



# System Safety and Risk Management The View of a National Safety Authority

**Ralf Schweinsberg**

**Vice-President Eisenbahn-Bundesamt**

**IRSC 2010**

**Theme 3: Keep Railway Developments on the Right  
Track**



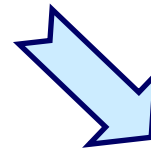
# Content

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- I. **Short introduction to Eisenbahn-Bundesamt (EBA)**
- II. **Safety Responsibility in the Railway Sector**
- III. **System Safety and Risk Management**

**Eisenbahn-Bundesamt = German National Safety Authority since 1994**

## *Responsibilities*



### **Art. 16 (2) Safety Directive, e.g.:**

- Safety certification / Authorisation
- Authorisation for placing in service
- Supervision
- Market surveillance

### **Other tasks, e.g.:**

- Licensing of Railways
- Financing infrastructure investment
- Planning approval
- Maglev



## EBA Key figures

<b>Staff</b>	1.255 (incl. apprenticeship etc)
<b>Expenditures</b>	65 m € (thereof approx. 80 % for staff)
<b>Revenues</b>	42 m €
<b>Budget managed</b>	approx. 3.9 bn € (for infrastructure investment)

## Authorisations for placing in service

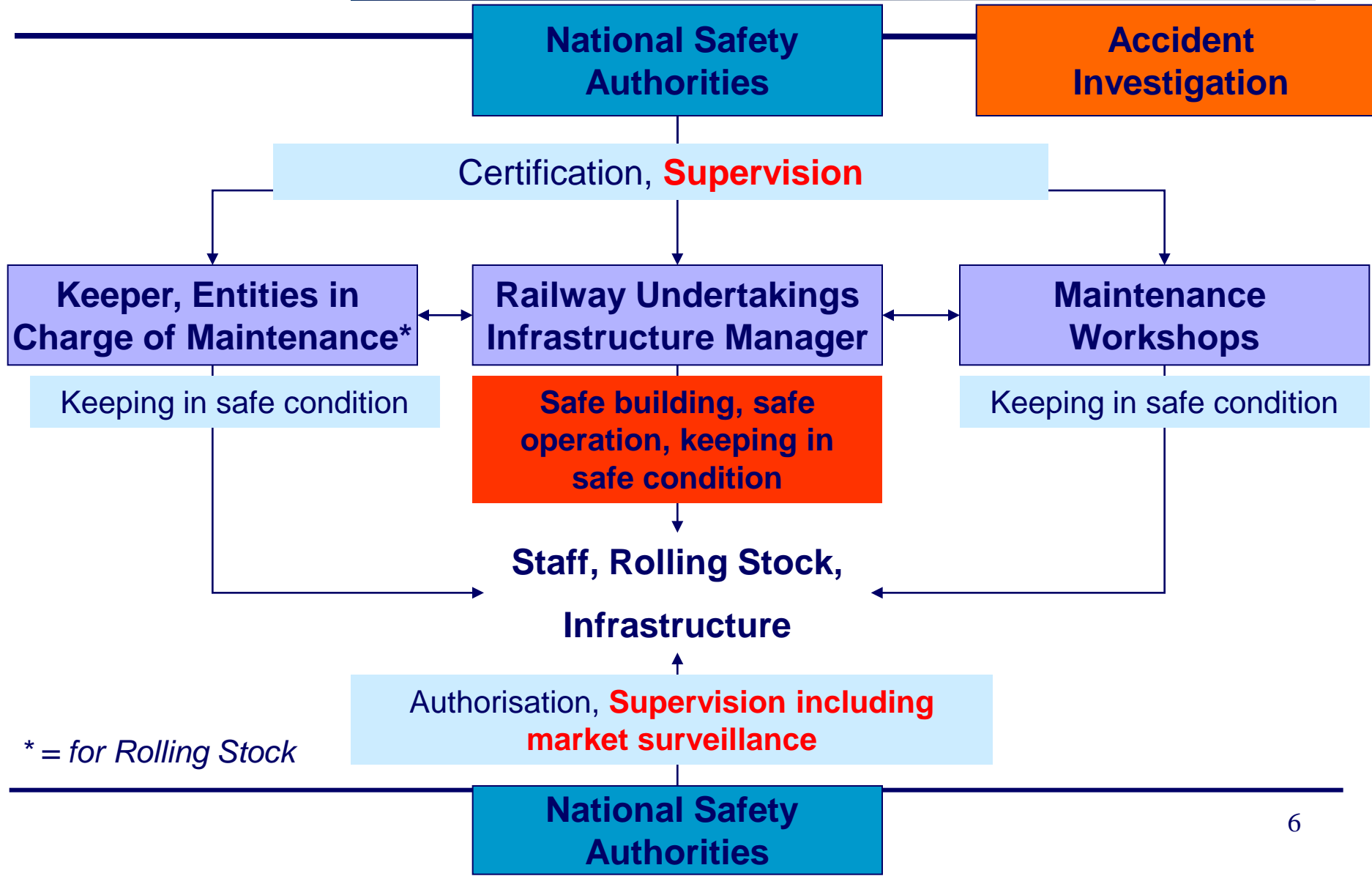
Locos/trainsets	508
Passenger coaches	182
Freight wagons	4106



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# Safety Responsibility in the Railway Sector



\* = for Rolling Stock



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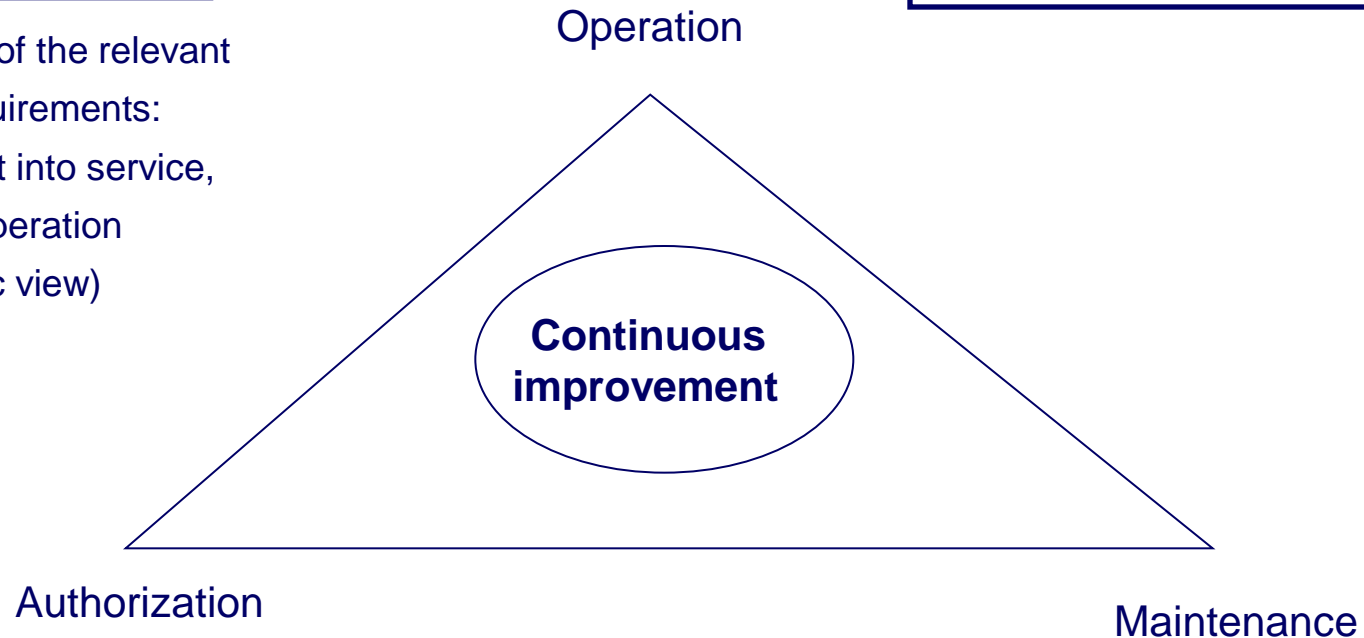
# Safety of technical systems

Safety of the technical system

Fulfilment of the relevant safety requirements:

- When put into service,
- During operation (dynamic view)

Integration of the technical system = safety management







## Example: Organisation of Safety

### Organisation of Safety by Implementation of a Safety Management System including:

- Safety Policy,
- Procedures to meet existing, new and altered technical and operational standards or other prescriptive conditions,
- **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**
- provision of programmes for training of staff and systems to ensure that the staff's competence is maintained and tasks carried out accordingly
- information transfer and documentation
- implementation of corrective processes in case of malfunctions
- internal audits

## Example: Organisation of Safety

### Risk Management as a part of the SMS, Process

To ensure system safety precedence, risk management has to follow a strictly safety related approach, main steps:

- System definition → • only that part of the system need to be considered that is part of the secific project, but including interfaces!
- Hazard Identification and Classification → • simplified process in case code of practise
- Selection of Risk Acceptance → • code of practise, reference system (actual level), explicit risk analysis -> CoP preferred!  
Procedures,
- Risk Evaluation and
- Demonstration of  
Compliance with Safety Requirements

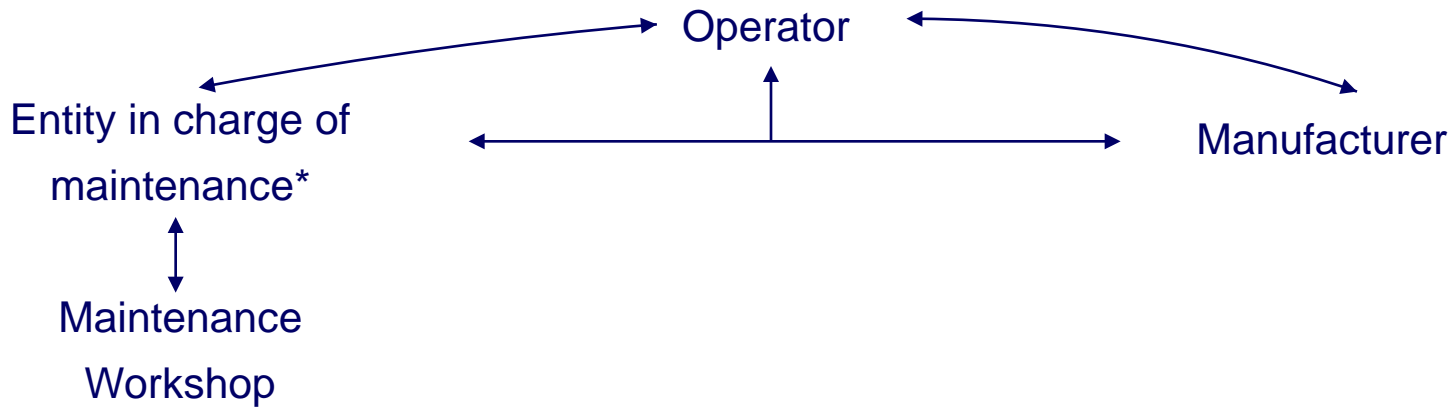
## Example: Organisation of Safety

### Risk Management as a part of the SMS, „additional functions“

- Information transfer → • transparency of the risk management procedure,
- Independent Assessment → • trust, cross acceptance
- Continuous Hazard Management → • Life cycle process
- Documentation → • Reliability of Results, necessary for continuous hazard management

## Information transfer as a relevant part of hazard management

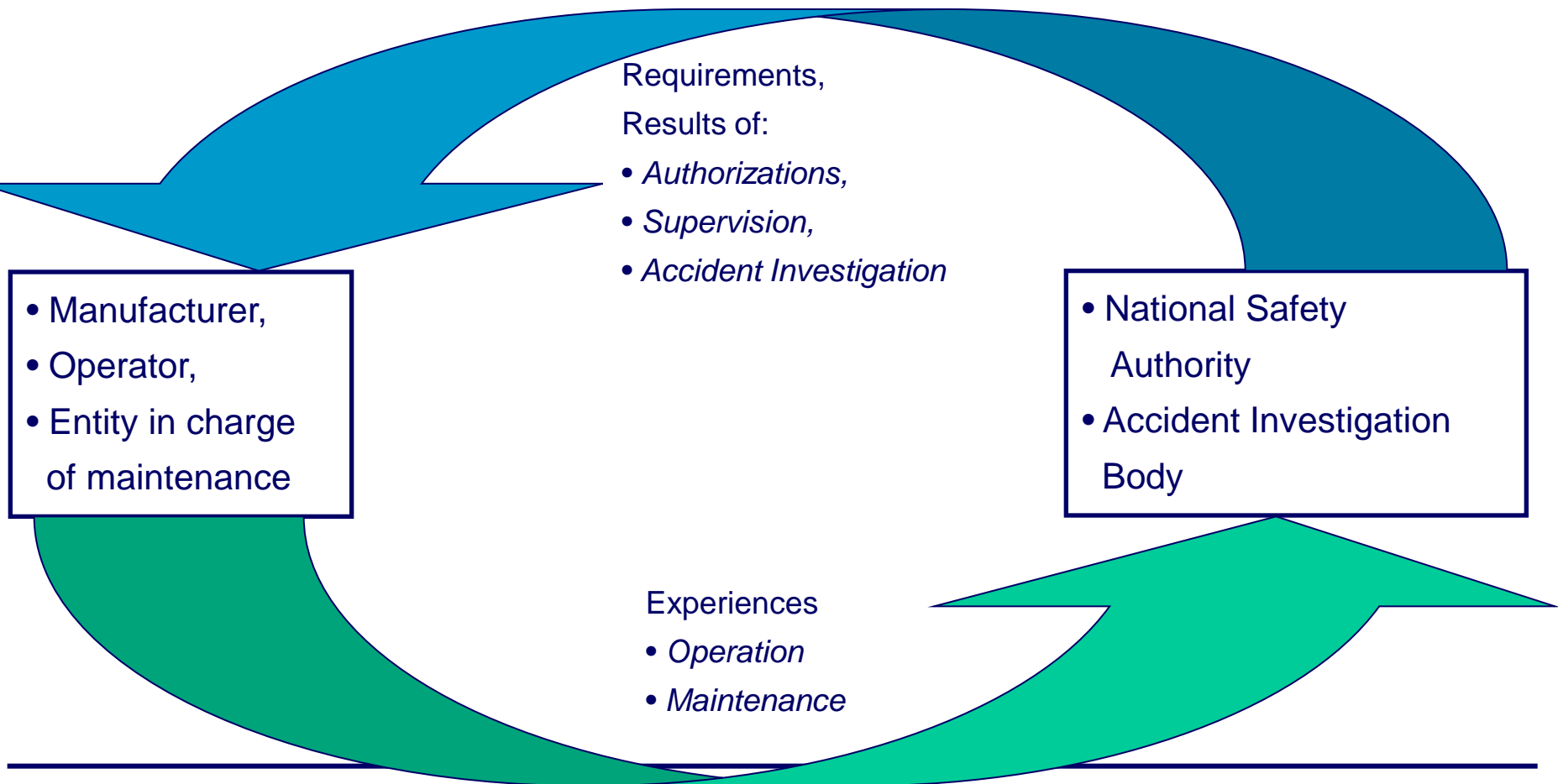
Operation and maintenance of Rolling Stock,  
example of a structured information transfer



\* Responsible for the management of the maintenance

# Interface between National Safety Authority and Operator

## Lessons learned processes





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**Thank you for your kind attendance!**



**New website:**  
**[www.eisenbahn-bundesamt.de](http://www.eisenbahn-bundesamt.de)**