



European Railway Agency



An agency of the
European Union

Safety Culture and Safety Management

Dialogo Ferroviário
Brasilia, 24 May 2016

Richard Lockett,
Head of Strategy, Research and International Standards

Why is safety culture important?

- › Rail leaders should assume **accountability** for the safety of their operations, because;
- › They are the people **in control** of the operation
- › **Safety** means avoiding or reducing accidents
 - › Accidents occur surprisingly even if there are pre-cursors
 - › Accidents cause financial losses
 - › Reputations are highly **sensitive to accidents**
- › **Safety** is one of **rail transport selling points**,
- › Safety accountability means **leadership commitment to safety**, reflected in **organisational culture**

Safety culture is the environment within an organisation which leads to a common understanding and prioritisation of safety by all staff at every level and in all activities within the organisation.

Safety Culture is reflected, through the Safety Management System (SMS) in the

- organisational structure and people management;
- mission and values;
- processes, procedures and rules;
- leadership and decision making; and
- proactive ownership of safety management responsibility and continuous improvement.

How can safety culture contribute to safe operation?



The rise of safety management systems

- › 6th July 1988
- › 167 lost, only 62 survivors
- › Lord Cullen's recommendations (106) move away from prescription to risk awareness and safety cases as a more effective system.



What is the relation between Safety Culture and Safety Management?

- › “Through the safety management system, infrastructure managers and railway undertakings shall promote a culture of mutual trust, confidence and learning, where staff is encouraged to contribute to the development of safety while confidentiality is guaranteed.”
- › Safety Management System is the foundation of a sound safe railway operation and safety framework
- › Safety culture drives the best safety management systems

What should be considered within a Safety Management?

Basic elements of the safety management system

The basic elements of the safety management system are:

- (a) **a safety policy** approved by the organisation's chief executive & senior management and communicated to all staff;
- (b) **qualitative and quantitative targets** of the organisation for the maintenance and enhancement of safety, and plans and procedures for reaching these targets;
- (c) **procedures for safe operation** to meet existing, new and altered technical and operational standards or other prescriptive conditions throughout the lifecycle of equipment and operations
- (d) **procedures and methods for carrying out risk evaluation** and implementing risk control measures whenever a change of the operating conditions or new material imposes new risks on the infrastructure or on operations;
- (e) **provision for training of staff** and systems to ensure that the staff's competence is maintained and tasks carried out accordingly;
- (f) **arrangements for the provision of safety relevant information** within the organisation and, where appropriate, between organisations operating on the same infrastructure;
- (g) **procedures to ensure that accidents, incidents, near misses and other dangerous occurrences are reported**, investigated and analysed and that necessary preventive measures are taken;
- (h) **provision of plans for action and alerts and information in case of emergency**, agreed upon with the appropriate public authorities;
- (i) **provisions for recurrent internal auditing** of the safety management system.

The **SMS** must:

- be **documented** in all relevant parts;
- describe the **distribution of responsibilities** within the organisation of the IM or the RU;
- show how control by the **management** on different levels is secured;
- show how **staff** and their representatives on all levels are involved;
- show how **continuous improvement** of the safety management system is ensured.

All these requirements shall be included in the SMS

The requirement of the **SMS** shall be fulfilled **through**:

- **safety policy** and corporate **safety targets**;
- **compliance** with standards or other prescriptive conditions;
- change management;
- risk management;
- operational and front-line **staff competence management**;
- **communication** and info exchange, **document** management;
- **emergency** management;
- reporting of unexpected outcomes;
- internal **auditing** of the SMS.

All these elements shall be defined in the organisation of the company and shall be **DOCUMENTED**

SMS as framework of safety-related process

› Identification (mapping) of safety-related processes.

› **A process is a sequence of** interdependent and linked **procedures which**, at every stage, **consume one or more resources** (employee time, energy, machines, money) **to convert inputs** (data, material, parts, etc.) **into outputs**. These outputs then serve as inputs for the next stage until a known goal or end result is reached. [Business.dictionary.com]

› **Operational processes:** preparation of trains, shunting, loading of goods, driving trains, timetabling, operation of railway lines etc.

› **Business related processes:** planning, purchases, Human resources, marketing, etc.

› **Technical processes:** processes related to design, manufacturing, maintenance, disposal of equipment, components, vehicles, infrastructure & railway lines during the whole life-cycle

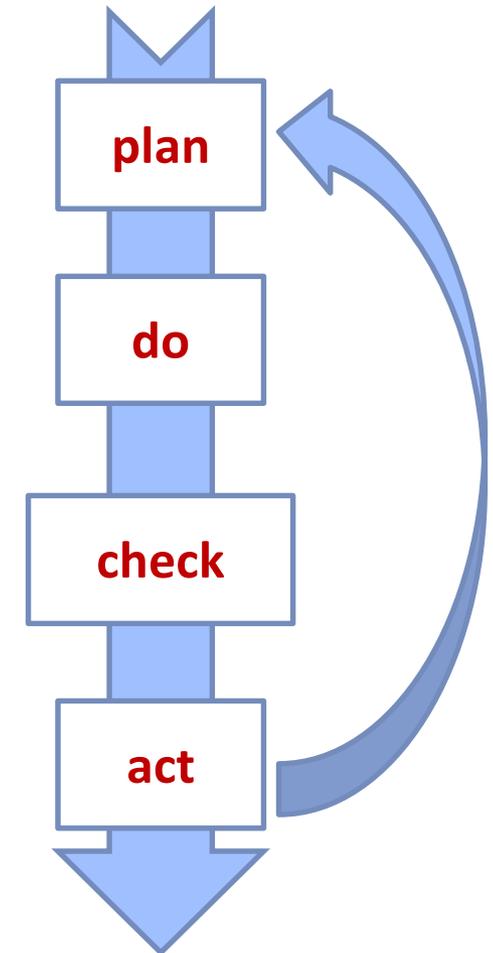
SMS as framework for safety-related process (IV)

- SMS scope
- SMS elements to be considered
- Safety policy
- Applicable requirements
- Safety objectives / corporate targets
- Management commitment

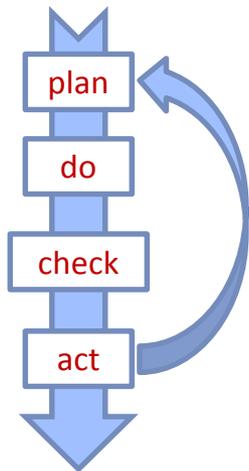
- Structure, responsibility
- Training
- Communication
- SMS documentation
- Configuration control of safety information
- Delivery of operation
- Emergency procedures

- Monitoring of safety performance / Analysis of events
- Non conformities/corrective/preventive action
- Collection of safety data
- Internal audits

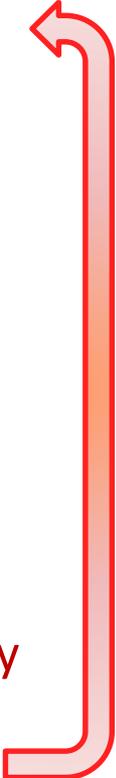
- Management review
- Organisational learning



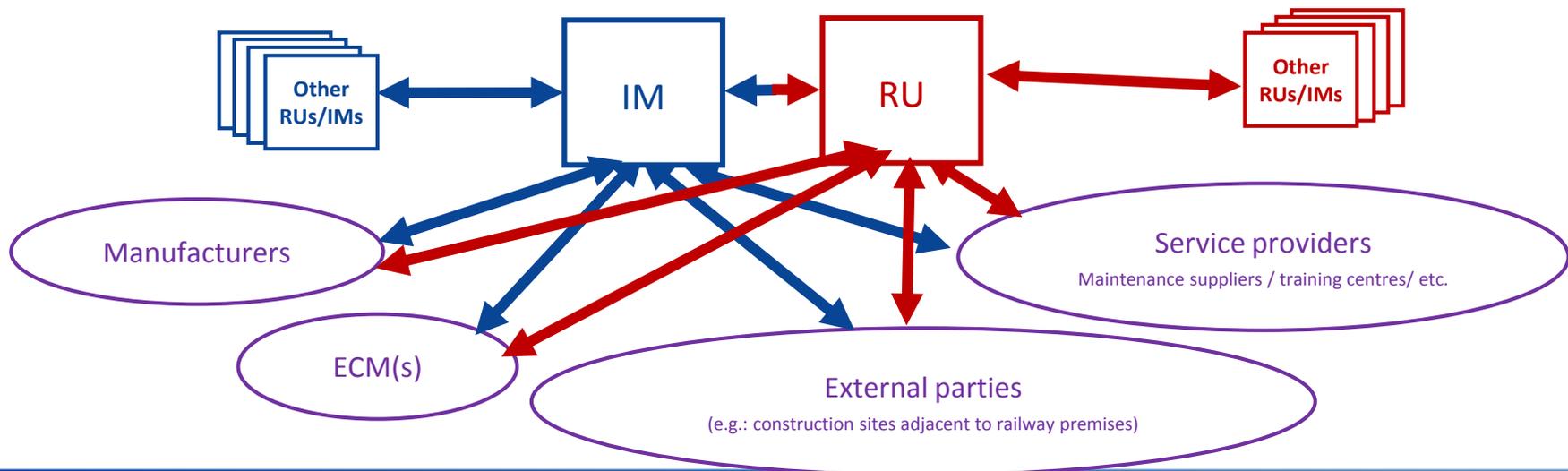
- › SMS does not replace the existing set of safety related technical and operational rules.
- › SMS provide a structured framework to ensure that the organisation:



Is designed to deliver operation in a safe way
Operational and support processes are deployed
Effectiveness of processes is monitored
Preventive or corrective measures are taken

- › SMS has a strong component of 'risk awareness':
 - ↓ Identification of hazards, interfaces and shared risks
 - ↓ Identification of appropriate measures to prevent or mitigate the risks
 - ↓ Implementation of measures
 - ↓ Monitoring of measures
 - ↓ Reiterative risks assessment, considering the changing environment (mainly through **monitoring** performance)
- 

- › RUs and IMs have to manage all operational-organisational-technical risks
 - Related to their specific activity
 - Inherent at interfaces and shared risks within parties involved in the railway activities
 - Originating by external parties

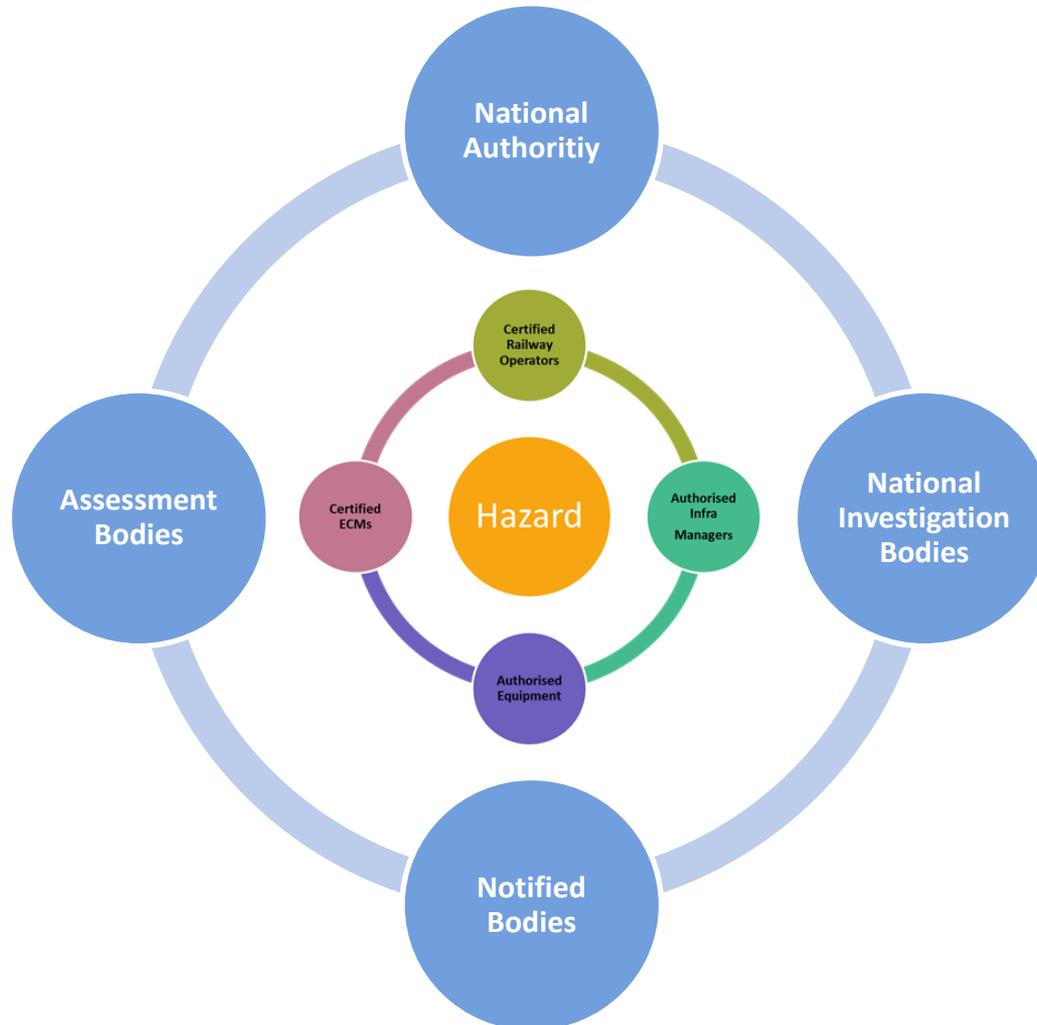


Safety Management data reporting - benefits

- › More accurate and robust data means:
- › Robust statistics to complement expert's judgement in Risk Assessment
- › Better decision making for safety management, continual improvement and regulation
- › Evidence-based policy
- › More learning from accident and incidents: trend analysis and risk modelling
- › Enhancement of safety culture







- › Permissioning scheme for equipment
- › Permissioning scheme for safety management systems
- › Maintenance scheme for rolling stock
- › Independent Supervision
- › Independent Accident Investigation
- › Independent Assessment Bodies
- › Defined responsibilities in law (cannot subcontract responsibility)
- › When there is a need for a Common Approach – “Common Safety Methods”
- › Monitoring at a National Level

Making the railway system work better for society.

era.europa.eu

Follow us on Twitter: [@ERA_railways](https://twitter.com/ERA_railways)