

Purpose:

This short document is intended to provide a very basic introduction to the Common Safety Method for Risk Evaluation and Assessment (CSM-REA) for the benefit of Project Managers and Project Engineers.

Background:

CSM is a legal requirement and authorised by a European Commission Regulation (EC) [No 352/2009 of 24 April 2009].

The objective of CSM is: “*to facilitate mutual recognition between Member States of risk evaluation and assessment processes*”.

Principles:

The railway is a system and any changes to a system can sometimes have unplanned consequences. The purpose of the Common Safety Method is to ensure that any planned change to the ‘railway system’ is conducted safely and in such a way that all changed/new risks arising from the change are identified and mitigated.

This is achieved by identifying:

- What is the risk profile ***before*** the change?
- What is the risk profile ***after*** the change?
- Is the change in risk ***significant***?
- Can you ***manage*** the risks introduced by the change?

The test for significance applies to ‘safety related’ changes in three principle areas:

- **Technical:** changes to a structural railway sub-system, e.g. an infrastructure project.
- **Operational:**
 - a) Operational changes driven by a technical change, e.g. introduction of bi-directional operation on a previously uni-directional railway line; or
 - b) changes to the operation of the railway system, e.g. running more trains; or
 - c) changes to the operating rules of the railway system.
- **Organisational:** e.g. changes to management structure, changes to an infrastructure maintenance regime.

The test for significance of any change in risk for any of the above principle areas is conducted in the light of the following criteria:

- a) ***additionality***: recent or concurrent changes may be insignificant on their own, but significant overall
- b) ***novelty***: new to the railway sector, or new for the organisation implementing (with uncertainty of outcome);
- c) ***complexity***: a complex change is higher risk (with uncertainty of outcome);
- d) ***failure consequence***: credible worst-case (“what’s the worst that could happen?”);

- e) **monitoring**: if you can monitor the change throughout the system life-cycle and react / intervene, the risk is lower;
- f) **reversibility**: the inability to revert to the previous system before the change - more for process changes - not usually applicable to technical changes;

There is no order or priority in using these criteria, nor are there thresholds to measure against.

Application:

Most railway infrastructure projects on the main-line railway will involve technical and operational change; as such, CSM may well apply.

Like-for-like renewals will be the main projects that are **not significant** even if they are major projects. The logic being that (by definition) a like-for-like renewal should not change the risk profile of the extant railway. However, it is recommended that CSM is applied as a means of identifying risks and ensuring they are mitigated.

CSM must be applied at the beginning of a project:

- to analyse the safety of the various engineering solutions available;
- to inform the engineering activity/resources required and the likely timescales from commencement to commissioning, for each engineering solution;
- to inform the choice of the preferred solution; and
- to confirm that the selected solution can be delivered safely.

CSM must also be applied:

- iteratively during the project, and
- (most importantly) when **changes** are proposed that could affect previous CSM assessments.

At the outset of a project, the **Proposer**¹ (usually NR) conducts a review of the railway (as a system) with the aim of identifying the impact on risk that the changes will cause. In practical terms this means a hazard identification exercise (HAZID), which:

- Should take account of the existing risks as part of the present railway system.
- Consider what new risks are introduced as a result of the change
- Consider whether any existing risks are made better or worse

Responsibility for implementing the CSM rests with the Proposer. Getting the Proposer to initiate / undertake the above is often a major challenge!

Assessment:

For '**Significant**' projects, the **CSM Regulations** require that the process is both monitored and assessed. Assessment for '**significant**' projects must be done **independently** of the project team. Responsibility for undertaking this assessment rests with the **Proposer** (the organisation responsible for initiating the change). The **Proposer** chooses an independent **Assessment Body**, who:

- must meet criteria in the CSM regulation

¹ CSM defined term - the **Proposer** is the entity who is initiating the change

- checks that CSM has been followed and checks the results of the assessment (audit process)
- should be involved from the beginning of the project (!!)
- produces safety assessment report (can be positive or negative!)

The Assessment Body is primarily looking for evidence, including:

- the definition of the system that is being changed is adequate
- process for **Hazard Identification** was robust and complete
- the classification of hazards is justified
- the hazard record contains the right information about the hazards, associated safety measures, and responsibilities
- hazards and the safety measures are closed and validated

The Assessment Body will usually carry out their review at the following stages in a project life-cycle:

- at the end of 'Option Selection' (NR GRIP 3)
- at the end of 'Single Option Development' (NR GRIP 4)
- before Commissioning (NR GRIP 5/6)
- Post Commissioning (before end of NR GRIP 8)

The Assessment Body will review each stage and, after comments resolution, issue a **Safety Assessment Report**.

There are several companies who can undertake the role of the assessment body.

Summary

The railway is a system. The Common Safety Method requires that a project that introduces a **change** to the extant risk profile assesses:

- What is the risk profile **before** the change?
- What is the risk profile **after** the change?
- Is the change in risk **significant?**
- **CSM = Assess the change in risk**
- Demonstration that you **can** manage the **change** in risk profile.

END

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