, was designed to respect the constraints that the Recovery plan imposes on the activation and commissioning of projects by 31 December 2026 "and" for some it is not trivial because the railway investments do not have a short duration ".

### **A mention also to the regional railways.**

The attention of the Recovery plan is right for the latter. "In the Pnrr - explained Fiorani, 2.67 billion euros are foreseen for the regional railways -. For us this is an extremely positive fact, because in many cases these railways need technological adaptation to be managed in an optimal way".

Source: <https://www.ferrovie.info/index.php/it/13-treni-reali/17277-ferrovie-ertms-per-tutta-la-rete-e-investimenti-in-tutta-italia-sud-incluso>

## The Netherlands - Program management ERTMS ensures focus and direction

February 2021

The Ministry of Infrastructure and Water Management, ProRail and NS are implementing the ERTMS program: the new European standard for train protection. It is a substantively complex and politically charged program. Together with Royal HaskoningDHV and Infram, TwynstraGudde has put the program management in order.

In the Netherlands, the track is protected with the Automatic Train Influence (ATB) system. That system works well, but it is outdated. It will be gradually replaced by the European Rail Traffic Management System (ERTMS) between now and 2050 . This means that the rail system is going from analog to digital. The system also ensures a safer track and makes cross-border train traffic easier. It also offers future benefits in terms of reliability, speed and capacity expansion. ERTMS has become the international standard for train protection, also outside Europe, and is being built into both the railway infrastructure and trains.

#### *Bringing program control smoothly*

The ERTMS rollout program is the largest rail project of the coming decades. The program is very complex and politically charged. The House of Representatives has given it the status of Major Project and has reserved 2.4 billion euros for the first tranche of the realization. At the start of the plan elaboration phase, however, the program management was insufficiently in order. The National Audit Service (ADR) had issued a negative statement on two occasions. A consortium of Royal HaskoningDHV, Infram and TwynstraGudde has been commissioned to revise and redesign the program management.

#### *Project management dipstick*

We started with an analysis with the aid of the Dipstick Project Management . This analysis has resulted in a plan with improvement measures and a step-by-step implementation thereof. With this we have focused the program management on the focus and direction that the program needed. For example, together with the clients, we have defined clear milestones for the plan elaboration phase and beyond. We have also made the risks transparent and set up structural risk management. In addition, we have set up a new program quality system with clear and uniform processes and formats and clear lines of accountability. This resulted in more transparency and predictability for the internal program organization, the client and politicians.

#### *Active collaboration*

We have focused on the integrality of program management. That is why we involved people with the right expertise in the various aspects that also fit well in the team and the program. In our view, active cooperation is an important part of integrated program management. The attention to the human side of it has resulted in more engagement, involvement and support in the program organization.

#### *ERTMS program decision*

With this approach, visible results have been achieved and program management has been put back in order. This has been confirmed by the ADR, which has now reached a positive conclusion after earlier negative statements. An audit carried out by the consultancy firm PBLQ on behalf of the ministry has confirmed the upward trend. Partly on the basis of this, the cabinet was able to submit the ERTMS program decision to the House of Representatives.

#### *Why TwynstraGudde?*

The ERTMS program is unique in many respects, partly due to the innovative character and composition of the organization. TwynstraGudde has the knowledge and expertise to deliver tailor-made programs for program management and to respond to influences, new insights and shifts in focus without losing sight of the goal.

Source:

<https://www.twynstragudde.nl/cases/programmabeheersing-ertms-zorgt-voor-focus-en-sturing>

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## Poland - How and where does ETCS operate?

February 2021

MP Paulina Matysiak asked the Ministry of Infrastructure about issues related to the operation of the ETCS system on the Polish railways.

Explanations of Deputy Minister Andrzej Bittel began with general statements about the system itself. It stated, inter alia, that the adopted assumptions for 2017-2023 relate to the implementation of ETCS in specific time frames (in 2017, 2018 and 2023). At the moment, the implementation of the ETCS system in Poland is proceeding as planned.

#### ***Rolling stock equipped with ETCS***

Moving on to more detailed issues, Andrzej Bittel pointed out that there are currently registered in Poland: 16 traction vehicles equipped with ETCS Level 1 on-board devices and 286 traction vehicles equipped with ETCS Level 2 on-board devices. From the Virtual Vehicle Register kept by the European Union Railway Agency However, the register (VVR) is not able to obtain information on the equipment with the ETCS system of vehicles registered in other countries.

Based on the data obtained from the Office of Rail Transport, there are 55 issued additional permits and subsequent permits for vehicles equipped with the ETCS Level 2 system, admitted to traffic in Poland and registered in another Member State.

Answering the question about the SIM cards, enabling the connection of the traction vehicle with the RBC for the purpose of running the train under the control of the ETCS level 2 system, the deputy minister stated that they were issued by the infrastructure manager (ie PKP Polskie Linie Kolejowe). The company has an internal manual along with the rules for managing SIM cards used in the ERTMS / GSM-R system. The infrastructure manager has so far issued 592 SIM cards. As Andrzej Bittel pointed out, issuing cards is not tantamount to the number of vehicles equipped with ETCS, because some vehicles are equipped with 2 and some with 4 SIM cards. In addition, many carriers have downloaded cards for vehicles that are not running or are in the process of being delivered.

#### ***Where is the ETCS functioning?***

Andrzej Bittel also presented a list of railway lines that are equipped with ETCS devices. *[See article for overview]*

In addition, as reported by Andrzej Bittel, from December 13, 2020, the ETCS Level 2 system was made available to carriers, built on the following railway lines:

- the Warsaw Praga - Gdańsk Główny section of the railway line No. 9 (approx. 311 km),
- Gdańsk Główny - Gdynia Chylonia section of the railway line No. 202 (approx. 27 km),
- the Pszczółki - Pruszcz Gdański section of the railway line No. 260 (approx. 11 km),
- Warsaw Praga - Chotomów section of the railway line No. 456 (approx. 14 km).

However, it is not known whether vehicles traveling on the above-mentioned railway lines use these systems. These data are not collected, so it is not known whether the trip was carried out with the use of a vehicle equipped with ETCS on-board equipment, and whether the trip, which took place under the control of ETCS devices, was not a test, test, measurement or other trip not intended for transport people or goods. These journeys are mostly based on a timetable, as are commercial journeys.

#### **Problem in vehicles?**

Andrzej Bittel explained that trains equipped with ERTMS / ETCS on-board equipment, running on lines equipped with active and authorized track-side equipment of this system, should be run with the use of these devices. The system can, however, be "isolated". This is the case when the vehicle type authorization specifies the applicable limitation or operating conditions. As an example, he indicated 48WE units with operational limitations. In this case, the vehicle can be driven under ETCS supervision only in relations fully equipped with trackside ETCS equipment and with an inactive SHP system. In relationships that are not fully equipped with trackside ETCS equipment, the vehicle may only be operated with an active SHP system and an inactive ETCS system. The conditions for switching between ETCS and SHP equipment are defined by the railway undertaking using the appropriate safety management system processes). Apart from these exceptions, there is no justification for driving "with insulation".

Source: <https://www.nakolei.pl/jak-i-gdzie-funkcjonuje-etcs/>

## **Poland - MI summarizes the work of PKP PLK. This is the situation on 9 important contracts**

March 2021

**Note: This is not the full article, please visit the link for full article**

A dozen or so days ago, information appeared in the media that the implementation of the KPK (National Railway Program) is not going smoothly and the financing of railway projects may be at risk. The Ministry of Infrastructure responded to these allegations, and the CEUTP emphasizes that the funds allocated to the railway will not be lost. See how the ministry sums up the situation on contracts worth over PLN 16.6 billion.

In one of its articles, "Puls Biznesu" stated that for 53 out of 76 largest investments the risk of losing EU funding is high or even critical. The newspaper emphasized that the total value of projects at risk is as much as PLN 16.6 billion. This information was denied by CUPT, which claims that EU funds allocated to railways will not be lost.

In earlier information provided to the "Railway Market", the ministry informed that the amount of funds from the NFP for 2020 amounted to PLN 15.2 billion, and about 10.8 billion would be implemented. The Ministry of Infrastructure also pointed out that "it is an absolute abuse to suggest that the risk of losing co-financing covers the entire value of the project", and this information was published in the newspaper.

The nine critical risk projects mentioned by Puls include: works on the Coal Motorway (PLN 4.21 billion), E59 Poznań - Szczecin (PLN 2.74 billion), construction of the ERTMS / GSM-R system (PLN 2.29 billion), modernization of E20 Warsaw - Poznań (PLN 2.19 billion), works on the cross-city line in Warsaw on the section Warszawa Wschodnia - Warszawa Zachodnia (PLN 2.06 billion), route no. 97, 98, 99 to Zakopane (PLN 1.3 billion), line no. 8 Warka - Radom (PLN 772 million), line no. 8 Warsaw - Lublin (PLN 554 million) and the alternative route Bydgoszcz - Tricity (PLN 537 million).

This is how the current situation in each of them is summarized by the Ministry of Infrastructure.

Source: <https://www.rynek-kolejowy.pl/wiadomosci/mi-podsumowuje-prace-pkp-plk-oto-sytuacja-na-9-waznych-kontraktach-101235.html>

## **Portugal: Portuguese consortium to develop STM system for rail interoperability**

March 2021

The consortium formed by Nomad Tech and INOV has had funding approved for a technological Research & Development project for STM (Specific Transmission Module), under the Portugal 2020 Programme. The investment consists of 1.1 million euros up to the end of 2022.

**The made-in-Portugal technological solution will make it possible to migrate from the current ATP Automatic Train Protection – CONVEL system to the new ERTMS – European Railway Traffic Management System. When installed in rolling stock with the ERTMS, the STM module will allow trains to travel on Portuguese railways with the current ATP system (CONVEL).**

#### **Rail interoperability**

The aim of the project is to study and develop a solution for interoperability between existing systems and generations, **for progressive integration with the ERTMS.** Thanks to the funding approved by the Portugal 2020 Programme, it will be possible to continue and complete the work already under way at Nomad Tech and INOV.

"The Specific Transmission Module (STM) system that we are developing will be a fundamental step towards solving

the problem of obsolescence of current traffic management mechanisms and will contribute to rail interoperability”, said the project managers. “The solution will be available on the market by the end of 2022. The different Portuguese and European railway operators will be the ones that benefit most.”

### **Safety and freedom of rail traffic**

There is considerable diversity in control, command and signalling systems in Europe today. This results in significant constraints on interoperability in many international corridors. This variety of systems makes rail traffic between European countries slow and complex and therefore quite costly.

**In view of the situation in the Portuguese and international systems and the increasing obsolescence of automatic speed control equipment, it is necessary to find an innovative solution for migrating to the ERTMS system.** This will result in the standardisation and interoperability of railways in Europe and contribute to the free circulation of people and goods in the European Community.

The approval of this funding comes from the Incentives System for Research and Technological Development (SI I&DT), which is supported by budgets from COMPETE (Operational Program Competitiveness and Internationalization) and the ERDF component of regional operational programmes, as part of the Portugal 2020 Programme.

Source: <https://www.railtech.com/infrastructure/2021/03/31/portuguese-consortium-to-develop-stm-system-for-rail-interoperability/>

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## **Romania – EUR 745 million for a Romanian rail section on Rhine-Danube CNC**

*June 2021*

The European Investment Bank (EIB) is planning a EUR 745 million financing for the upgrade of Arad-Sighisoara railway, which is starting from a few km east of the main station, about 30 km east of the border between Romania and Hungary, to Sighisoara, a historic region of Transylvania. The line runs towards Bucharest and Constanta and is part of the Rhine-Danube Core Network Corridor.

The upgrade of the 308-km railway line includes the deployment of the ERTMS Level 2 signalling system. After completion, the passenger trains will be able to run at 160 km/h and the freight trains, at 120 km/h, with increased axle load and maximum permissible train length.

EUR 3 billion is the estimated value of the entire project with construction works being performed within different phases and lots.

The Arad-Sighisoara railway runs from Western Romania towards Bucharest and Constanta and is part of the Rhine-Danube Core Network Corridor. In September 2020, the railway infrastructure manager CFR SA and Asocierea RailWorks consortium comprising Aktor, Alstom and Arcada, signed a RON 2.86 billion (EUR 582.17 million) contract for the modernisation of Lot 2 Apata-Cata section on the

Sighisoara-Brasov line, part of Arad-Bucharest rail connection, on the on the Rhine-Danube CNC.

The project is expected to improve the quality of regional rail services in the north-west of Romania as well as national and international rail services using the Arad- Sighisoara railway section of the Rhine-Danube TEN-T Corridor. The main improvements will be reduction of travel times, vehicle operating cost savings, environmental and safety benefits.

The project will promote modal shift from road and air to rail and consequently enhance sustainable transport with reduction of greenhouse gas (GHG) emissions, and therefore mitigate climate change in line with EU objectives. The project is also expected to fulfill the interoperability requirements for TEN-T Corridors set under the Regulation (EU) no. 1315/2013 on the Arad-Sighisoara railway line, part of the Rhine-Danube TEN-T Corridor connecting Dresden to Constanta.

Source: <https://www.railwaypro.com/wp/eur-745-million-for-a-romanian-rail-section-on-rhine-danube-cnc/>

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## **Spain - The AVE to Burgos faces the tests with commercial trains on the ERTMS system**

*February 2021*

The line achieves the approval in reliability, but for the opening it will have to complete the validation phase and the training of machinists

The high-speed line between Venta de Baños (Palencia) and Burgos faces the last tests, this time with Renfe commercial trains, to check the operation of the European ERTMS security system, level two. The opening to commercial traffic of this new section depends on them, as well as the period of training of the drivers who will ‘fly’ on the tracks.

According to the work schedule of the High Speed Railway Infrastructure Administrator (Adif), consulted by Ical, the AVE to Burgos begins one of the last phases prior to its inauguration, for which it must complete the tests with trains, the training of the drivers, and finally, the authorization that the State Railway Safety Agency (AESF) will have to issue in order for it to be put into service.

The correct completion of the tests and the analysis and resolution of incidents (if any) will make it possible to have the necessary security guarantees that allow the closing of the file to make the section available for reliability tests and training of drivers, such and as established in the technical recommendation of the State Railway Safety Agency on the processes prior to the commissioning of new lines or the start of the operation of new types of services.

Once in service, the ERTMS Level two system will enable maximum operating speeds of 300 kilometres per hour, while increasing the degree of capacity, reliability and availability of the facilities, allowing a more efficient operation of the section.

Almost six years after the AVE line was opened to Palencia - September 2015-, the corridor from Venta de Baños to Burgos is completed, although the platform and

superstructure works have been completed and the first phase has already been carried out. Side Marking + ASFA System tests and reliability tests with Adif trains, which yielded a "satisfactory" result.

Likewise, during the month of January, Adif sent the necessary documentation to the State Railway Safety Agency (AESAs), which allows starting the testing phases of the ERTMS system, with commercial trains.

### **Almost 100 kilometres**

The Venta de Baños-Burgos section has 95.5 kilometres of new platform, including the connecting branches and the Burgos railway variant. It is part of the European Atlantic Railway Axis, giving continuity in Spanish territory to the Madrid-Valladolid-Vitoria-French Border line, and the North-Northwest High Speed Corridor.

It has an electrified track of standard gauge or UIC (1,435 millimetres), with a rail of 60 kilograms per meter, which is placed on a platform 14 meters wide. It has been designed to reach a maximum speed of 350 kilometres per hour, and maximum gradients of 21 thousandths per meter.

The Venta de Baños-Burgos-Vitoria / French Border High Speed Line is co-financed in the 2014-2020 period by the European Regional Development Fund (ERDF) through the Pluriregional Operational Program of Spain 2014-2020, Thematic Objective 7: Transport sustainable development, and the deployment of the European Rail Traffic Management System (ERTMS) by the Connecting Europe Mechanism (CEF).

Source: <https://www.infobierzo.com/el-ave-a-burgos-afronta-las-pruebas-con-trenes-comerciales-sobre-el-sistema-ertms/593956/>

## **Sweden – ERTMS tests with Vectron on the Øresund Bridge were successful**

February 2021

After tests on the Øresund Bridge with a Vectron locomotive from Siemens Mobility, the ERTMS installation on the bridge and the transition between the Swedish and the Danish signalling system is validated. This means the on-board ERTMS equipment works for smooth cross-border operation between Sweden, Denmark and Germany.

When a train crosses the Øresund bridge between Sweden and Denmark, it has to transition between the Swedish (ATC-2) and Danish (ZUB 123) signalling system. Over 11 million single journeys across the bridge were made by passenger trains before the pandemic. The tests with a Vectron locomotive had the goal to validate the ground-based ERTMS installations that manage the signalling transition, as part of the process to authorise the future operation of ETCS-fitted trains over the rail link.

Rolf Sundqvist, Head of Rail on the Øresund Bridge: "Having ERTMS installed on the Øresund Bridge is an important step for us and also for the rest of Europe. Trains crossing the bridge cross not only the strait but also the national border. We will be able to enable a much smoother cross-border train operation in the future."

### **Trainguard system**

The vector locomotive used in the tests was equipped with the Trainguard 200 on-board train protection system from Siemens Mobility, which is a Level 2 system. This means that existing signals can still be used for mixed operation or as a fall-back level, although they are not required for pure Level 2 operations. Two so-called STMs (Specific Transmission Module), necessary for communication with the existing signal systems in Sweden and Denmark, were fully integrated in the onboard system.

"The test runs open up for smoother cross-border rail traffic, which will make transport even more efficient", says Andre Rodenbeck, CEO of Rail Infrastructure at Siemens Mobility. "In addition, we are very pleased to have been able to carry out the tests despite the challenges posed by the covid-19 restrictions."

### **Collaboration**

The Trainguard200 train protection system (UNISIG BL3) was already tested in 2016 and 2017 on a Vectron locomotive on the West Coast Line in the UK, with good results. The test runs were then carried out at up to 200 kilometres per hour over ERTMS installations configured in the same way as the installation that has now been validated on the Øresund Bridge.

The test on the Øresund Bridge was carried out on behalf of the Øresund Bridge Consortium in collaboration with, among others, the Swedish Transport Administration Trafikverket, Banedanmark and Siemens Mobility. The overall goal was to validate the ground-based ERTMS equipment on the bridge. The goal was achieved and the right technical conditions are now in place for ECTS-equipped vehicles to be able to drive over the bridge.

At the digital event RailTech Europe, the second day on March 31 will be devoted to digital railways, including ERTMS. Among others, Matthias Ruete, the European Coordinator for ERTMS, Wim Knopperts, Program Director ERTMS will give presentations. Visit the website for more information.

Source : <https://www.railtech.com/infrastructure/2021/02/12/ertms-tests-with-vectron-on-the-oresund-bridge-were-successful/>

## Contact details



For further information on ERTMS,  
please visit our website:

[https://ec.europa.eu/transport/modes/rail/  
ertms\\_en](https://ec.europa.eu/transport/modes/rail/ertms_en)



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