ANNEX 3
PRIORITY "EUROPEAN RAIL TRAFFIC MANAGEMENT SYSTEMS (ERTMS)"

The general objective is described in section 3.1.4 ERTMS of Annex to the 2014 Multi-
annual Work Programme and is further detailed here.


Regarding the equipment of corridors and their connections, the focus is on projects on the
Core Network Corridors (CNC), on principal lines of the Rail Freight Corridors (RFC, as per
regulation 913/2010) and on connections to the main ports, marshalling yards, freight
terminals and freight transport areas as per section 7.3.5. of the annex to Decision
2012/88/EU, TSI CCS 1.

All actions supported by CEF shall be in line with the latest applicable TSI CCS and
contribute to the objective of bridging missing links, removing bottlenecks, enhancing rail
interoperability, and, in particular, improving cross-border sections. In the following, ETCS
Baseline 2 (B2) means the set of specifications #1 and ETCS Baseline 3 (B3) means the latest
version of the set of specifications #2 in table A2 of the Annex A of the TSI CCS,
recommended by the European Railway Agency and known as Maintenance Release 1 of
2014.

Both basic components of ERTMS, i.e. Global System for Mobile Communications –
Railways (GSM-R) and the European Train Control System (ETCS) may be co-
funded under this specific objective. GSM-R projects are eligible if combined with ÉTCS-related projects
(i.e. with ETCS level 2 or level 3).

Six specific objectives are covered by this priority. Specific objectives 1 and 2 are of higher
importance than specific objectives 3, 4, 5 and 6.

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

Specific objective 1: ERTMS track-side deployment

a) Description

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

Among these, the priority is given to proposals related to:

- Railway line section(s) located on CNCs;
- Upgrade of lines, in particular to B3;
- Upgrade of lines for solving compatibility issues, or for solving GSM-R interference
issues;

1 Commission Decision of 6 November 2012 amending Commission Decision 2012/88/EU on the
technical specifications for interoperability relating to the control-command and signaling
subsystems of the trans-European rail system
- Deployment of B3 compliant ERTMS;
- Pilot actions for complex situations, including projects involving the radio communication system;
- Studies (i.e. activities needed to prepare project implementation in accordance with Article 2(6) of the CEF Regulation) to speed up the ERTMS deployment on Corridors’ sections and on connections to ports and terminals expected to be equipped within the European Deployment Plan, including pilot activities for complex situations with or without the radio communication system GSM-R.

Deployment means equipment with ERTMS of a line section already in operation and not equipped with this system before.

Upgrade means equipment with ERTMS/ETCS 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 installation of ETCS B3 on a line section already in operation and equipped with ETCS B2.

The preparatory actions should be a basis for launching a procurement procedure for the ERTMS deployment.

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 eligible as stand-alone documents.

Works and/or studies related to Class B system(s) and/or Specific Transmission Module (STM) are excluded from the scope of this specific objective.

c) Information to be included in a proposal

During the evaluation particular importance will be given to information related to:

i. 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 applicable TSI CCS, 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 TSI CCS-compliant;
   - 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 ETCS B2/B3 equipped vehicles will be able to run on the line 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 early involvement of NSA's, NoBo's, DeBo's;

− Description of the provisions to be put in place to ensure that ERA 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 a 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.

ii. 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 TSI CCS, 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 TSI CCS;

− Expected date when the ETCS track-side subsystem (ETCS B2 or B3) equipped CNC 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 ERA 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 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.

iii. 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.;
d) Funding conditions

Eligible costs for an upgrade of lines 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 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) are also eligible. For these infrastructure works the respective co-financing rates according to Art. 10.2.b(i) of the CEF Regulation will apply.

The applicants are invited to 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 track-side 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) are also eligible and are not covered by the ceiling. In such cases the applicant(s) is invited to provide thorough technical and financial information substantiating the costs and respective CEF requested support. For these infrastructure works the respective co-financing rates according to Art. 10.2.b(i) of the CEF Regulation will apply.

For specific complex situations and pilot actions such as marshalling yards, stations, junctions, cross-border points, etc., ceilings may be adapted on a case by case basis. In such cases the applicant(s) is invited to provide technical information describing the complexity of the situation and thorough financial information substantiating the costs and respective CEF requested support.

The applicants are invited to present the infrastructure works and/or complex situations in a separate activity(ies) to facilitate their technical and financial distinction from ERTMS deployment and subsequent assessment.

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

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

i) for ERTMS upgrade and deployment:

- Tests:

  Information regarding tests results (test report including operational scenarios) in line with the latest applicable TSI CCS, 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 TSI CCS;

- Authorisation procedure:
  1) 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 verification shall be fully in line with annex IV of 2008/57/EC;
  2) EC declaration of verification of the subsystem issued by the applicant for each CCS 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 annex IV of 2008/57/EC;
  3) Copy of an application for a National Safety Authority authorisation placing the CCS trackside subsystem in service or the NSA authorisation in case available by the time the final payment claim is due.


Deliverables must demonstrate compliance with applicable CCS TSI.

ii) for preparatory actions (studies):

- Documentation or other deliverables contributing to speeding up the ERTMS deployment on CNC sections and on connections to ports and terminals that shall be equipped according to the European Deployment Plan;
- 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.

**Specific objective 2: ERTMS on-board deployment**

a) **Description**

Proposals addressing the retrofitting and/or upgrading (works) of existing vehicles already operating on the EU railway network, with ETCS Baseline 3 (B3), including actions for solving GSM-R interference issues, may be funded under this specific objective.

Retrofitting means the installation of the ETCS B3 equipment on an existing vehicle(s) already in operation (authorised by National Safety Authority (NSA) by the time the application is submitted) not equipped with this system before.

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

Works related to Class B system(s) (e.g. STM) are not excluded from the scope of these specific objectives. However, if included in a proposed action, these works will not be eligible for EU funding. In addition, the related activity should be clearly separated in the proposal.

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 to be deployed on the vehicles must be B3-compliant.

c) Information to be included in a proposal

During the evaluation particular importance will be given to 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 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 TSI CCS;
- 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.

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 placing them into service issued by the competent NSA;
- Description of the authorisation procedure of the subsystem to be placed in service, 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 TSI CCS 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 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.

d) Funding conditions

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.

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.

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.

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

In this respect, any CEF funds granted to on-board equipment under this call entail the obligation for the equipped vehicles to remain and operate in EU and EEA territory for at least 5 years following the completion of the respective Action. Transit through non-EU countries is not considered as compromising this obligation.

e) Deliverables

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 TSI CCS;
- Confirmation on using a laboratory accredited according to ISO 17025.

ii) Authorisation procedure:

1) 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 verification shall be fully in line with annex IV of 2008/57/EC;

2) EC declaration of verification of the subsystem issued by the applicant for each CCS
subsystem installed on a vehicle and including the EC certificate of verification of subsystem from a NoBo 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 annex IV of 2008/57/EC;

3) a copy of a complete application for authorisation placing the ETCS retrofitted/ upgraded vehicle(s) in service submitted to at least one National Safety Authority of countries concerned or the NSA authorisation in the event it is available by the time the final payment claim is due.


Deliverables must demonstrate compliance with applicable TSI.

Specific objective 3: Simplification and facilitation of placing in operation

a) Description

Proposals, in the form of studies, addressing simplification and facilitation and harmonisation of procedures for the placing in operation of on-board/ track-side ERTMS components, including actions ascertaining full conformity with Commission Decision 2012/88/EU may be funded under this specific objective. The proposals shall contribute to reducing the cost and time of the verification and authorisation processes and to their harmonisation.

Proposals could address (list non exhaustive): conformity test campaigns related to operational scenarios, National Safety Authorities (NSA) joint studies, conformity assessment and verification procedures related studies, etc.

It is recommended that the duration of an action proposed under this specific objective does not exceed 2 years.

b) Essential conditions

Proposals must focus on supporting the verification and placing in operation procedures of ERTMS/ETCS on-board and/or track-side sub-systems.

Proposed solutions must be compliant with applicable Interoperability legislation.

Proposals must cover more than one Member State.

Proposals must involve a NSA and/or a conformity assessment body (NoBo).

c) Information to be included in a proposal

During the evaluation particular importance will be given to information related to:

- Identification of Member State(s) where the campaign will occur/ the procedure will be analysed;
- Description of current state of play of the verification/authorisation procedures including identification of aspects requiring simplification/ facilitation/ harmonisation;
- Description of solutions to be analysed and expected results as evidence of improvement of the procedure;
Involvement of stakeholders (NSAs, NoBos, etc.) from other Member States and description of their roles/responsibilities in the proposed action;

d) Funding conditions
Eligible costs of proposals submitted under this specific objective are not subject to a ceiling and will be evaluated individually. The applicant(s) is invited to provide thorough financial information substantiating total costs and CEF requested support.

e) Deliverables
Deliverables of a project selected and implemented within this specific objective shall cover:
- Final reports of studies available for ERA and made public to the EU railway sector;
- If applicable, confirmation of introducing actual changes to the procedure (by NSAs, NoBos, etc.) resulting from the outcome of the action;
- Ex-post analysis providing information on possible costs and/or time savings that resulted from the outcome of the action.

Deliverables must demonstrate compliance with applicable TSI CCS.

Specific objective 4: ERTMS training

a) Description
Proposals, addressing training of ERTMS experts, ERTMS project managers, train dispatchers, drivers, etc. may be funded under this specific objective.
Proposals covering trainings for Infrastructure Managers (IM) and Railway Undertakings (RU) will have a priority.
The training should provide technical/project management/administrative/operational or legal skills for, among others:
- defining needs as regards ERTMS equipment, drafting Terms of Reference (ToR) for procurement and monitor closely and efficiently the contracts, etc.;
- managing ERTMS projects;
- managing test, certification and authorisation process;
- placing in operation a line or a vehicle;
- driving on ERTMS lines;

Applications may include costs for an ERTMS simulator for drivers.
It is recommended that the duration of an action proposed under this specific objective does not exceed 3 years.

b) Essential conditions
The trainings must be launched and completed (first results obtained: see 3.4.5 Deliverables) by the end date for funding requested in the application submitted under this call.

c) Information to be included in a proposal

During the evaluation particular importance will be given to information related to:
- Details on the group to be trained, scope of training, trainers/institutions involved in preparation and delivery of trainings, etc.;
Details of the methodology and tools that will be used
- Expected results after the training, including abilities which students would acquire;
- Information on involvement of trained staff into the ERTMS-related activities;
- Planning of training.
- Description of the simulator, if applicable.

d) **Funding conditions**

Eligible costs of proposals submitted under this specific objective 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.

e) **Deliverables**

Deliverables of a project selected and implemented within this specific objective shall cover:
- Training documents, incl. content, material, training plan and scope;
- Report on the results of the trainings;
- Feedback from the participants.

**Specific objective 5: ERTMS specifications maintenance**

a) **Description**

Proposed actions, in the form of works or studies, aiming at supporting the stability of ERTMS specifications or addressing specifications issues coming from deployment projects may be funded under this specific objective.

This includes, but is not limited to, the following elements:
- Elaboration and analysis of test cases and sequences of the ETCS Baseline 3 (B3) to prove conformity of the ETCS on-board equipment with the ETCS B3 specifications. It is expected that the development of B3 on-board equipment and its testing in accredited laboratories will provide valuable feedback leading to further improvement of B3 specifications;
- Support to the maintenance of the specifications.
- Update of the Test Sequence Debugger for next versions of the ETCS specifications for the validation of SS-026 and the extension/improvement of SS-076;
- Collection and analysis of the operational test scenarios (including the one from cross-border system implementations) to assess their compliance with the specifications and to make the final outcome public;
- Check of existing Baseline 2 (B2) applications for possible incompatibilities applying the results of the Baseline Compatibility Analysis;

Proposals involving stakeholders (laboratories, Infrastructure Managers (IM), etc.) from more than one Member State will have a higher priority than proposals focusing on one Member State only.

b) **Essential conditions**

Proposals related to test cases and sequences and to the Test Sequence Debugger must perform test campaigns according to the ETCS Subset-076 principles in accredited
laboratories i.e. using the test cases in Subset-076-5-2. The proposal can include the development of test sequences according to Subset-076-5-3 format. The proposal can address ETCS B3 test campaigns only (ETCS B2 is out of the scope of this specific objective).

c) Information to be included in a proposal

During the evaluation particular importance will be given to information related to:

- Precise identification of the scope of a proposed action including problem(s) addressed, implementation methodology, expected results, involvement of railway sector stakeholders, etc.;
- Details of applicant's experience and proven knowledge with ERTMS specifications, including identified experts;
- Technical description of the ERTMS equipment (on-board and track-side) that will be used within the proposed action. At a minimum, this shall identify the version of the SRS used to develop the product and the list of non-implemented ETCS functionalities (if any);
- Proof of commitment to undertake, if applicable, a test campaign in an accredited laboratory (i.e. contract signed with an accredited laboratory or a common statement with an accredited laboratory to sign a contract).

d) Funding conditions

Eligible costs of proposals submitted under this specific objective 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.

e) Deliverables

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

- Report(s) including an analysis of results;
- If applicable, test cases and test sequences (according to Subset-076 format) used during the test campaign;
- Feedback about errors detected in the specifications, including backward compatibility issues, and the identified mitigating measures;
- If applicable, confirmation on using a laboratory accredited according to ISO 17025;
- Proof of follow-up of relevant results identified in the course of the project that could have any potential impact in the ERTMS B3 specification.

All deliverables will be assessed in close cooperation with ERA.

Specific objectives 6: Operational rules

a) Description

Applications, in the form of studies, addressing cross border issues related to operational rules impacting ERTMS operation and proposing coordinated solutions may be funded under this specific objective.
b) **Essential conditions**

The proposals must involve at least two Infrastructure Managers (IM) along a Core Network Corridor (CNC). Proposals must involve a Rail Freight Corridor(s) management board/executive board.

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

During the evaluation particular importance will be given to information related to:
- Methodology to demonstrate the feasibility of the proposal to identify the relevant operational issues having a real impact on ERTMS operation;
- Examples, if available, of potential cross border issues to be included in the study;
- Methodology to demonstrate that a coordination solution can be found and implemented.

d) **Funding conditions**

Eligible costs of proposals submitted under this specific objective 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.

e) **Expected deliverables**

Expected deliverables of a project selected and implemented within this specific objective shall cover:
- Report with the list and description of the identified issues and the impact on the ERTMS operation;
- Report including the explanation related to the inclusion of the solutions into the relevant Safety Management Systems (SMS) and the position of the NSAs.

All deliverables will be assessed in close cooperation with ERA.