

### **3. OBJECTIVES PURSUED BY THIS WORK PROGRAMME AND THE FUNDING PRIORITIES:**

#### **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.

Particular consideration should be given to the equipment of the Core Network Corridors and their connections.

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 Decision 2012/88/EU<sup>1</sup> or subsequent versions, and with Directive 2008/57/EC and Directive 2004/49/EC, or subsequent versions (4th railway package).

In the following:

- ETCS Baseline 2 (B2) means the set of specifications #1
- ETCS Baseline 3 (B3) means the set of specifications #2 in table A2 of the Annex A to Commission Decision 2012/88/EU.

###### Specific objectives

The focus is on projects on the Core Network Corridors (CNC) and on principal lines of the Rail Freight Corridors (RFC, as per regulation 913/2010):

- ERTMS deployment of track-side components (compliant with Baseline 2 or 3, with the priority given to Baseline 3), including relevant preparatory actions, with particular emphasis on cross border sections;
- ERTMS deployment of on-board components (compliant with Baseline 3 as a priority ; Baseline 2 could be considered eligible), including relevant preparatory actions and/or prototyping.

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

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<sup>1</sup> Commission Decision 2012/88/EU of 25 January 2012 on the technical specification for interoperability relating to the control-command and signalling subsystem of the trans-European rail system, OJ L51, 23.2.2012, p.1, as amended by Commission Decision (EU) 2015/15 of 5 January 2015

### **3.1.4.1. ERTMS track-side deployment**

#### **a) Description**

Proposals addressing ERTMS track-side deployment compliant with ETCS Baseline 2 (B2) or ETCS Baseline 3 (B3) version or upgrade of lines to B3 compliant version, including relevant preparatory actions, with particular emphasis on cross border sections, may be funded under this specific objective.

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 ERTMS/ETCS B3 or B2 of a line section already in operation and equipped with a version of ERTMS/ETCS not compatible with the sets of specifications (B2 or B3) laid down in Commission Decision 2012/88/EU or
- equipment with ERTMS/ETCS B3 of a line section already in operation and equipped with ERTMS/ETCS B2.

#### **b) Essential conditions**

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 relevant to this specific objective as stand-alone documents.

Are excluded from the scope of this specific objective:

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

#### **c) Information to be included in a proposal:**

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 a copy of the authorization placing the ETCS-equipped line in service issued by the competent National Safety Authority;
- A detailed description of all incompatibilities between the current version(s) of ETCS installed on the line(s) concerned by the proposal and ETCS B2/B3-equipped vehicles, including the notified national rules. The detailed information concerning the deviations and/or restrictions derived from existing certificates and conformity declarations shall be provided;
- A description of planned tests, 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 Art. 2.5 of the CEF Regulation) which are necessary for the upgrade to ETCS level 2 (e. g. upgrade or renewal of interlockings);
- 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 to be put in place to ensure that the European Railway Agency is informed in case issues having potential impact on the specifications are detected;
- 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 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 (including interoperability constituents) of the ERTMS track-side subsystem to be installed;
- A description of tests 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 (ETCS B2 or B3) 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 to be put in place to ensure that European Railway Agency is informed in case issues having potential impact on the specifications are detected;
- 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 **preparatory actions** (studies):

- Description of preparatory actions proposed, including its contribution to subsequent physical deployment of ERTMS on the corridor(s) section(s) in question;
- 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, 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.

#### **d) Funding conditions**

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

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

Infrastructure works for track-side equipment (falling under the definition in Art. 2.5 of the CEF Regulation) which are necessary for the upgrade of ETCS level 2 (e.g. upgrade or renewal of interlockings) may also be funded. 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 the **equipment of the lines** will be limited to a ceiling of €260,000 per kilometre of double-track line equipped with ERTMS.

Infrastructure works for trackside equipment (falling under the definition in Art. 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%.

Eligible costs for **preparatory actions** are not subject to a ceiling and will be evaluated individually. In such cases the applicant(s) shall 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 EU funding):**

Assessment of the final outcome of the CEF supported actions will 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:

### **For ERTMS upgrade and deployment:**

Tests:

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;

Authorisation procedure:

- 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 2012/88/EU; the EC declaration of verification shall be fully in line with Directive 2008/57/EC;
- 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.

### **For preparatory actions (studies):**

- Documentation or other deliverables contributing to speeding up the ERTMS deployment;
- Confirmation that the results of the preliminary activities are considered in the procurement procedure for the ERTMS deployment;

All deliverables will be assessed in close cooperation with the European Railway Agency.

### **3.1.4.2. ERTMS on-board deployment**

#### **a) Description**

ERTMS deployment of on-board components, including relevant preparatory actions and/or prototyping.

1. Proposals addressing the retrofitting and/or upgrading (works) of existing vehicles already operating on the EU railway network, with ETCS Baseline 3 (B3) or Baseline 2 (B2) may be funded under this specific objective.

Retrofitting means the installation of the ETCS B3 or B2 equipment on an existing vehicle(s) already in operation and not equipped with this system before.

Upgrade means deployment of ETCS B3 or B2 equipment on existing vehicle already in operation and equipped with pre-B2/B2 compliant ETCS.

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

2. Proposals addressing only retrofit/upgrade of a prototype vehicle / the first vehicle of a series, including its authorisation, in order to reduce the costs and time for further serial retrofit and authorisation of vehicles may be funded under this specific objective.

#### **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 cannot be funded.

Vehicles must be authorised for operation on the EU railway network (in at least one Member State) prior to submission of the application. For upgrade proposals, the authorisation documentation must identify the ERTMS version already installed, together with information on options, level, software version, hardware, etc.

ERTMS/ETCS to be deployed on the vehicles must be TSI-compliant.

#### **c) Information to be included in a proposal**

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

##### **i) For proposals related to an **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 a copy of the authorisation to place in service the ERTMS on-board;
- Current certificates of conformity of the constituents and certificates of verification of the subsystem;
- A description of tests that will be carried out following the technical specification for interoperability;
- 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 the 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 Railway Agency.

##### **ii) For proposals 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.;

- Description of the current on-board subsystem, including 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 should 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 Railway Agency.

#### **d) Funding conditions**

##### **For upgrade:**

Eligible costs are not subject to a ceiling and will be evaluated individually. In such cases an applicant(s) shall provide thorough financial information substantiating total costs and respective CEF requested support.

Training activities, specific ad-hoc expertise to follow up the project, or other necessary support, are not subject to a ceiling and will be evaluated individually. In such cases an applicant(s) shall provide thorough financial information substantiating total costs and respective CEF requested support.

##### **For retrofit:**

There is no ceiling on the costs related to development, test and validation of a B3 compliant on-board unit in a vehicle that is the first of a series/prototype, getting the type approval, including applications(s) for retrofit/upgrade of a prototype vehicle(s).

Eligible costs will be limited to a ceiling of €250,000 per ERTMS on-board subsystem to be deployed (hardware and software) on an already existing vehicle. In case a vehicle is already equipped with ETCS-compliant hardware, the ceiling may be decreased.

Training activities, specific ad-hoc expertise to follow up the project, or other necessary support, are not subject to a ceiling and will be evaluated individually. In such cases an applicant(s) shall provide thorough financial information substantiating total costs and respective CEF requested support.

##### **For prototype vehicle(s)**

Eligible costs are not subject to a ceiling and will be evaluated individually. In such cases an applicant(s) shall provide thorough financial information substantiating total costs and

respective CEF requested support.

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 EU funding):**

Deliverables shall demonstrate completeness and compliance with applicable technical specification for interoperability. Assessment of the final outcome of the CEF supported actions will 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:

i) Tests

- 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.

ii) *Conformity and verification procedure:*

- 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 Decision 2012/88/EU; the EC declaration of verification shall be fully in line with Directive 2008/57/EC;

iii) *Authorisation procedure:*

- 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 will be assessed in cooperation with European Railway Agency.