"SAFECULTURE"

A Method for assessing organisational Safety at Interfaces

INTERNATIONAL
UNION OF RAILWAYS

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"SafeCulture" is a method and toolkit developed by UIC.

SafeCulture is a tool to predict and counteract the potential threats to safety that could arise from differences in safety cultures between organisations required to interface with each other across international or organisational boundaries.

"SafeCulture" is available as a method – a report of 45 pages from UIC obtained by contacting the Département Infrastructure. In 2004 the contact person is Theodor Gradinariu - chargé de mission "Infrastructure Department" (gradinariu@uic.asso.fr). For experiences and questions SafeTrack users can also be contacted, see section "Network of SafeCulture users".

"SafeCulture" has been developed by the UIC project Safety Culture at Interfaces (SCAI) between February 2003 and March 2004.

The UIC project had five main objectives:

- *To understand current approaches to safety culture and the differences between those approaches across rail companies in Europe*
- *To develop a clear understanding of the safety issues that could arise when different cultures are required to interface with each other*
- *To devise practical techniques to enable railway organisations to predict and counteract any problems that arise as a result of new interfaces being created between cultures*
- *To develop a vision and desired characteristics of a future improved safety culture and improved cultural interfaces*
- *To provide support for addressing interface problems to the Safety Directive.*

What is "SafeCulture"?

As legislation is introduced to ensure the interoperability of railway systems across Europe, the issue of safety culture has become a subject of considerable interest to the rail industry. This interest is partly due to the recognition that organisational culture has a direct impact on safety, and that the different cultures that exist in organisations will be increasingly required to interface with each other.

"SafeCulture" is a method consisting of:

- a questionnaire as an aid to describe and improve safety culture cross interfaces, and
- a scenario toolkit to describe and improve critical scenarios at interfaces
- several checklists and planning tools to assist with the analysis

How should "SafeCulture" be used?

"SafeCulture" should be used in a workshop, with 6-8 participants from groups/organisations meeting at interfaces. Each workshop should consist of two main activities:

- **Assessment and development of safety culture** by using a questionnaire. This should be done in two steps. First each participant will complete the questionnaire on their own, and then subsequently in a group. Around 20 questions will be discussed. Actions to improve safety should be agreed in a group setting.
- **Discussion of important scenarios** selected by the participants. Two to four interfacing scenarios will be elaborated. The scenario analysis should be done in a group setting. A scenario is a description of an interface between two cultures where safety problems may arise. The toolkit encourages users to consider the 'safety critical functions' that people carry out, and that might be threatened by the nature of the interface between two different ways of working. Actions to improve safety should be agreed in a group setting.

The actions that are identified and agreed upon should be assigned to a responsible person and given target date.

What should be done before the "SafeCulture" workshop ?

Management should decide on which interfaces and challenges to discuss. The important stakeholders and participants in a workshop must be identified, and participants from the management team must be selected.

Effort to perform a "SafeCulture" workshop?

The effort needed in a "SafeCulture" analysis is around 3 to 4 day's effort from the involved organisation. The main activities are:

Effort	Activities
½-1 Day	Preparation and Organisation –Identify relevant scenarios and identify people to attend the workshop, fill out questionnaire in advance.
2 Day Workshop performed	Assessment and reflection of Safety Culture cross interfaces Scenario analysis and reflection by an experienced team Actions – as agreed in team-work
½-1 Day	Follow up of agreed actions, to insure that action is taking place by the proper responsible person

What should be done after the "SafeCulture" workshop?

Management should follow up and implement the agreed actions. At a later time the interfacing organisations could assess how safety culture at their interfaces has improved as a result of the actions taken.

How has "SafeCulture" been developed?

"SafeCulture" has been developed via research, interviews, workshops and pilot testing. The workshops took place at:

- UIC in Paris on 25/9 and 26/9-2003, involving ZSR, Railway Safety, NMBS/SNCB, Jernbaneverket(JBV), UIC/SNCF and MAV
- SINTEF in Trondheim on 30/10-2003, involving the Norwegian undertakings Connex, BaneService, NSB, JBV, FlyToget, Cargonet and Lokomotivmandforbundet (Union of Train Drivers)
- EUROSTAR in London on 23/4-2004, discussing the experience from EUROSTAR related to interface issues

The pilot testing of "SafeCulture" took place at:

- MÁV/Hungary in Budapest on 18/2 and 19/2 - 2004. Project manager Laszlo Fenyves at fenyvesl@axelero.hu and responsible András Szabó
- BV/Sweden in Stockholm 26/2 and 27/2 – 2004. Project Manager Jan Christensen in the Swedish BanVerket, jan.christensen@banverket.se

The user experience from the conducted pilot tests was agreed to be very positive.

Network of "SafeCulture" Users

User experiences can be benefited from by contacting the project managers of the pilot tests:

- Laszlo Fenyves, MÁV — fenyvesl@axelero.hu
- Christensen in the Swedish BanVerket, — jan.christensen@banverket.se
- Stig O. Johnsen from SINTEF — stig.o.johnsen@sintef.no

Or by contacting the participants of the workshop:

1. Josef Molko, Ingrid Tribulova, ZSR — molko.jozef@zsr.sk
2. Anette Christiansen, Jernbaneverket — anette.christiansen@jbv.no
3. Louise Ragget, Railway Safety — louise.raggett@rssb.co.uk
4. Guido Galle, NMBS/ SNCB — guido.galle@b-rail.be
5. Jørn Vatn, NTNU and Jernbaneverket — jorn.vatn@sintef.no

Assessing Your "SafeCulture" by Using the Questionnaire

The aim of the questionnaire* is to help you and your organisation to develop an understanding of how to manage the differences between safety cultures at interfaces between rail companies.

Safety culture is a challenging concept. We feel it is necessary to define Safety culture clearly and to exemplify what is considered to be an excellent safety culture. When talking about safety culture at interfaces we propose the following definition:

Safety culture at interfaces focuses on characteristic interaction patterns, i.e. how people collaborate and communicate at interfaces.

With an increased demand for transport across Europe, safety culture across interfaces and borders are of high importance in railway undertakings. Competition could increase as a consequence of deregulation and outsourcing. This creates new challenges for co-operation and communication across organisational borders as well as across national borders.

The aim of "SafeCulture" is to improve safety. This is achieved through evaluations and discussions of key areas related to safety culture at interfaces.

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* *Our toolkit is developed to suit the railway industry. In the process of developing "The Safety Culture" we have been inspired by Shell's Hearts & Minds program. Shell has used the program for several years with excellent results. In addition we have used research from Hudson and Westrum.*

The "Safety Culture" questionnaire consists of questions organised in four different areas, all of high importance to challenges of safety culture at interfaces. There are 21 questions designed to assess an organisation's safety culture level. Three key levels of safety culture are described. The idea is to evaluate your organisation at each question, and then place it within one of range of safety culture levels. The "SafeCulture" questionnaire is illustrated in **Figure-1**.

Questions		Areas	Levels of "SafeCulture"				
			Denial culture (Pathological culture)	Reactive	Rule based or bureaucratic culture (Calculative culture)	Proactive	Ideal culture (Generative culture)
Organi	1	How is the attitude and involvement of management in safety issues reflected in day-to-day work?	Roles and responsabilities concerning safety are not clearly defined		Management is aware of challenges for safety culture in interfaces, and says they take it seriously		Management encourages workers to participate in safety work and listen to their opinions
	-	-	-	-	-	-	-
	-	-	-	-	-	-	-
	-	-	-	-	-	-	-
Learni	19	How are audits and reviews performed?	There is compliance with statutory HSE inspection…		There is a regular, scheduled HSE audit program		HSE aspects are integrated in the audit…

Figure 1: The "SafeCulture" Questionnaire

Exploration of Important Interfaces through Scenario Analysis

The use of the methodology should be related to an actual interface issue of interest. The tool could also be used to consider a number of hypothetical but realistic cultural interface scenarios for the particular company, and to develop strategies for dealing with them.

We have structured some of the challenges at interfaces in the following broad areas, such as:

1. Infrastructure (Signalling systems, Communication equipment and Rolling stock)
2. Organisation (Structure, Responsibilities, Management policies and routines to Co-operate cross interfaces)
3. Routines (Procedures, Rules, Manuals and Checklists)
4. Environment (Climate/nature, Legislation, Authorities and Inspectorates (structure and policies), Languages)
5. Individual and Team (Training, competencies and collaboration)

As an aid in the discussion we have made a "Checklist for structural differences" in the "SafeCulture" methodology with some examples of differences.

These differences must be explored in a realistic scenario.

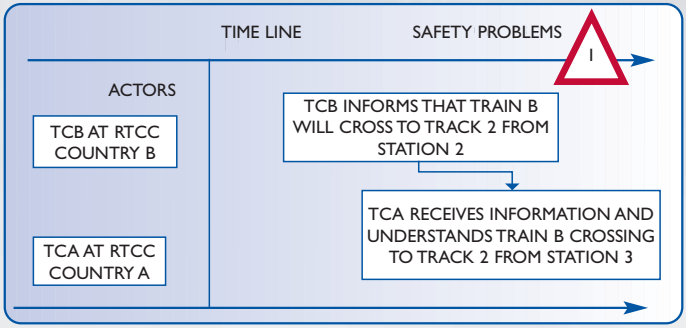
What is a Scenario?

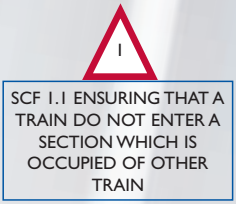
The scenario could be based on known accidents or incidents. It could be also be made up by the railway undertaking based on future challenges or known problems. The scenarios should be selected on the basis of the following criteria:

- The scenarios should be realistic. The involved parties should feel that they really might occur.
- The scenarios should have potential of major losses.
- The involved parties should recognise that there is an actual or potential problem with the existing status.

In order to describe and develop the scenario the STEP technique has proven to be an invaluable part of the "SafeCulture" toolkit (STEP - Sequentially Timed Events Plotting diagram) as documented in Hendrick, K. and Benner, L. (1987): Investigating accidents with STEP.

A STEP diagram illustrates the actors and events in a time-line diagram. Here, an example is given, where two trains are crossing, and a train may be entering a section that is occupied by another train.





The STEP methodology has been used cross interfaces and has improved communication and understanding cross cultural and language barriers.

The Scenario Analysis addresses alternative sequences, i.e. "what could have happened if ". Based on the discussions in the workshop, safety problems are identified and actions are agreed.

Several scenarios have been outlined in "SafeCulture" (See Appendix A of the full report) to help to start the scenario analysis. The scenarios are:

- S1: Initiating emergency stop of train
- S2: Approach to level crossing
- S3: Events before and after SPAD (Signal Passed at Danger)
- S4: Detection of errors in track routing
- S5: Depart station
- S6: Assisting a failed train as a result of traction power
- S7: Accident and incident response to a major train accident
- S8: Accident because of differences in Infrastructure

Steering group and Project team

"SafeCulture" is a method developed by UIC in cooperation with BV, IRISH RAIL, JBV (JERNBANEVERKET), MAV, PRORAIL, RSSB (Rail Safety and Standards Board), NETWORK RAIL, SNCB, SNCF, ZSR and ÖBB.

The project team has consisted of scientist from SINTEF, a non-profit research foundation.(For more information see: www.sintef.no)

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