

3. OBJECTIVES AND PRIORITIES:

3.1. Priorities related to bridging missing links, removing bottlenecks, enhancing rail interoperability, and, in particular, improving cross-border sections

3.1.4. European Rail Traffic Management Systems (ERTMS)

Priority open to all Member States

General objectives:

The general objective is to deploy ERTMS on the trans-European transport core network, including track-side and on-board components.

All actions supported by CEF shall contribute to the objectives of bridging missing links, removing bottlenecks, enhancing rail interoperability, and, in particular, improving cross-border sections. They shall be compliant with Commission Regulation (EU) 2016/919 or subsequent versions, and with Directive 2008/57/EC and Directive 2004/49/EC, or Directive (EU) 2016/797 and Directive (EU) 2016/798.

ERTMS Baseline 2 (B2) means the set of specifications #1 in table A2.1 of the Annex A of the Commission Regulation (EU) 2016/919.

ETCS Baseline 3 (B3) means the set of specifications #2 or #3 in table A2.2 or A2.3 of the Annex A of the Commission Regulation (EU) 2016/919.

B2 may be eligible if packet 203 described in Annex A of Commission Regulation (EU) 2016/919 and relevant mitigation measures defined in the Baseline Compatibility Assessment reports (<http://www.era.europa.eu/Core-Activities/ERTMS/Pages/Current-Legal-Reference.aspx>) are implemented.

On-board and track-side ERTMS deployment may not be submitted together in one application.

Specific objectives:

Under the call to be published General envelope the following eligibility conditions shall apply:

- Trackside projects including relevant preparatory actions, should be B3 or B2 compliant, with priority given to B3 and located on the Core Network, with priority on cross-border sections in the Core Network Corridors (CNC).

On-board projects:

- ERTMS retrofitting and/or upgrading (works) of B3-complaint on-board components with priority for international traffic.

Under the call to be published under the Cohesion envelope the following eligibility conditions shall apply:

- Trackside projects including relevant preparatory actions, should be B3 or B2 compliant, with priority given to B3 and located on the Core Network, with priority on the Core Network Corridors (CNC).

On-board projects:

- ERTMS retrofitting and/or upgrading (works) of B3-complaint on-board components with priority for international traffic.

3.1.4.1. ERTMS track-side deployment

a) Description

Proposals addressing ERTMS track-side deployment compliant with B2 or B3, with priority given to B3 or upgrade of lines to B3 compliant version, or preparatory actions

Deployment means:

- equipment with ERTMS of a railway line section (already in operation or in construction) and not equipped with this system before.

Upgrade means:

- equipment with B3 of a line section already in operation and equipped with a version of ERTMS/ETCS not compatible with the sets of specifications laid down in the Commission Regulation (EU) 2016/919
- equipment with B3 of a line section already in operation and equipped with B2.

Preparatory actions mean

- activities needed to prepare project implementation in accordance with Article 2(6) of the CEF Regulation to speed up the ERTMS deployment. The preparatory actions should be a basis for launching a procurement procedure for the ERTMS deployment.

b) Essential conditions

Are excluded from the scope of this specific objective:

- Applications covering solely GSM-R component of ERTMS;
- Works related to Class B system(s) and/or Specific Transmission Module (STM).

ERTMS deployment and preparatory actions cannot be submitted together in one application.

Feasibility studies can only be presented as a part of a Preparatory action package and are not eligible as stand-alone documents.

c) Information to be included in a proposal:

For proposals related to a **deployment** of ERTMS (works):

- Identification of a specific line and its main characteristics, incl. location, length, single/double track, type of traffic i.e. freight, passenger, mixed, etc.;
- Characteristics and description of the ERTMS track-side subsystem to be installed including details of the CCS TSI, baseline, level, interoperability constituents and optional functions as for example the use of Euroloop;
- A description of tests strategy in line with applicable technical specification for interoperability, to be performed with on-board units provided by at least one different supplier to the one in charge of the equipment of the line. The on-board units used for tests shall be compliant with applicable technical specification for interoperability;

- Expected date when the ETCS track-side subsystem equipped section will be authorised to be placed in service;
- Evidence of the activities completed/ planned in order to obtain the authorisation to place the line in service;
- Identification and justification for infrastructure eligible works for track-side equipment (falling under the definition in Article 2(5) of the CEF Regulation) which are necessary for the implementation of ETCS level 2 (e. g. upgrade or renewal of interlockings);
- Description of the provisions of the envisaged ERTMS technical solution in line with article 19 of Directive (EU) 2016/797:
 - providing access to details of the technical solutions,
 - forecast of technical meetings and possible audits from the European Union Agency for Railways
- In the case of applications covering a GSM-R component, information regarding interferences, e.g. identification of the problem, mitigation measure(s) undertaken/planned, etc.;
- Information on contractual arrangements with a supplier(s), e.g. offer, contract, provision(s) for future software upgrade, error(s) corrections, maintenance, etc.

For proposals related to an **upgrade of ERTMS (works)**:

- Identification of a specific line and its main characteristics, incl. location, length, single/double track, type of traffic i.e. freight, passenger, mixed, etc.;
- Comprehensive description of the ETCS track-side subsystem already installed, including details of the CCS TSI, baseline, level and optional functions as for example the use of Euroloop;
- A copy of the authorization placing the ETCS-equipped line in service issued by the competent National Safety Authority;
- Existing certificates and declarations of the subsystem and certificates and declarations of conformity of the interoperable constituents shall be provided. A detailed description of all deviations, its restrictions and its conditions of use following the template developed by the European Union Agency for Railways¹;
- Comprehensive description of the final ERTMS track-side subsystem at the end of the Action including details of the CCS TSI and its set of specifications and baseline, level and optional functions as for example the use of Euroloop;
- A description of the test strategy, in line with the applicable technical specification for interoperability, to be performed with on-board units provided by at least one different supplier to the one in charge of the equipment of the line. The on-board units used for tests shall be compliant with the technical specification for interoperability;
- Identification and justification for infrastructure eligible works for track-side equipment (falling under the definition in Article 2(5) of the CEF Regulation) which are necessary for the upgrade to ETCS level 2 (e. g. upgrade or renewal of interlockings);

¹ <http://www.era.europa.eu/Core-Activities/ERTMS/Pages/Certification-issues.aspx>

- Expected date when the line will allow ETCS B2/B3 equipped vehicles to run for commercial services;
- Evidence of the activities completed/ planned in order to obtain the authorisation to place the line in service following its upgrade, including information/evidence on involvement of national safety authorities and conformity assessment bodies;
- Description of the provisions of the envisaged ERTMS technical solution in line with article 19 of Directive (EU) 2016/797:
 - providing access to details of the technical solutions,
 - forecast of technical meetings and possible audits from the European Union Agency for Railways
- In the case of applications covering a GSM-R component, if applicable, information regarding interferences, e.g. identification of the problem, mitigation measure(s) undertaken/planned, etc.;
- Information on contractual arrangements with a supplier(s), e.g. provision(s) for software upgrade, error(s) corrections, maintenance, etc.

For proposals related to **preparatory** actions:

- Description of preparatory actions proposed, including its contribution to subsequent physical deployment of ERTMS;
- Identification of the line in subject and its main characteristics, incl. location, length, single/double track, train control system currently in operation, type of traffic i.e. freight, passenger, mixed, etc.;
- Characteristics of the ERTMS track-side subsystem to be installed, including details of the CCS TSI, baseline, level and optional functions as for example the use of Euroloop as well timing for its deployment and expected date for placing in service, if available by the time of the proposal's submission;
- Justification for the need of the preparatory action prior to the procurement process for the deployment of the ERTMS;
- Information demonstrating that the procurement process will start, at least, by the end date for funding requested in the application submitted under this call.
- Description of the provisions of the envisaged ERTMS technical solution in line with article 19 of Directive (EU) 2016/797:
 - providing access to details of the technical solutions,
 - forecast of technical meetings and possible audits from the European Union Agency for Railways

d) Funding conditions

In addition to the general funding principles established in this Work Programme, the following shall apply.

Eligible costs for the **deployment of the lines** shall be limited to a ceiling of EUR 260 000 per kilometre of double-track line equipped with ERTMS.

Infrastructure works for trackside equipment (falling under the definition in Article 2(5) of

the CEF Regulation) which are necessary for the implementation of ETCS level 2 (e.g. upgrade or renewal of interlockings) may also be funded and are not covered by the ceiling. In such cases the applicant(s) shall provide thorough technical and financial information substantiating the costs and respective CEF requested support. In the case of non-Cohesion Member States, for these infrastructure works the respective co-financing rate amounts to 40%. The applicants shall present the infrastructure works in (a) separate activity(ies) to facilitate their technical and financial distinction from ERTMS upgrade and subsequent assessment.

Eligible costs for an upgrade of lines, providing that they are duly justified, are not subject to a ceiling and shall be evaluated individually. In such cases the applicant(s) shall provide thorough and detailed financial information substantiating total costs and respective CEF requested support.

Eligible costs for preparatory actions are not subject to a ceiling and will be evaluated individually. In such cases the applicant(s) is invited to provide thorough financial information substantiating the costs and respective CEF requested support.

e) Deliverables (which shall be requested in the grant agreements for projects selected for Union funding):

Assessment of the final outcome of the CEF supported actions shall be based on the completeness and the demonstration of compliance with the technical specification for interoperability of the deliverables listed below.

Deliverables of a proposal selected and implemented within this specific objective shall cover:

- i. For ERTMS upgrade and deployment
 - Engineering rules and operational test scenarios in line with the definition set out in chapter 6 of Commission Regulation (EU) 2016/919;
 - List of interoperability risks and respective mitigation measures. This list shall be updated during the implementation of the action based on the milestones of the project and will be used for monitoring possible deviations from Commission Regulation (EU) 2016/919;
 - Information regarding tests results (test report including operational scenarios) in line with the latest applicable technical specification for interoperability, performed with on-board units provided by at least one different supplier to the one in charge of the equipment of the line. The on-board units used for tests shall be compliant with the applicable technical specification for interoperability;
 - EC declaration of conformity for each interoperability constituent relevant for ERTMS issued by the supplier or the supplier's authorised representative established within the Union, including the certificate of conformity from a notified conformity assessment body; the EC declaration of conformity shall be fully in line with Directive 2008/57/EC;
 - EC declaration of verification of the subsystem issued by the applicant for each Control Command Signalling subsystem installed including the EC certificate of verification of subsystem from a Notified Body and the safety assessment report following section 3.2.1 of Commission Regulation (EU) 2016/919; the EC declaration of verification shall be fully in line with Directive 2008/57/EC. The technical

compatibility details of the certificates shall be provided using the specific template developed by the European Union Agency for Railways²;

- Copy of an application for an authorisation for placing the Control Command Signalling trackside subsystem in service or the authorisation in case available by the time the final payment claim is due.

All deliverables shall be sent, ideally according to the milestones' dates included in the grant agreement, and shall be assessed in close cooperation with the European Union Agency for Railways.

ii. for preparatory actions:

- Documentation or other deliverables contributing to speeding up the ERTMS deployment on CNC sections;
- Confirmation that the results of the preliminary activities are included and considered in the procurement procedure for the ERTMS deployment;
- Confirmation of launching the procurement by the end date for funding requested in the application submitted under this call.

All deliverables shall be sent, ideally according to the milestones' dates included in the grant agreement, and shall be assessed in close cooperation with the European Union Agency for Railways.

3.1.4.2. ERTMS on-board deployment

a) Description

Proposals addressing the retrofitting or upgrade (works) with B3 compliant of vehicles already operating on the Union railway network ERTMS may be funded under this specific objective with priority for international traffic.

Retrofitting means

- the installation of the ERTMS B3-compliant equipment (hardware, software, GSM-R in the case of Level 2) on an existing vehicle(s) already in operation and not equipped with this system before.

Upgrade means

- deployment of ERTMS B3 equipment on existing vehicle already in operation (authorised by NSA by the time the application is submitted) and equipped with pre-B2 compliant ERTMS or with B2.

Training activities, specific ad-hoc expertise to follow up the project or other necessary support may be included in the proposal of SMEs.

b) Essential conditions

Works related to Class B system(s) are excluded from the scope of the specific objective.

Works related to a combination of ETCS and a specific transmission module (STM) may also be funded. However, the costs related to the STM equipment itself may not be funded.

Vehicles must be authorised for operation on the Union railway network (in at least one Member State) prior to submission of the application. For upgrade proposals, the

² <http://www.era.europa.eu/Core-Activities/ERTMS/Pages/Certification-issues.aspx>

authorisation documentation must identify the ERTMS version already installed, together with information on options, level, software version, hardware, etc.

c) Information to be included in a proposal

To facilitate the evaluation, applicants are requested to provide information related to:

- i. for proposal related to the retrofitting of vehicles (works)
 - Identification of the vehicle(s) type(s), including its basic characteristics, supplier, serial numbers of vehicles to be retrofitted, etc.;
 - Comprehensive description of the current on-board subsystem, including details of the TSI CCS, baseline, optional functions and a copy of the authorisation to place them into service;
 - Description of the authorisation procedure, including evidence of the activities completed/ planned in order to obtain the authorisation;
 - Identification of a line(s) on which vehicles operate today and/or on which they might operate in the near future;
 - A description of tests that will be carried out following technical specification for interoperability to ensure that ETCS B3 vehicles can run on the ETCS equipped line(s), once retrofitted. The description shall include the testing strategy for proving conformity of the on-board equipment (e.g. accredited laboratory, on-site testing, etc.), scenarios requested (e.g. suppliers scenarios, railway scenarios) and a role of a Notified Body(ies);
 - In the case of applications covering a GSM-R component, information regarding interferences, e.g. identification of the problem, mitigation measure(s) undertaken/planned, etc.;
 - Information on contractual arrangements with a supplier(s), e.g. offer, contract, provision(s) for future software upgrade, error(s) corrections, maintenance, etc.;
 - In the case of prototype retrofit applications information on the results sharing and dissemination with the railway sector and the European Union Agency for Railways.
- ii. for proposal related to the upgrade of ERTMS (works)
 - Identification of the vehicle(s) type(s), including its basic characteristics, supplier, serial numbers of vehicles to be upgraded, etc.;
 - Identification of a line(s) on which they operate today and/or on which they might operate in the near future;
 - Definition of the ERTMS on-board subsystem already in service, including details of the TSI CCS, baseline, optional functions and a copy of the authorisation to place in service the ERTMS on-board issued by the competent NSA;
 - Current certificates of conformity of the constituents and certificates of verification of the subsystem. A detailed description of all incompatibilities between the version(s) of ETCS currently installed on the vehicle(s) concerned by the proposal and ETCS B3-equipped lines. The detailed information concerning the deviations and/or restrictions derived from existing certificates

and conformity declarations shall be provided;

- A description of tests that will be carried out following technical specification for interoperability to ensure that ETCS B3 vehicles can run on the ETCS equipped line(s), once upgraded. The description shall include the testing strategy for proving conformity of the on-board equipment (e.g. accredited laboratory, on-site testing, etc.), scenarios requested (e.g. suppliers scenarios, railway scenarios) and a role of a Notified Body(ies);
- Evidence of the activities completed/ planned in order to obtain the authorisation to place the vehicle(s) in service following the upgrade;
- In the case of applications covering a GSM-R component, if applicable, information regarding interferences, e.g. identification of a problem, mitigation measure(s) undertaken/planned, etc.;
- Information on contractual arrangements with a supplier(s), e.g. provision(s) for future software upgrade, error(s) corrections, maintenance, etc.
- In the case of prototype upgrade applications information on the results sharing and dissemination with the railway sector and the European Union Agency for Railways.

d) Funding conditions

For retrofit:

Eligible costs shall be limited to a ceiling of EUR 250 000 per ERTMS on-board subsystem to be deployed (hardware and software including GSM-R) on an already existing vehicle, including prototype(s). In case a vehicle is already equipped with ETCS-compliant hardware, the ceiling may be decreased in the call for proposals. The applicant(s) shall provide thorough and detailed financial information substantiating total costs and respective CEF requested support.

For upgrade:

Eligible costs are not subject to a ceiling and will be evaluated individually. In such cases an applicant(s) is invited to provide thorough financial information substantiating total costs and respective CEF requested support. However, the costs shall be limited to a ceiling of EUR 250 000 per ERTMS on-board subsystem to be deployed (hardware and software including GSM-R) on prototype(s).

For training activities:

Specific ad-hoc expertise to follow up the project, or other necessary support are not subject to a ceiling and shall be evaluated individually. In such cases an applicant(s) shall provide thorough financial information substantiating total costs and respective CEF requested support. In case this condition is not respected, these activities will be aggregated to the retrofit activities and the respective ceiling will be applied.

The applicants shall present tasks not covered by the ceiling in a separate activity(ies) to facilitate their technical and financial differentiation and subsequent assessment.

e) Deliverables (which shall be requested in the grant agreements for projects selected for Union funding):

Deliverables shall demonstrate completeness and compliance with applicable technical specification for interoperability. Assessment of the final outcome of the CEF supported actions shall be based on the completeness and TSI-compliance of the deliverables listed below. Deliverables of a project selected and implemented within this specific objective shall cover:

- Information regarding tests results (test report) in line with the applicable technical specification for interoperability;
- Declaration signed by a laboratory accredited according to ISO 17025 that it has performed the tests in accordance with the applicable technical specification for interoperability;
- EC declaration of conformity for each interoperability constituent relevant for ERTMS issued by the supplier or the supplier's authorised representative established within the Union, including the certificate of conformity from a Notified Body; the EC declaration of conformity shall be fully in line with Directive 2008/57/EC;
- EC declaration of verification of the subsystem issued by the applicant for each Control Command Signalling subsystem installed on a vehicle and including the EC certificate of verification of subsystem from a Notified Body and the safety assessment report following section 3.2.1 of Commission Regulation (EU) 2016/919; the EC declaration of verification shall be fully in line with Directive 2008/57/EC. The technical compatibility details of the certificates should be provided using the template developed by the European Union Agency for Railways³. A copy of a complete application for authorisation of the vehicle(s) or the authorisation itself, in the event it is available by the time the final payment claim is due.

These deliverables shall be ideally sent following the milestones dates and shall be assessed in cooperation with European Union Agency for Railways.

General observation for all priorities under section 3:

In addition to specific objectives, priority will be given to projects that include the use of private finance, in particular EU-backed finance instruments such as the European Fund for Strategic Investments.

³ <http://www.era.europa.eu/Core-Activities/ERTMS/Pages/Certification-issues.aspx>