

## 2. Change Control Management process for non-IT related products/services

### 2.1. Specific definitions and abbreviations

#### 2.1.1. BASELINE

- 2.1.1.1. A baseline is defined by a stable kernel in terms of system functionality, performance and other non-functional characteristics.
- 2.1.1.2. Conversely, the definition of a new baseline necessarily implies that significant changes (enhancements) are brought to the above mentioned kernel: an enhancement may consist in adding a new function, keeping the functionality of the previous baseline unchanged, or may consist in changing some functionality, performance or non-functional characteristics of the previous baseline.
- 2.1.1.3. If a system version management exists for the concerned system (e.g. for the ECTS part of ERTMS), the system version number (X.Y) is always incremented when defining a new baseline: in case of X increment only the train to track backward compatibility is ensured, while in case of Y increment, both the train to track upward and backward compatibilities are ensured.
- 2.1.1.4. A baseline is not defined by a specific release of the TSI.

#### 2.1.2. BASELINE release

- 2.1.2.1. A baseline release is defined by a specific version of each of the legally binding TSI documents that are relevant for the concerned system..
- 2.1.2.2. During the whole lifetime of the system, several releases of the same baseline can be issued:
  - (a) the first draft release, including the first subset of the document(s) of a baseline in which an agreed set of changes to the stable kernel of the previous baseline is specified
  - (b) optionally, one or more consolidation releases, consisting of intermediate releases in order to progressively build the full and coherent set of document(s) attached to the baseline
  - (c) the first legal release, which is enforced in the Official Journal or other publication mean (e.g. Agency's website) once the consolidation phase is completed.
  - (d) further on, one or more maintenance releases published in the Official Journal or other publication mean (e.g. Agency's website). They consist only of errors fixed after the publication of the first legal release.

2.1.2.3. Note: the first draft and consolidation releases are not published in the Official Journal and can be deemed necessary according to the number and the complexity of the changes. They are made available through the Agency website as work in progress for information only.

2.1.2.4. The natural consequence of the above is that it cannot be excluded to issue a maintenance release of a baseline, after one or more subsequent new baselines have been created (see example in Figure 1) and enforced in the Official Journal. In all circumstances, the Agency will use its best endeavours to ensure that the corrections in different baselines are fully consistent in order to maintain interoperability. For details regarding the maintenance of baselines, refer to section 2.4.

### 2.1.3. Change Control Management

2.1.3.1. The Change Control Management consists of the management of activities, which allow moving from one baseline release to another one. The Change Requests (CR's) offer a transparent, formal and ordered processing of the changes leading to new releases (see 2.4 for details).

2.1.3.2. The CCM process defined hereafter is baseline independent, i.e. it is valid for any step made in the lifetime of a given baseline, starting from the last legal release of the previous baseline to the first draft release, the consolidation release(s), the first legal release and the further maintenance release(s) (see example in Figure 1).

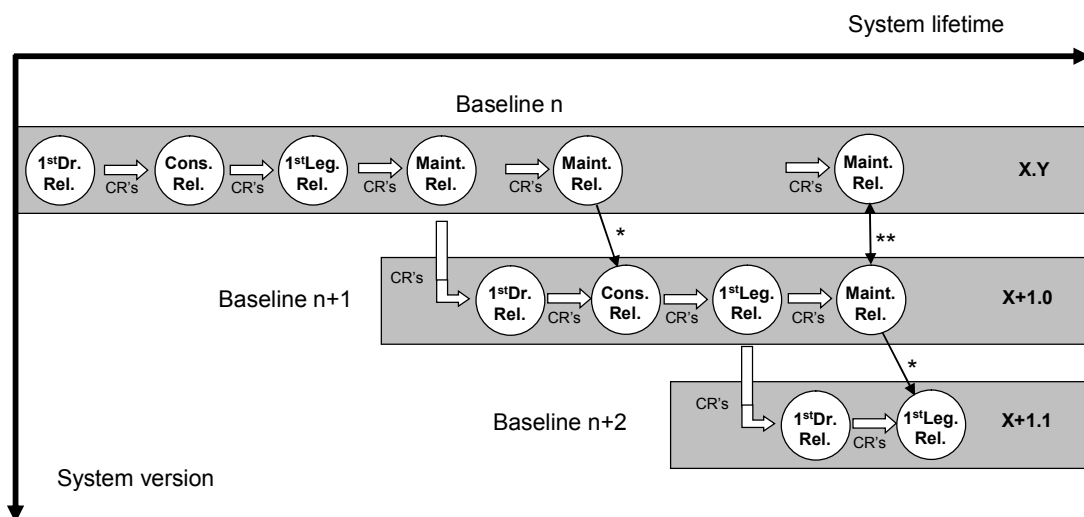


Figure 1: Example of evolution of baselines and baseline releases

\*: arrows indicate that updated documents in the maintenance release of a baseline are incorporated in the newer baseline

\*\* : synchronised releases in the frame of the maintenance of different baselines (see section 2.4)

## 2.2. Organisation of the CCM

### 2.2.1. Overall structure

2.2.1.1. The organisational structure is shown in Figure 2, which outlines the main information flows and the interactions of the parties involved in the CCM; their tasks and interfaces are described in the subsequent sections.

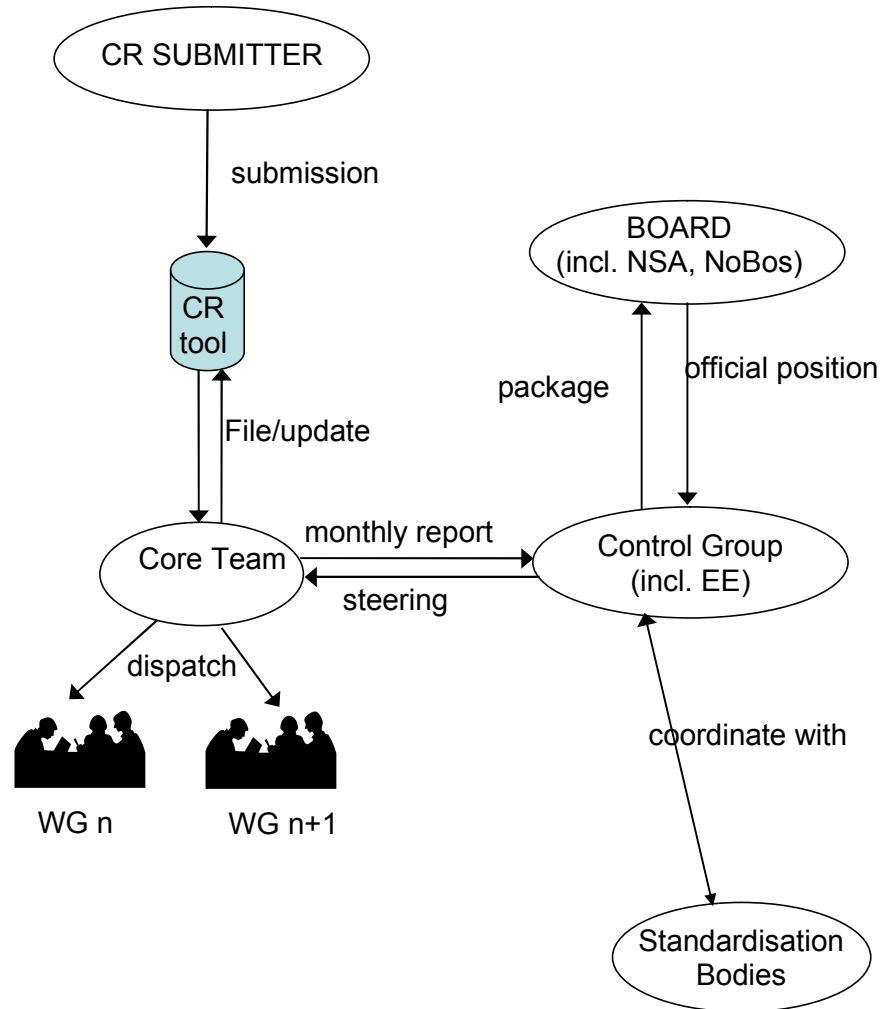


Figure 2 : Organisational structure of the CCM.

## 2.2.2. Involved parties

### 2.2.2.1. CR submitter

#### 2.2.2.1.1 Who

2.2.2.1.1.1 The list of Change Requestors is defined according to the applicable legal text. In any case, the representative bodies will be part of this list and can submit a Change Request. The list of representative bodies can be found at the Agency's website : [https://www.era.europa.eu/agency/stakeholder-relations/representative-bodies\\_en](https://www.era.europa.eu/agency/stakeholder-relations/representative-bodies_en).

2.2.2.1.1.2 The following parties can also submit a CR:

- (a) The National Safety Authorities (representing the Member States)
- (b) Each Member State
- (c) The European Commission

2.2.2.1.1.3 In addition, CR can be internally originated by the Agency e.g. as a consequence of the process of drafting or updating other TSI's or safety recommendations, or in general in the scope of its activities.

2.2.2.1.1.4 The representative bodies, the Network of NSA's, the Member States, the European Commission and the Agency are the recognised organisations, which are allowed to submit CR's.

## **2.2.2.2. Board**

### **2.2.2.2.1 Who**

2.2.2.2.1.1 The Board is composed of persons mandated by the representative bodies, of representatives of the Network of National Safety Authorities and actors of the sector, and of staff from the Agency. The role and responsibilities of the Board are currently fulfilled by the Remit of the Working Party. The Board is chaired by a representative of the Agency staff.

### **2.2.2.2.2 Roles and responsibilities**

2.2.2.2.2.1 The main responsibility of the Board is to endorse the proposed dossier for system changes and express the position of their organisations. Two types of endorsements can be requested to the Board:

- (a) endorse a CR package to assess whether to proceed with the required additional work to define the detailed specifications, or complete required additional studies;
- (b) endorse a CR package embodied in a complete proposal to assess whether to endorse its submission to the Commission.

- 2.2.2.2.2.2 While this endorsement is not bound to be by unanimity, since the Agency retains its full responsibility and independence to finally present proposals to the Commission, the objective of the process is to reach a common position regarding all aspects of the proposal. If it is not possible to reach a unanimous decision, a justification for the rejection by one or more organisations represented in the Board should be added to the proposal to the Commission.
- 2.2.2.2.2.3 The Board meetings will be called either when the proposals for the first legal release of a new baseline of the system are ready, complete with the Cost Benefit Analysis and recommended time-planning, or in the context of the maintenance release of a baseline.
- 2.2.2.2.2.4 The Board will receive the proposed dossier in advance, and the members can comment and ask clarifications. The Board collectively can recommend additional actions and propose to re-examine their results with the updated dossier at a later time.
- 2.2.2.2.2.5 It is the specific task of the Board to evaluate the cost/compensations provisions, linked to the release and deployment policy, and if necessary to prepare an argumentation for funding.
- 2.2.2.2.2.6 When the Agency presents a proposal for changes to the Commission, it will include the positions expressed by the Board and their recommendations.
- 2.2.2.2.2.7 The Board also endorses the planning and policy for any future baseline of the system.

### **2.2.2.3. Control group**

#### **2.2.2.3.1 Who**

- 2.2.2.3.1.1 The Control Group can be composed of experts invited by the Agency, of persons mandated by the representative bodies and of Agency staff (The Agency will ensure adequate and balanced participation of the sector) or only by Agency staff depending of the nature and scope of the documents involved.

#### **2.2.2.3.2 Roles and responsibilities**

- 2.2.2.3.2.1 The Control Group must ensure the steering of the activities, identifying the most effective actions to deal with the outstanding issues in coherence with the overall system planning, resources and priorities.
- 2.2.2.3.2.2 The resolution of blocking points among WG's is also part of the Control Group task, whenever raised by the Core Team.
- 2.2.2.3.2.3 The Control Group members will proactively define, conveying the consolidated information and requests from their respective organisation, the planning and policy for any future legal release of the specifications. This includes the proper synchronisation of the timing of the legal releases for different baselines
- 2.2.2.3.2.4 The planning must also include proposals for allocating costs/compensations: this important issue could in fact influence the entire CR process since their submission, and the general principles must be clarified in advance.
- 2.2.2.3.2.5 The Control Group will define the necessary intermediate steps (first draft and consolidation releases), in order to build progressively the consistent set of documents, which will lead to the first legal release of a new baseline.
- 2.2.2.3.2.6 The Control Group will endorse the need to create specific technical WG's, and define their remit and the required expertise profile. The Control Group will hear regular and specific reports from the Core Team, and will offer guidance and provide for the necessary organisational coordination.

- 2.2.2.3.2.7 The Control Group will define in advance an overall work plan estimate for the activities up to 12 months in the future, to help the Agency with its resource planning.
- 2.2.2.3.2.8 Depending on the specific issue, the development of the detailed solution for a CR could entail a significant amount of time/resources. In this case, the Control Group will seek the endorsement of the Board before committing to the additional activities.
- 2.2.2.3.2.9 The Control Group will define the aggregation of different CRs in packages, proposed for specific baseline release and or deadlines.
- 2.2.2.3.2.10 In case of first legal release of a new baseline, the Control Group will ensure that the CR package is integrated with its impact assessment, including:
- (a) benefit analysis , feasibility/cost of development, feasibility/cost of deployment
  - (b) System Version Management (if applicable for the concerned system): compatibility with previous baseline (X or Y increment), modification of the envelope of X versions if any, migration parameters
  - (c) proposed time-plan and/or migration strategy for the adoption
  - (d) if necessary, the proposal for the financing scheme to ensure the development/deployment

- 2.2.2.3.2.11 In the context of the maintenance of a baseline (see section 2.4 for further details), the Control Group will also have the possibility to define “Error” CR packages only, which will lead to a maintenance release published in the Official Journal.
- 2.2.2.3.2.12 The Control Group will submit a CR package to the Board, for endorsement. If it is not possible to reach a unanimous decision, a justification for the rejection by one or more representative bodies represented in the Control Group should be added to the proposal to the Board.
- 2.2.2.3.2.13 If necessary, the Control Group will take active part in the coordination of specific issues between the Agency and the Joint Programming Committee Rail of CEN/Cenelec/ETSI.
- 2.2.2.3.2.14 In principle, the Control Group will have scheduled monthly meetings.
- 2.2.2.3.2.15 The Control Group may also appoint short lifespan workshops or taskforces, in the view to help its decision making in the frame of the CR process (see steps 60, 62, 90, 130 of the CR workflow) or in the frame of the maintenance of baselines (see section 2.4).

#### **2.2.2.4. Core Team**

##### **2.2.2.4.1 Who**

- 2.2.2.4.1.1 It is chaired by the Change Manager and composed of Agency staff members and, when needed, ad-hoc sector representatives providing key system competence.

##### **2.2.2.4.2 Roles and responsibilities**

- 2.2.2.4.2.1 It receives, filters and classifies the CR’s received from the submitters via the ERA CCM tool. To be accepted into the CCM process, the CR’s must be formally correct; they are then provisionally assigned to one of the existing technical WG when possible, and properly filed in the Agency database.
- 2.2.2.4.2.2 The Core Team will report at each meeting of the Control Group about the current state of the CR’s, their progress, the workload of the different technical WG’s.
- 2.2.2.4.2.3 If it becomes obvious that neither the Core Team itself nor an existing working group has the competence to solve the problem exposed in the CR, the Core Team can request the creation of additional WG or ad-hoc workshops for this specific CR.
- 2.2.2.4.2.4 The Core Team will lead the process to identify the experts needed for specific WG, and retain the entire responsibility for their nomination.
- 2.2.2.4.2.5 The task of the Core Team is also to ensure the necessary technical coordination among the technical WG’s.
- 2.2.2.4.2.6 In specific cases, the Core Team may enable the Agency to fulfil its role as System Authority.

#### **2.2.2.5. Technical working groups**

##### **2.2.2.5.1 Who**

- 2.2.2.5.1.1 Each technical Working Group is composed by external experts and is chaired or followed up by a representative of the Agency staff.
- 2.2.2.5.1.2 Following the decision to create a WG, the representative bodies, which are likely to provide the profile of the required expertise, are contacted by the Core Team.
- 2.2.2.5.1.3 After collection of proposed names from the representative bodies, the Agency will then select and invite the relevant experts.
- 2.2.2.5.1.4 Independent experts may also be invited by the Agency to join Working Groups, if deemed necessary.

**2.2.2.5.2 Roles and responsibilities**

2.2.2.5.2.1 Together with its creation, the remit for a WG is defined by the Agency, after consultation of the Control Group, identifying when necessary the specific CR's assigned. Additional CR's can be afterwards assigned by the Control Group or the Core Team.

2.2.2.5.2.2 The remit for each WG is described in detail in a dedicated document, issued by the Agency.

**2.2.2.6. Standardisation Bodies****2.2.2.6.1 Who**

2.2.2.6.1.1 The Standardisation Bodies, mentioned in Figure 2, are the CEN, CENELEC, and ETSI.

**2.2.2.6.2 Roles and responsibilities**

2.2.2.6.2.1 The Standardisation Bodies do not have any direct role or responsibility in the ERA CCM process.

2.2.2.6.2.2 They only coordinate with the Control Group, allowing this latter to ensure that:

- (a) new standards are considered properly;
- (b) if new standards are needed the requests are properly initiated and the result of the work verified.

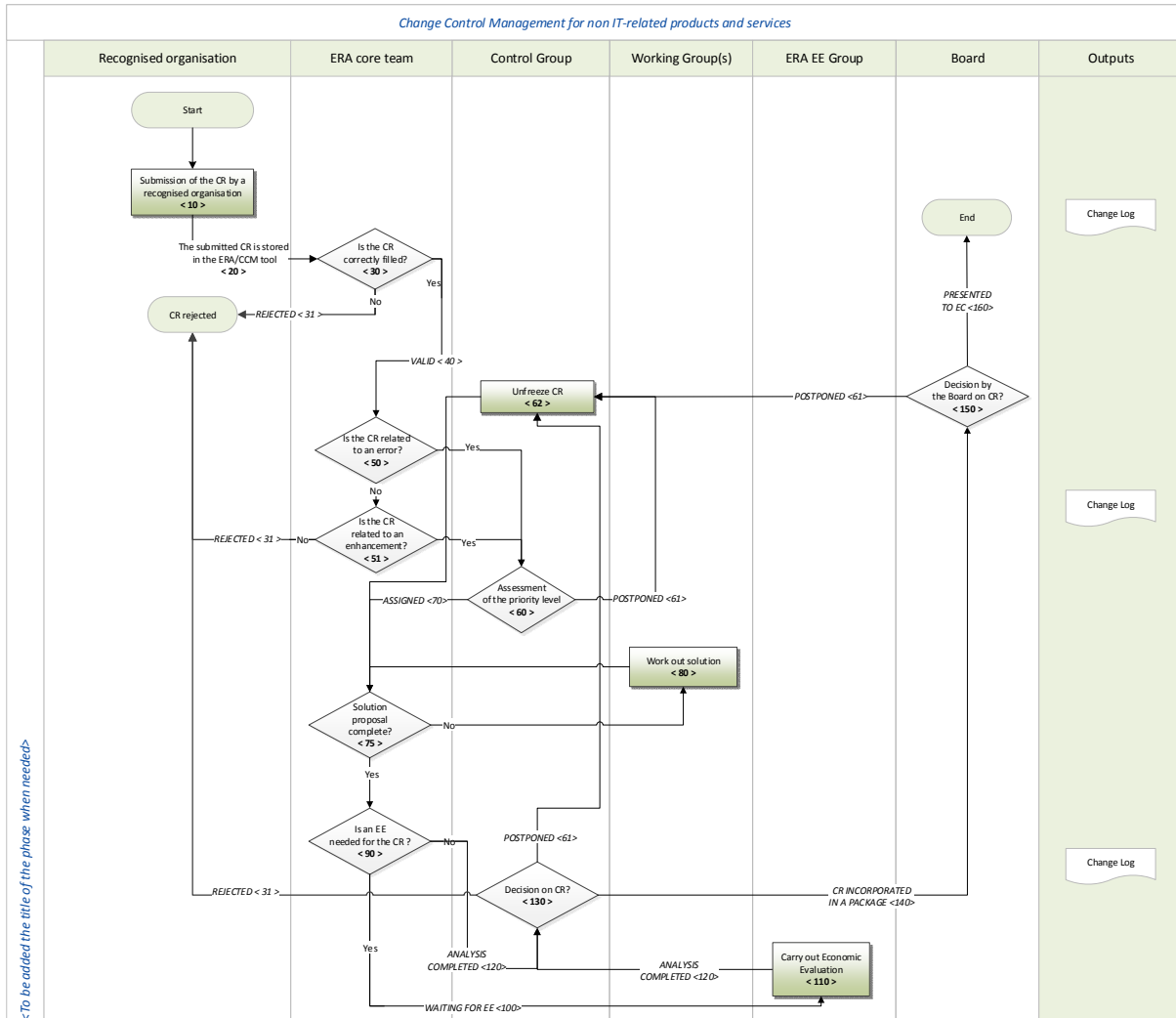


## **2.3. Change Request Process description**

### **2.3.1. Introduction**

- 2.3.1.1. The following CR workflow describes the whole lifecycle of a Change Request, from its submission to its final acceptance by the Board.
- 2.3.1.2. After a package of CR's has been forwarded to the Commission as a supporting part of an Agency recommendation, the further steps until the final approval of the baseline release by EC are not under the control of the Agency. They are therefore not covered by this CR process description. An optional state (e.g. "Final approved") could materialise the final approval of the baseline release by EC and the endorsement by the RISC, it is however not referred to in the CR process described below.
- 2.3.1.3. It must be emphasised that this CR workflow is applicable to individual CR's and neither to CR packages nor to the documents.
- 2.3.1.4. The management of the editorial work for updating the TSI related documents is considered as not being part of the CR process itself, but only a consequence of it; in other terms, the documentation update must be driven by the CR process, and not the contrary.

2.3.2. Workflow



### 2.3.3. Description of main steps

#### 2.3.3.1. STEP 10 - Submission of the CR by a recognised organisation

2.3.3.1.1 A Change Request can only be submitted by one of the recognised organisations listed in section 2.2.2.1).

2.3.3.1.2 The information relevant for the submission of the CR is listed here below (where an asterisk is put, it shall be mandatory to fill the related field):

- (a) **Headline:\*** which gives a textual unequivocal identification and indicates the general topic of the CR, not exceeding a few words,
- (b) **Reference baseline release(s) for related documents:\*** to which the CR refers,
- (c) **Documents and/or References:\*** which indicates directly which documents and/or references are concerned by the CR,
- (d) **Error/Enhancement:\*** the rationale of the CR shall be given, so does the CR relate to either the need for debugging the specified baseline or to the need for functional or performances improvement (see section 2.3.3.3 for criterion used by ERA Core team to check this field),
- (e) **Project<sup>2</sup> name and starting time:\*<sup>3</sup> to which the CR is related shall be indicated, followed by the related date (month and year) to which corresponds the first implementation test before the revenue service,**
- (f) **Operational scope:** explains how the addressed problem appears in the operational process,
- (g) **Problem/need description:\*** which gives a detailed overview about the problem/need. The reason for the CR shall be clearly indicated and the description should preferably not exceed one page. In any case, any mixing of the problem with the solution description must be avoided,
- (h) **Consequences of the addressed problem:** the consequences of the addressed problem have to be described. There can be different aspects such:
  - › Unavailability of equipment or components;
  - › Operational aspects (impact on normal or fallback operation; are specific operational procedures not possible; delay in operation causing delay minutes);
  - › Economic aspects (loss of revenue, impact on maintenance operating costs).
- (i) **Application scope:** describes where the problem occurs (e.g. specific for an IM or a member state),
- (j) **Supporting documents for problem/need description:** lists all files which are attached to the CR, in relation with the CR problem/need,
- (k) **Solution proposal by submitter:** which indicates the solution preferred by the submitter,

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<sup>2</sup> Project must be understood in the large sense depending of the nature of the documents subject to CCM.

<sup>3</sup> Mandatory only in case of enhancement

- (l) **Supporting documents for solution proposal:** lists all files which are attached to the CR, in relation with the proposed CR solution,
- (m) **Preliminary assessment of the benefits:** which provides, in case of an enhancement, as a first step the order of magnitude of the benefits resulting from the expected improvement of performances, safety, reliability and maintainability,
- (n) **Supporting documents for preliminary assessment of the benefits:** lists all files which are attached to the CR, in relation with the preliminary assessment of the benefits,
- (o) **Submitting Recognised Organisation:\*** one of them listed in section 2.2.2.1 of this document,
- (p) **Endorsed by:** name(s) of the other recognised organisation(s) which also support(s) the CR,
- (q) **Contact person Name and Email address:\*** of the expert representing the mentioned organisation, who will be the contact person in case of further needed exchange between originator and ERA CCM Core Team,
- (r) **Submitter Reference Number:** free text field to allow each organisation to track the CR for their own internal follow up

2.3.3.1.3 Important note: filling the field preliminary assessment of benefits is strongly recommended in case of enhancement; indeed, it is expected that the submitter is highly motivated to provide such information at this early stage, in order:

- (a) to facilitate a further individual economic evaluation for this CR, which is likely to be requested afterwards by the Control Group (refer to step 90),
- (b) to provide the justification for the CR and hence to give to the CR the priority it deserves, so that the desired attention will be paid by all the CCM involved parties, when managing this CR.

2.3.3.1.4 To provide the information relevant for the submission, the submitter shall log in to the ERA CCM tool and use a predefined CR submission form; the free text fields and the attached documents shall be written in English.

2.3.3.1.5 The CR submission information is then stored in the ERA CCM database with the attached files and the CR state is put to '**submitted**' with the current date.

### 2.3.3.2. STEP 30 - Is the CR correctly filled?

2.3.3.2.1 As a general rule, within five working days after its submission, the Core Team performs the pre-analysis of the CR. This pre-analysis consists in checking:

- (a) that the mandatory fields are duly filled, and
- (b) that the information provided in free text fields and attached documents, if any, is usable for further analysis.

2.3.3.2.2 When a CR can not be accepted due to missing or unusable information, the CR state is changed to 'rejected'. The Core Team shall provide the reason(s) of such rejection. During a period of two months, the submitter will have the possibility to provide the required information in order to make the CR valid. If the required information has not been provided after this two months period, the CR shall be considered as definitively rejected. This event will be notified to the submitter.

2.3.3.2.3 When all needed information has been positively checked, the CR state changes to 'valid'.

#### **2.3.3.3. STEPS 50 & 51 - Is the CR related to an error or an enhancement?**

2.3.3.3.1 The Core Team shall verify the correctness of the assessment made by the submitter with regards to the field Error/Enhancement. This verification of the CR rationale will be done by cross-checking the information given in the submission form and all relevant information that can be found in relevant documents.

2.3.3.3.2 A CR shall be classified as an Error when it relates to any inconsistency, gap found in a document or in the documentation set.

2.3.3.3.3 Conversely a CR which is not classified as an Error shall be considered as an Enhancement, normally leading to new or modified requirement(s) in the FRS.

2.3.3.3.4 Exception: it is also foreseen that the CR is neither to be classified as an Error nor as an Enhancement, because the submitter might have misjudged the reality of the problem or overlooked one piece of information included in the relevant documents. Should be the case, the CR state is changed to 'rejected', and this rejection shall be motivated by the ERA Core Team, with all the necessary references justifying this decision.

2.3.3.3.5 If the CR is re-classified (from Error to Enhancement or vice-versa), the reason shall be provided by the ERA Core Team.

#### **2.3.3.4. STEP 60 - Assessment of the priority level/severity**

2.3.3.4.1 In order to organize the work of the Core Team and the dedicated WG's in the most efficient way, and especially to manage logically a situation when there will be so many logged CR's that it will not be possible to treat all of them in the same time, the Core Team will set priorities for the CR's.

2.3.3.4.2 Since it may depend on many non-technical factors, it is not possible to predefine an exhaustive list of criteria for the prioritization of CR's. However the CR's are stamped with a severity qualifier in order to help, together with e.g. the classification error/enhancement and the reference baseline release, the determination of their priority:

- (a) safety related
- (b) interoperability and non-safety related
- (c) performances impact, non-interoperability and non-safety related,
- (d) Others.

2.3.3.4.3 The Control Group is responsible to validate the priority list for the CR, paying specific attention to those which affect current implementations. If the CR is considered as relevant for the next expected baseline or is related to the maintenance of an existing baseline the CR state changes to **'Assigned'**.

2.3.3.4.4 If the Control Group estimates, on the basis of the information provided by the submitter, especially the starting time of the project, that this CR is relevant but not for the next expected baseline, the CR is postponed. The CR state changes to **'Postponed'**.

#### **2.3.3.5. STEPS 75 & 80 – Resolution of the CR**

2.3.3.5.1 The Core Team, in its role of technical coordinator, shall continuously assess the content of each CR and shall ensure that a complete solution is derived in a timely manner. In that respect, the Core Team can at any time:

- (a) Allocate the CR to existing Working Group(s), which shall work out a solution for the CR. In case several WG's are involved in the search for a solution, the necessary coordination task will be performed by the Agency.
- (b) Convene and lead ad-hoc workshops or taskforces.
- (c) Validate a proposed solution, avoiding further resource allocation outside the Agency.

- 2.3.3.5.2 The solution shall consist in a list of unambiguously identified changes to one or more document(s); together with these proposed amendments, it is possible to add a separate justification for this solution.
- 2.3.3.5.3 The Agency, acting as the System Authority, shall ensure a fair balance between the cleanliness and the pragmatism of the chosen solution (i.e. avoiding on one hand quick and dirty solutions or on the other hand too complex and nice to have solutions). For that purpose, it is recognised that for the CR's impacting products, the industry brings the main competence to estimate the impacts on their products and provides the soundest economic technical proposal for their products.
- 2.3.3.5.4 If during the phase of searching for a solution by the WG, it appears that the experts give rises to different solutions, the submitter or representatives of his organization can be invited to participate to the group in question, in order to bring additional information which will help the definition of the most adequate solution.
- 2.3.3.5.5 A special attention shall also be paid by both the WG and the Core Team, to the type of impact on the system version if applicable. This information will be essential for the Control Group to decide how to assemble packages of CR's.
- 2.3.3.6. STEP 90 – Is an economic evaluation needed for the CR?**
- 2.3.3.6.1 Once a complete solution has been worked out, the ERA CCM Control Group shall decide whether an economic evaluation is needed for this individual CR.
- 2.3.3.6.2 If it is decided to perform an individual economic evaluation for the CR, its state changes to **'Waiting for economic evaluation'**.
- 2.3.3.6.3 If it is decided that an individual cost/benefit analysis is not worth for the CR, its state changes to **'Analysis completed'**. Note: this does not mean that the costs induced by the CR, in case of enhancement, will not be evaluated, but only when the CR is integrated in a CR package, at a further stage.
- 2.3.3.7. STEP 110 – Economic evaluation of the CR**
- 2.3.3.7.1 The economic evaluation of an individual CR is performed according to the methodology for the system concerned.
- 2.3.3.7.2 Once this evaluation is completed, the CR state changes to **'Analysis completed'**.
- 2.3.3.8. STEP 130 – Decision by the Control Group for the CR**
- 2.3.3.8.1 In principle, the Control Group shall never take a positive decision on a single CR; but shall rather decide to incorporate a CR in a package (refer to section 2.2.2.3.2.9); if decided so, the CR state changes to **'packaged'**.
- 2.3.3.8.2 When assembling CR package(s), the Control Group shall have the possibility to postpone the incorporation of the CR in a package, for any technical or economic reason; should be the case, the CR state changes to **'postponed'**.
- 2.3.3.8.3 The Control Group shall also have the possibility to reject a CR, either because of the Cost/Benefit analysis or because the WG in charge of the technical solution proposes a reason to reject it, which could not be detected at an earlier stage by the ERA Core Team. The CR state then changes to **'rejected'**.
- 2.3.3.9. STEP 150 – Decision by the board for the CR**

2.3.3.9.1 After a CR has been incorporated in a package, its final acceptance in the context of the creation of a legal release (the first one or a maintenance one), which means its submission to the Commission, shall be endorsed by the Board; if decided so, the CR state changes to **'presented to the EC'**.

2.3.3.9.2 At this stage, it is still possible that the Board decides not to present the CR to the Commission, either because the CR is to be removed from the agreed package, or because the package itself is postponed as a whole; in both cases, the CR state changes to **'postponed'**.

### 2.3.3.10. STEP 62 – Unfreezing of the CR

2.3.3.10.1 Through its monthly meetings, the Control Group will always have the possibility to unfreeze the CR, regardless the reason why the CR was postponed.

2.3.3.10.2 The unfrozen CR shall systematically go through the normal process from the assignment to a WG onwards; this is also relevant if the CR was already solved in the past, as the context might have significantly changed since its postponement (e.g. the reference baseline has changed and the solution is no longer valid, ...). The CR state then changes to **'assigned'**.

### 2.3.4. Overlapping of CRs

2.3.4.1. At any stage of the CR workflow, it may appear that a CR is linked to one or more other CR, either in terms of problem/need or in terms of the solution found.

2.3.4.2. If it is made sure that a particular CR can be fully covered by another CR dealing with the same subject, the CR state changes to **'superseded'**; the reference to the superseding CR shall be indicated.

2.3.4.3. Conversely, the CR which supersedes one or more other CRs shall refer to the list of superseded CRs.

### 2.3.5. Change Request content

2.3.5.1. The table here below gives all the information that shall be stored in the ERA CCM database, for each Change Request.

<i>Field</i>	<i>Description</i>	<i>Who controls it</i>
Identification Number	Gives the unique reference number which all the involved parties work with.	ERA CCM tool
State	Materialises the CR progress during its lifetime within the ERA CR process, see boxes 20,31,40,61,70,100,120,140,160,170 in Figure 3 and section 2.2.2.3	See CR workflow
Submission information	See Step 10 of CR workflow	Submitter
Date of submission	Date of capture of the submission form	ERA CCM tool
Reason for Error/Enhancement re-classification	See steps 50, 51 of CR workflow	Core Team



List of assigned WG(s)	See step 60 of CR workflow	CG
Severity	See step 60 of CR workflow	CG
Solution agreed by WG(s)	See step 80 of CR workflow	WG
Supporting docs for agreed solution	See step 80 of CR workflow	WG
Justification/Discussion for solution	See step 80 of CR workflow	WG
Supporting docs for justification/discussion for solution	See step 80 of CR workflow	WG
Economic Evaluation output	See step 110 of CR workflow	ERA EE Group
Supporting docs for Economic Evaluation	See step 110 of CR workflow	ERA EE Group
Target baseline(s)	See step 130 of CR workflow	CG
Reason for rejection	See steps 30, 50, 51, 130 of CR workflow	Core Team/CG
Reason for postponement	See steps 60, 130, 150 of CR workflow	CG/Board
Superseding CR	Reference number of the CR that supersedes the CR, when the CR state is "superseded"	Core Team
List of superseded CR(s)	Reference number(s) of the CR(s) that are superseded by the CR	Core Team
Modification history	For all changes brought to the CR, gives the author, the date and the impacted field	ERA CCM tool

### 2.3.6. Change Request state transitions

- 2.3.6.1. Each state transition can be notified to the submitter, through the email address provided in the CR submission form.

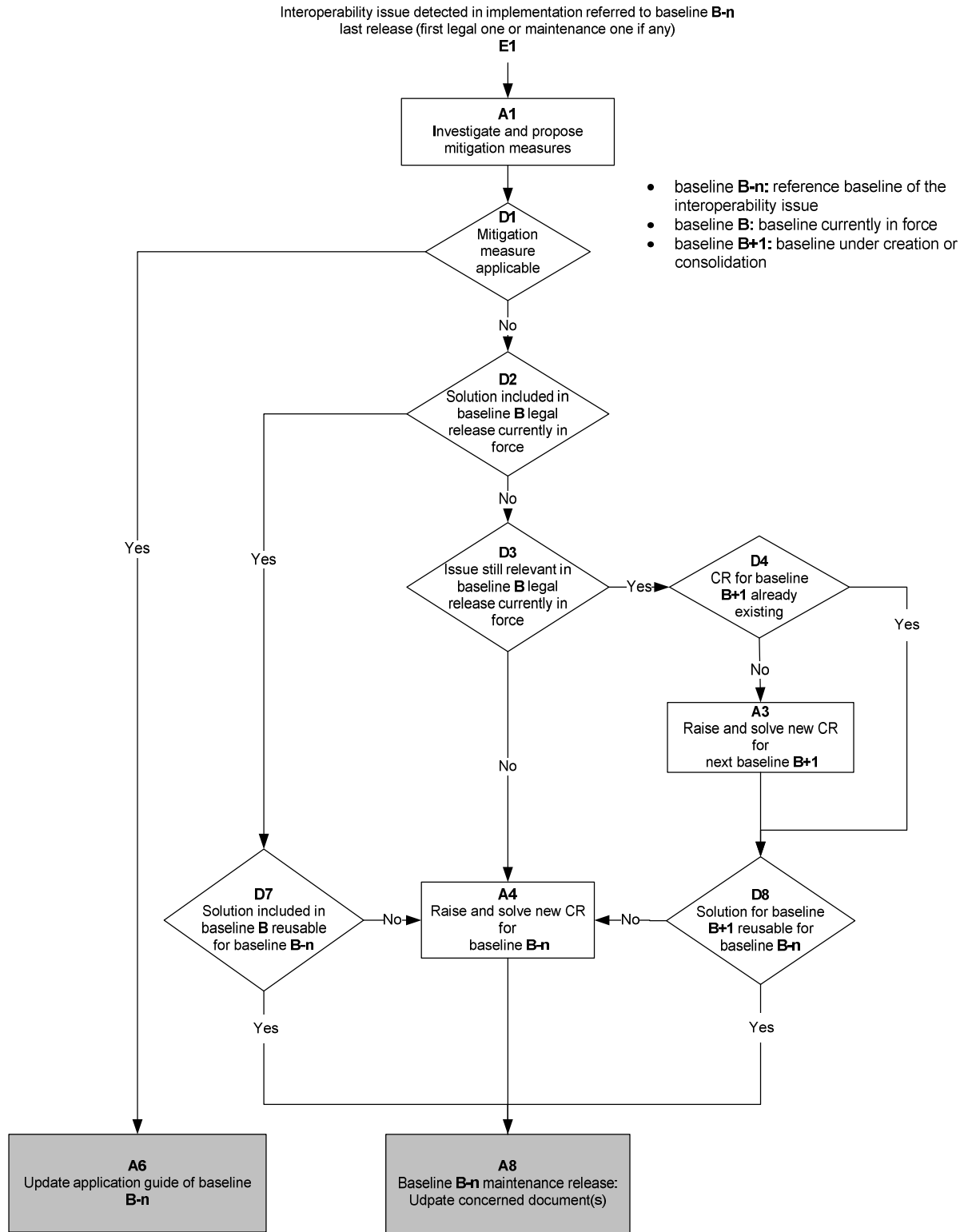
## 2.4. Maintenance of baselines

### 2.4.1. Foreword

- 2.4.1.1. The specifications are the basis for a growing number of projects, and allow the daily operations of thousands of trains over thousands km of lines in Europe.
- 2.4.1.2. The need to ensure interoperability establishes the obligation to protect the investments in railway systems.
- 2.4.1.3. The return of experience and feedback from the users undoubtedly generates the need for additional clarifications and also uncovers possible errors, at any time in the lifetime of the documents, e.g. when several baselines have been created and successively enforced.
- 2.4.1.4. This annex details how such possible errors/clarifications are managed in relation to the documents and the CR process described in this document.

### 2.4.2. Workflow

- 2.4.2.1. The workflow hereafter describes all the steps from the time an interoperability issue has been raised to the final decision of the Board regarding the way the solution is going to be adopted.
- 2.4.2.2. The baseline B-n is the baseline to which refers the implementation where the interoperability issue has been detected. It can be a baseline that was created before one or more new baselines have been created ( $n > 0$ ). Moreover it is assumed that the implementation referring to this baseline B-n complies with the last legal release of this baseline.
- 2.4.2.3. The baseline B is the baseline currently in force at the time the interoperability issue has been detected.
- 2.4.2.4. The baseline B+1 is the baseline under construction, i.e. its first legal release has not yet been enforced. This workflow assumes that there is always such a baseline at any time.
- 2.4.2.5. The flowchart hereafter is designed for the maintenance of the baseline B-n. However, it must be noted that the baselines (B-n)+1 to the baseline B inclusive might also need to be maintained as a result of the interoperability issue revealed in the implementation referred to the baseline B-n. The flowchart can therefore be applied several times, substituting B-n with (B-n)+1, ..., B respectively.



#	Description	Who
E1	<p>The triggering event is an interoperability issue detected in the frame of an existing implementation referred to the last legal release (first legal or maintenance) of any baseline equal to or older than the one currently in force.</p> <p>It is assumed that prior to this event, it has been checked that the interoperability issue is due to a gap/inconsistency in the set of specifications forming the concerned baseline <b>B-n</b> last legal release (i.e. the concerned on-board and trackside assemblies are compliant with the last legal release of the baseline <b>B-n</b>) and that the existing recommendations included in the application guide of the concerned baseline <b>B-n</b> have been followed.</p>	Core Team, CER,EIM,UNIFE
A1	<p>The possible mitigation measure(s) (e.g. restriction of use of some function, engineering guideline, ...) shall be investigated, in the light of the specific trackside implementation where the reported issue comes from, but also in the perspective of other existing or future implementations.</p> <p>This investigation can be assigned by the Control Group to an ad-hoc temporary task force, and could require the availability of experts from the sector, with expertise and knowledge that could be of a larger/different scope than pure domain expertise</p>	Core Team, CER,EIM,UNIFE
D1	<p>Can the mitigation measure(s) be relevant to any existing or future implementation referred to the baseline <b>B-n</b> last release? If yes, the process shall go to <b>A6</b>, otherwise it shall go to <b>D2</b></p> <p>Note: in other terms a mitigation measure, which can only be relevant to a single project, could not be published in the baseline <b>B-n</b> application guide</p>	Control Group
D2	<p>Was the issue solved in the context of the CCM or in other terms does the baseline <b>B</b> legal release currently in force include a solution which addresses the issue?</p> <p>If yes, the process shall go to <b>D7</b>, otherwise it shall go to <b>D3</b></p>	Control Group
D3	<p>Is the issue still relevant in the context of the baseline <b>B</b> legal release currently in force?</p> <p>If the issue is no longer relevant (i.e. due to functional changes or other gap/inconsistency fixes that occurred when building the baseline <b>B</b> legal release), the process shall be go to <b>A4</b>, otherwise it shall go to <b>D4</b></p>	Control Group
D4	<p>Is there an existing CR intended for baseline <b>B+1</b>, which covers the issue?</p> <p>If yes, the process shall go to <b>D8</b>, otherwise it shall go to <b>A3</b></p>	Control Group
A3	<p>A new CR shall be raised and solved, in the frame of the creation or the consolidation of the baseline <b>B+1</b>. When the CR is set to "Analysis completed", the process shall go to <b>D8</b></p>	Core team, WGs
D7	<p>Can the solution included in the baseline <b>B</b> be reused as such for the baseline <b>B-n</b>?</p> <p>If yes, the process shall go to <b>A8</b>, otherwise it shall go to <b>A4</b></p> <p>Note: the solution included in the baseline <b>B</b> could not be reusable e.g. because it is not technically backward compatible or because it refers to clause(s) not existing in the baseline <b>B-n</b></p>	Control Group

<b>D8</b>	Can the CR solution designed for the baseline <b>B+1</b> be reused as such for the baseline <b>B-n</b> ?  If yes, the process shall go to <b>A8</b> , otherwise it shall go to <b>A4</b>  Note: the solution designed for the baseline <b>B+1</b> could not be reusable e.g. because it is not technically backward compatible or because it refers to clause(s) not existing in the baseline <b>B-n</b>	Control Group
<b>A4</b>	A new CR shall be raised and solved, in the context of the baseline <b>B-n</b> . However, the operation of trains compliant with a newer baseline, on lines where the correction would be applied, shall be taken into account when deriving the solution (i.e. impact on trains compliant with newer baseline should be avoided to maintain interoperability).  When the CR is set to "Analysis completed", the process shall go to <b>A8</b>	Control Group, Core team, WGs
<b>A6</b>	The application guide of the baseline <b>B-n</b> is updated, in order to include the solution addressing the interoperability issue.	Core team, WGs
<b>A8</b>	The solution addressing the interoperability issue is incorporated in the concerned document(s) of the TSI CCS/OPE annex A, in order to create a new maintenance release of the baseline <b>B-n</b> .  Since there can only be one release of the TSI CCS/OPE annex A enforced in the Official Journal at a time, the concerned document can be: <ul style="list-style-type: none"> <li>• if n=0, any of the existing document(s) in the TSI CCS/OPE annex A where the error(s) must be fixed</li> <li>• if n&gt;0, an ad-hoc document in the TSI CCS/OPE annex A, intended for the maintenance of older baselines.</li> </ul>	Core team, WGs

## 2.5. Records and other output

<i>Record Name</i>	<i>Storage Responsible</i>	<i>Storage Location</i>	<i>Minimum Retention Time</i>
CR form	CM	CCM tool	10 years
Supporting documents attached to the CR form	CM	CCM tool	10 years

<i>Other Outputs</i>	<i>Storage Responsible</i>	<i>Storage Location</i>	<i>Minimum Retention Time</i>
ERA recommendation to EC	CM	Agency Extranet	10 years
Minutes of meeting of the Board, the Control Group and the Core team	CM	Agency Extranet	10 years
Product/Service Catalogue	Product/Service Owner	Agency Extranet	10 years