Risk Management as part of the SMS

IPA Training | 12.09.2023 | Belgrade, Serbia

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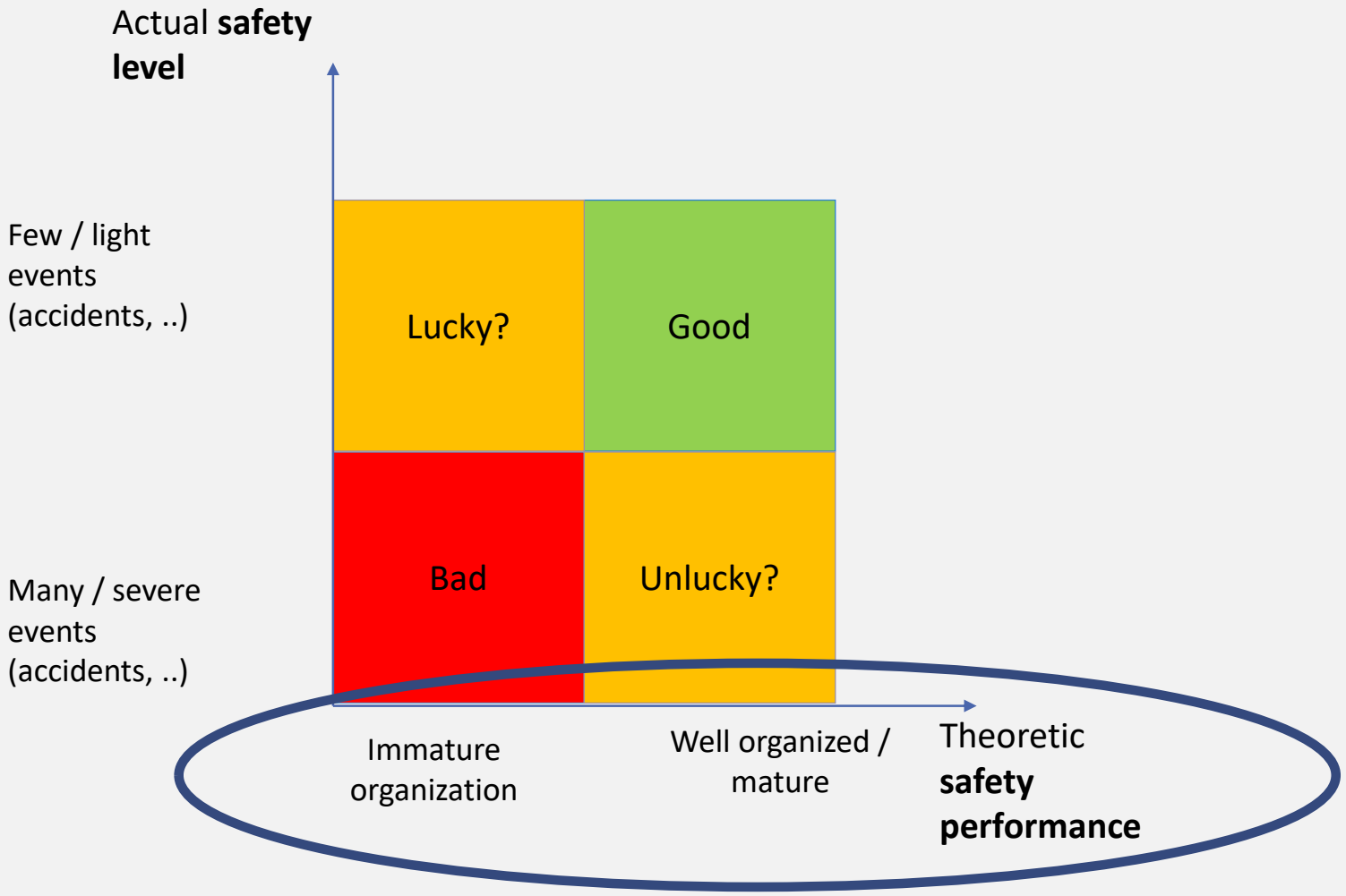

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What does an SMS look like?

Provide a brief overview of the method to evaluate an SMS’ maturity (MMM)

Safety Performance

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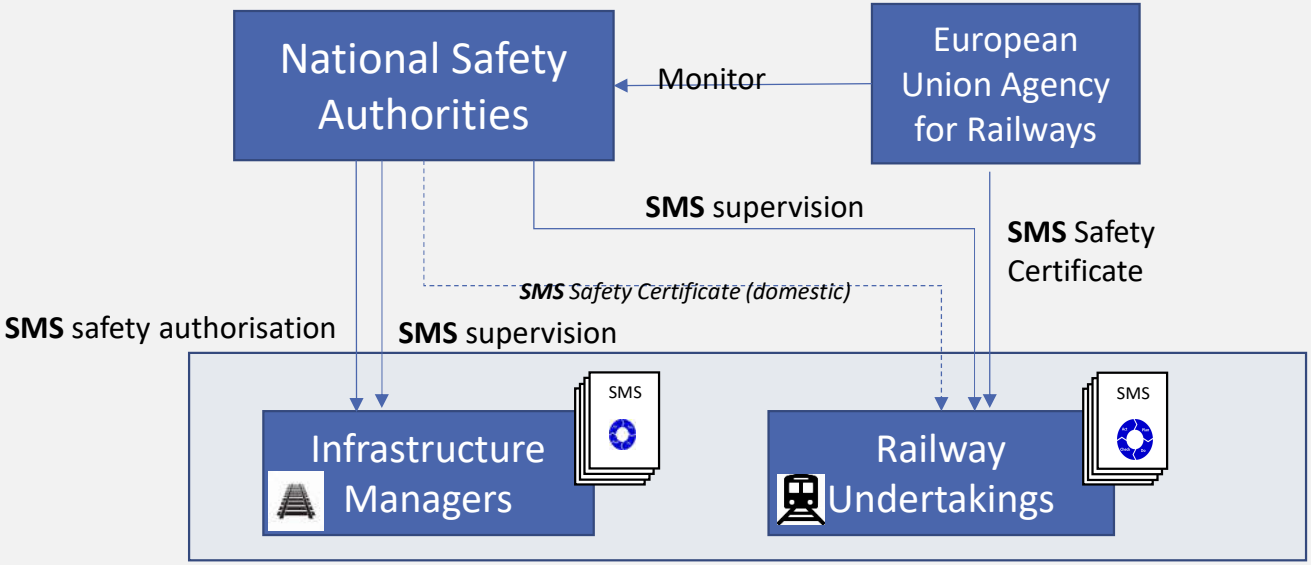
Reminder from before



Note: Safety Authorisation and Safety Certificates have a validity of **up to 5 years**

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ISO standardisation and railway SMS

- ISO has developed official procedures to be followed when developing and maintaining an international standard. In Annex SL Appendix 2 of ISO/IEC Directives Part 1 and Consolidated ISO Supplement, a High Level Structure (HLS) is adopted to use core text in every management system standard.
- Annex I and Annex II of Commission Delegated Regulation (EU) 2018/762 ensure a structure consistent with the ISO HLS, facilitating the integration of different management systems, where applicable, which share the same core organisational principles and requirements but where legal compliance and risk domains are specific to each discipline (e.g. safety, environment, quality).

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From the Railway Safety Directive to the Common Safety Method on SMS

The Regulation 2018/762 (EU) "**establishing common safety methods on safety management system requirements**" states (whereas 4):

"The common framework of the ISO High Level Structure is used to functionally cluster the requirements of the safety management system, as referred to in Article 9 of Directive (EU) 2016/798 "

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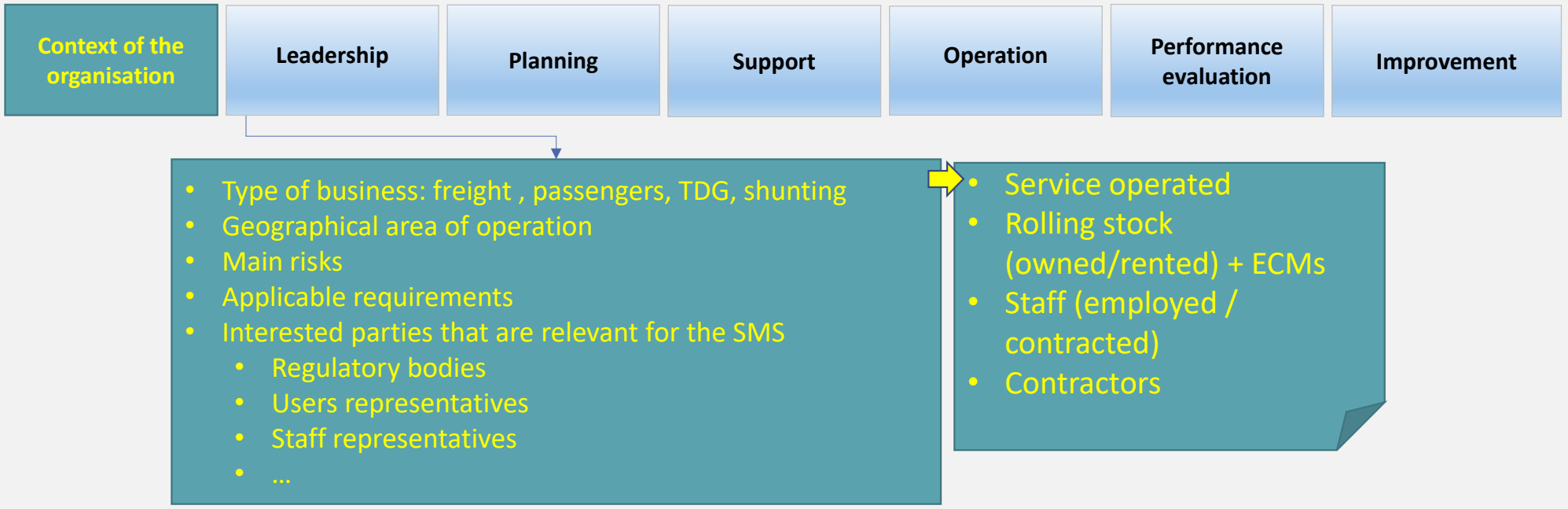
SMS / Criterion 1



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SMS / Criterion 2

Context of the organisation	**Leadership**	Planning	Support	Operation	Performance evaluation	Improvement

Leadership by examples / tone and direction of the SMS;
Management commitment
Safety policy
Roles and responsibilities
Consultation of staff and other parties
Safety culture

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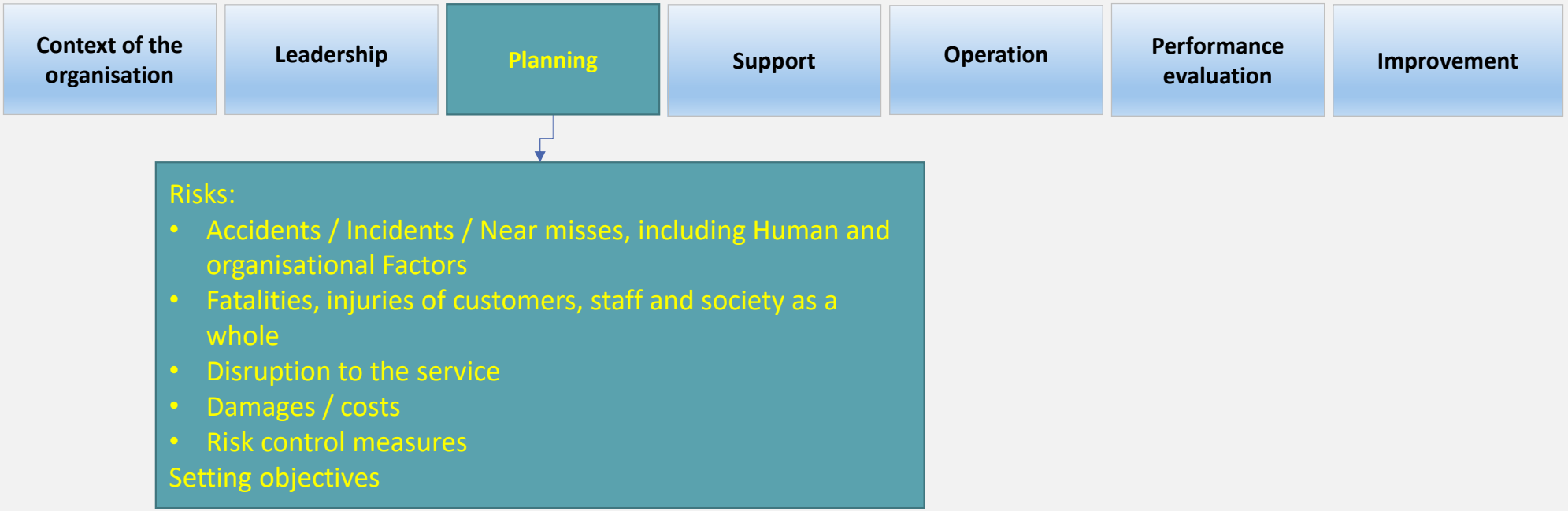
SMS / Criterion 3



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SMS / Criterion 4

Context of the organisation	Leadership	Planning	**Support**	Operation	Performance evaluation	Improvement

- Resources
- Competence management system
- Awareness
- Information and communication
- Documented information
- Integration of Human and Organisational factors

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SMS Criterion 5

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SMS Criterion 6

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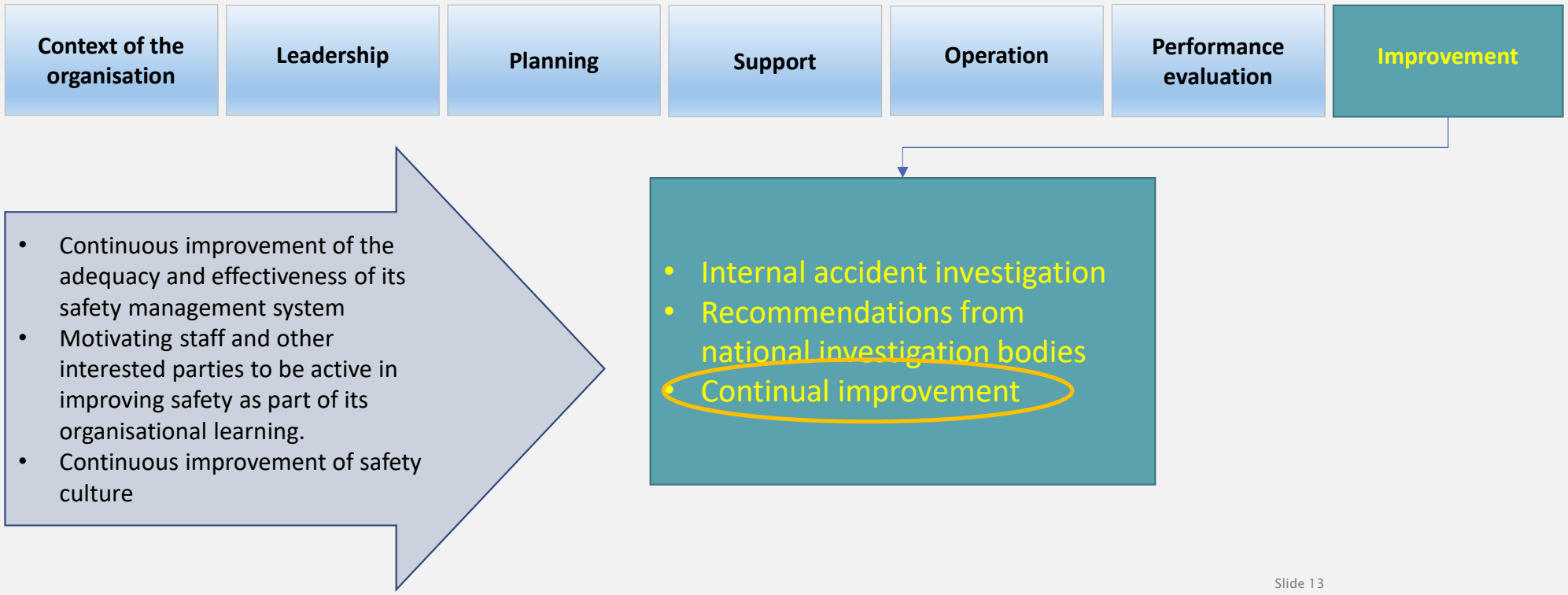
SMS/ Criterion 7



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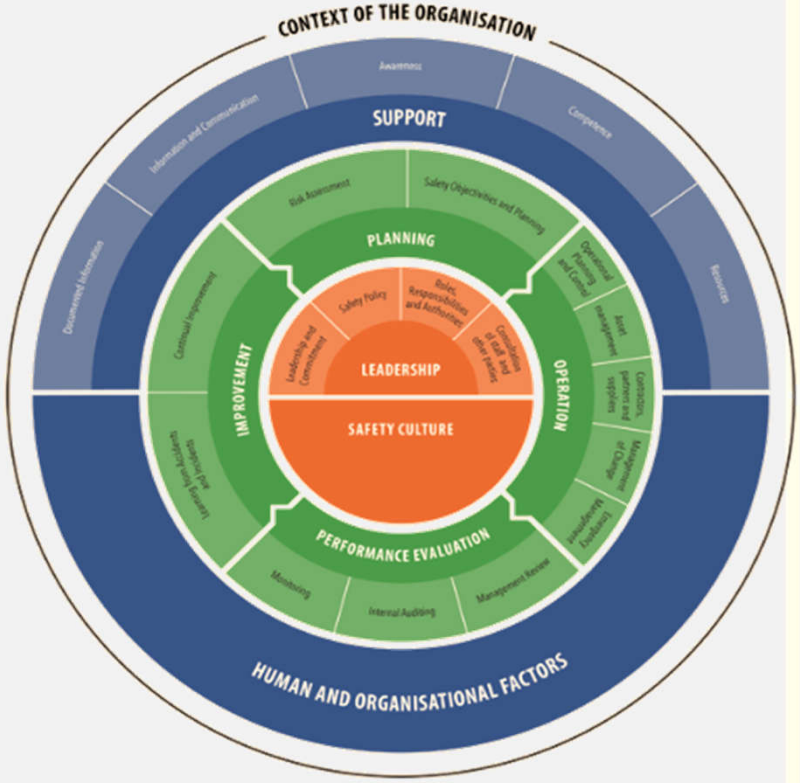
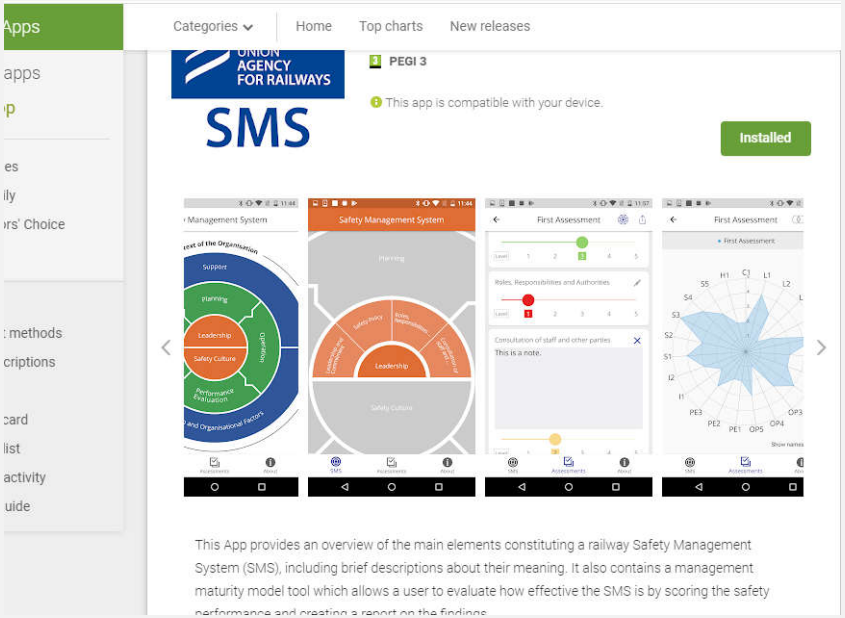
SMS requirements in the “wheel”



https://www.era.europa.eu/activities/safety-management-system_en



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What does an SMS look like?

Provide a brief overview of the method to evaluate an SMS' maturity (MMM)

Safety Performance

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- Support / enable continuous improvement

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Maturity models

- Maturity models find origin in TQM movement in late 1970´s
- Based on idea that small, evolutionary steps – rather than revolutionary ones – are the basis for continuous improvement
- Provide guidance on how to improve an organisation (people, processes, technology) to move towards sustainable performance
- From ad hoc, chaotic and often reactive management towards well-established and predictable processes, with continuous improvement as major objective
- Idea picked up to describe maturity levels also for safety management and SMS (from 2000's)

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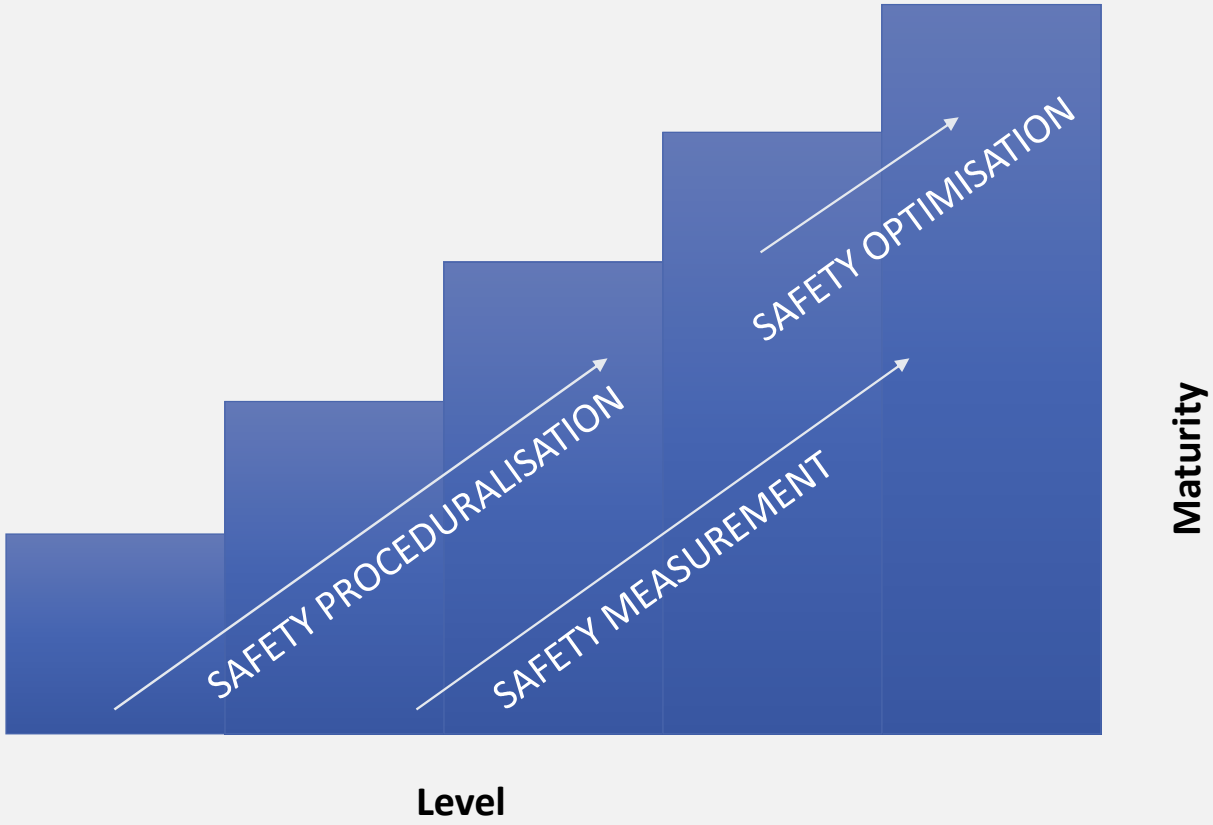
Increasing levels of maturity of an SMS



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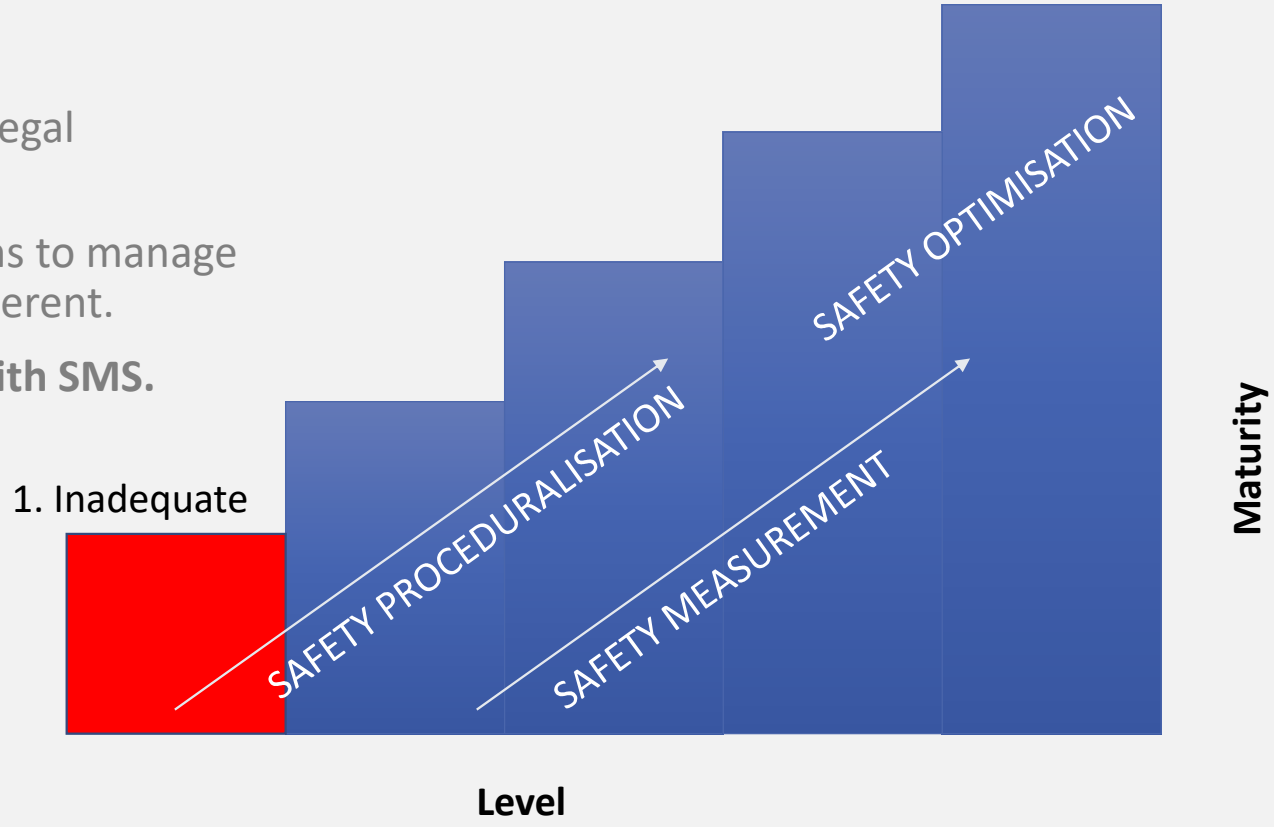
1. Inadequate

1. Inadequate

- **Deficiencies** -> below the legal minimum
- Procedures and instructions to manage safety activities exist incoherent.
- Operations **inconsistent with SMS.**



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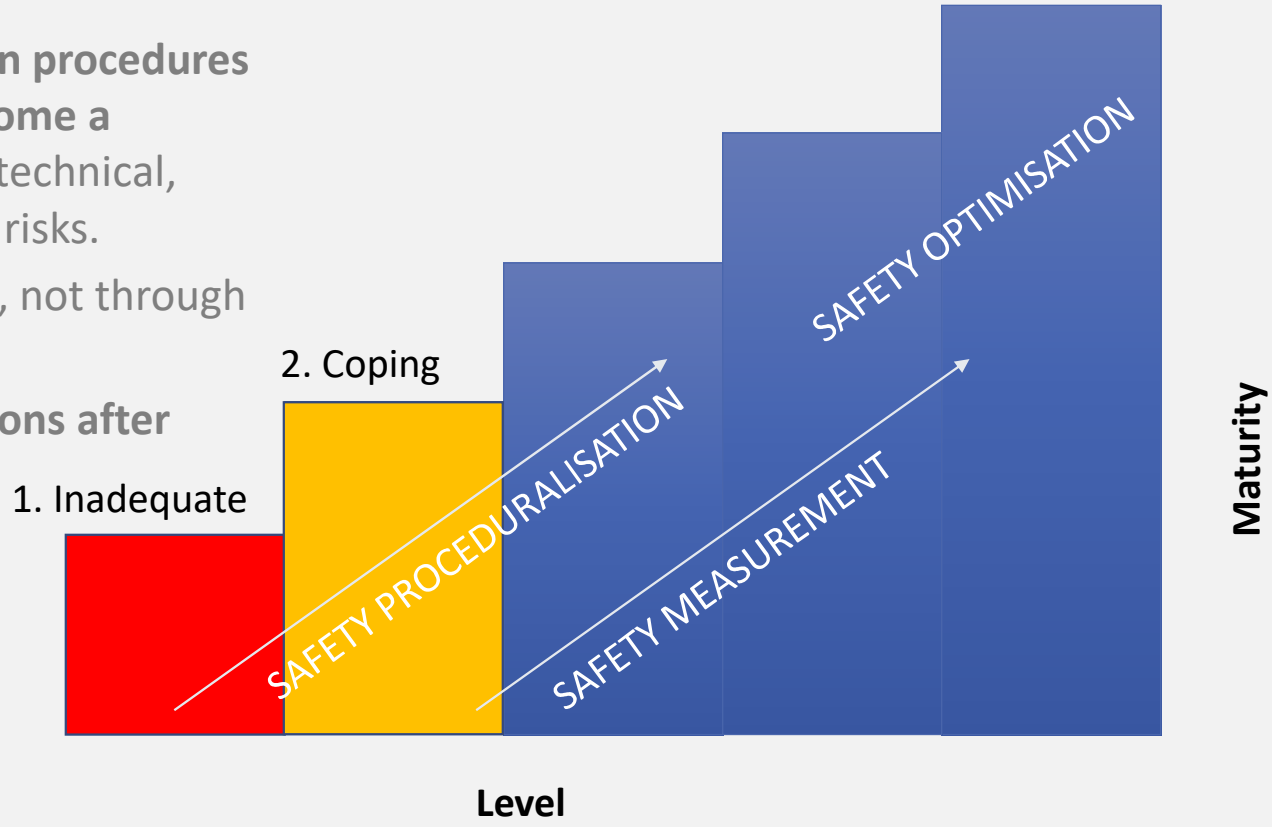
2. Coping

2. Coping

- SMS coherent but with gaps
- **the lack of integration between procedures and risk management can become a significant issue** in the case of technical, operational and organisational risks.
- Risk controlled through people, not through SMS
- **Reactive approach to risk (actions after** accidents)



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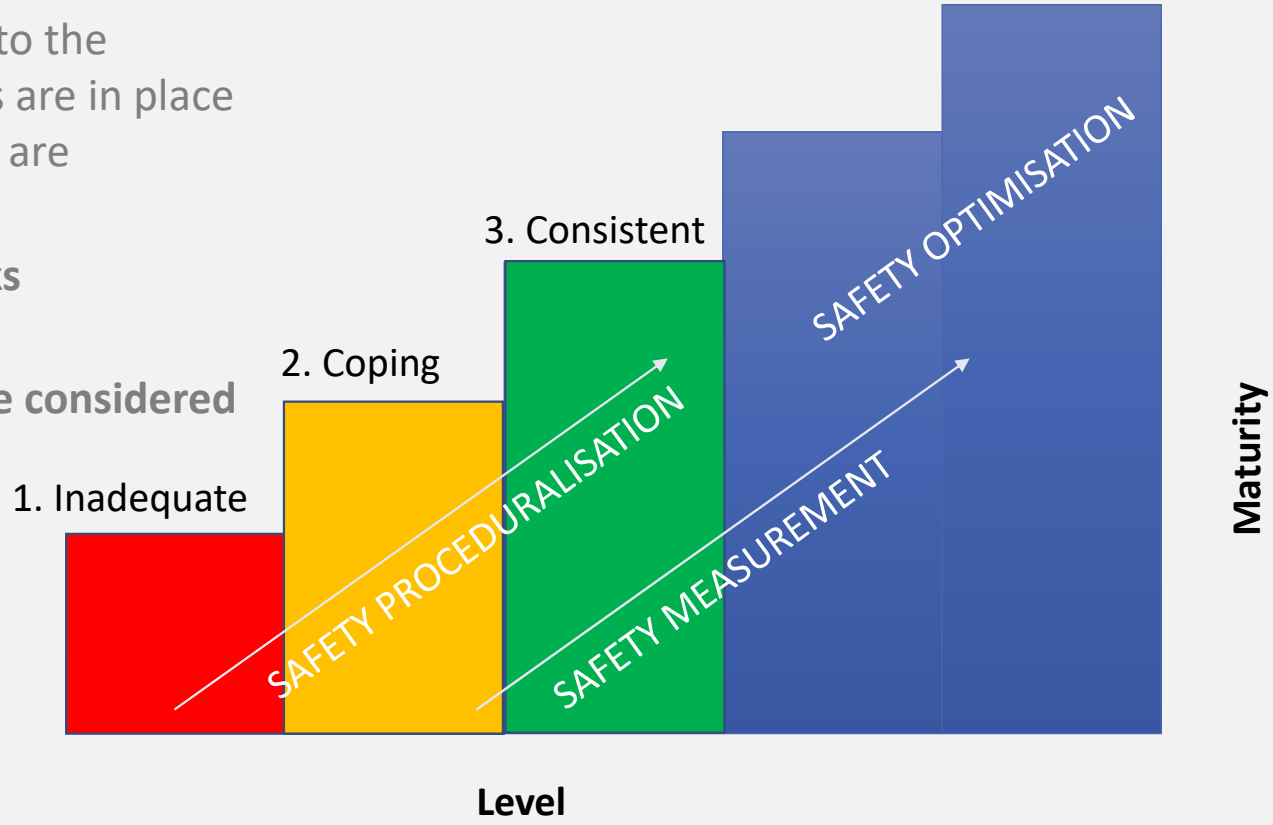
3. Consistent

3. Consistent

- **systematic and consistent approach** to the management of risk. All the elements are in place and function and all aspects of safety are considered**.**
- Consistent **but no anticipation of risks in advance**
- Fire –fighting has given way to **a more considered approach to risk management**



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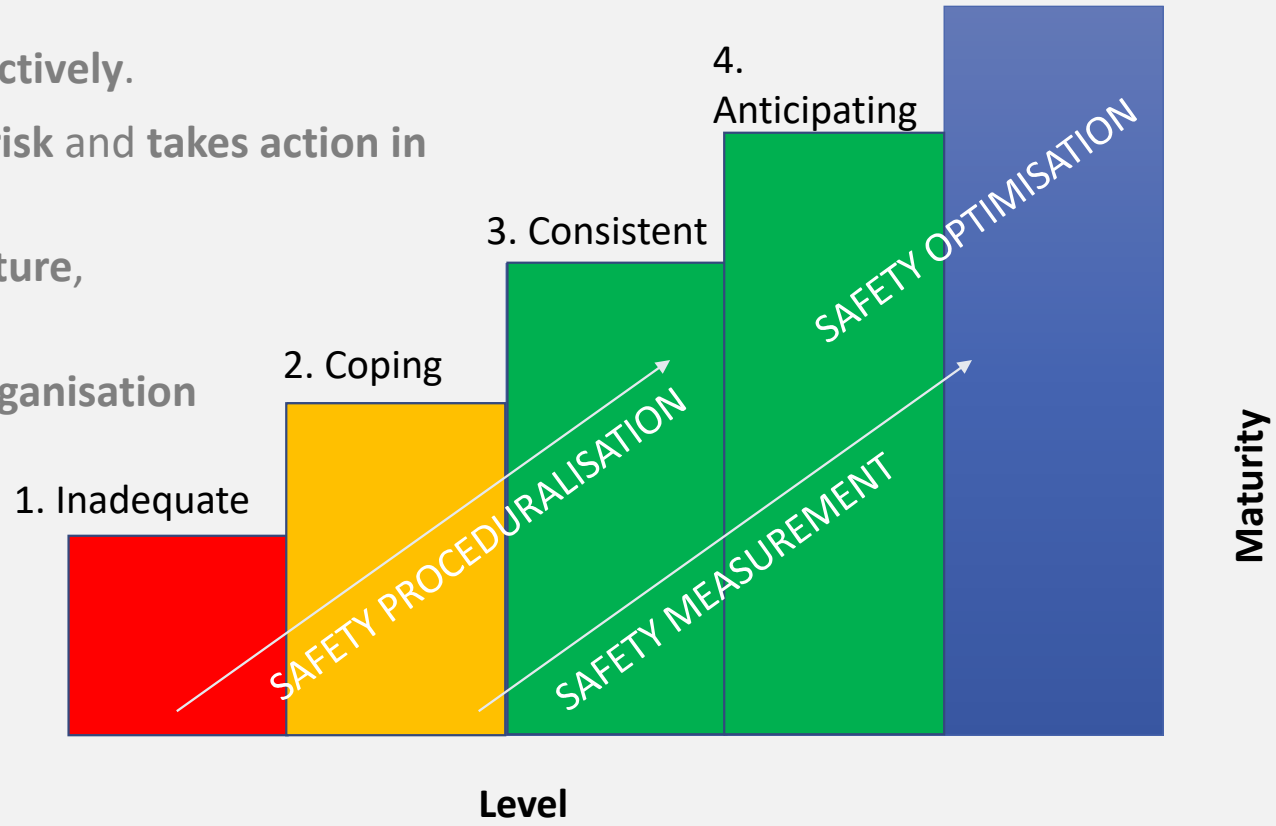
4. Anticipating

4. Anticipating

- **SMS is constantly managing risk pro-actively**.
- Organisation **monitors precursors for risk** and **takes action in advance**
- **Commitment to developing safety culture**, engaged workforce
- **Real leadership from the top of the organisation**
- **Regular reviews of performance**



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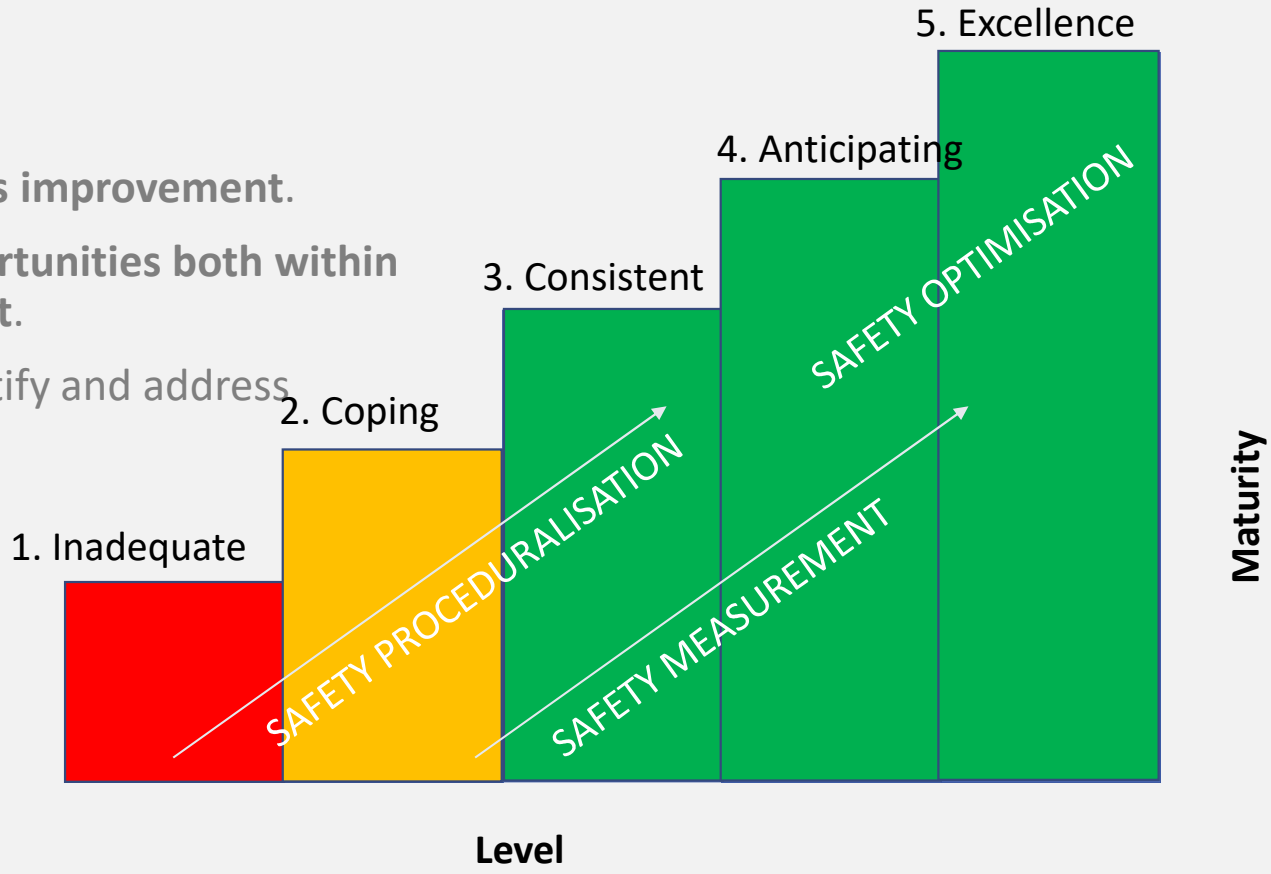
5. Excellence

5. Excellence

- SMS designed to **allow for continuous improvement**.
- **Organisation actively seeks out opportunities both within the railway sector and from outside it**.
- Organisation **actively seeking** to identify and address future issues through the SMS.
- **Safety is an integral part of the business of the organisation.**



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- 25 items
- Score attributed to each

More information:

Management Maturity Model

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Safety performance assessment method

Safety management

Risk management

- To determine the actual implementation of activities to maintain or reduce residual risk at a certain level.

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Directive 2016/798
Safety Directive

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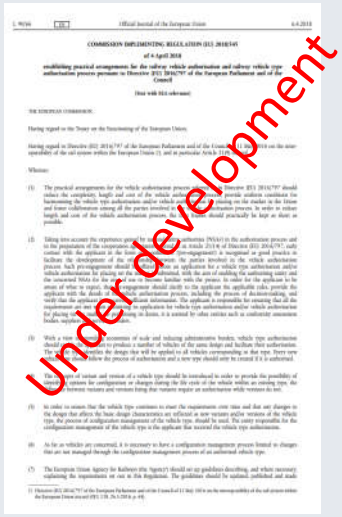
Regulation xxxx/xx
Common Safety Methods for the assessing the safety level and safety performance of railway operators at national and EU level



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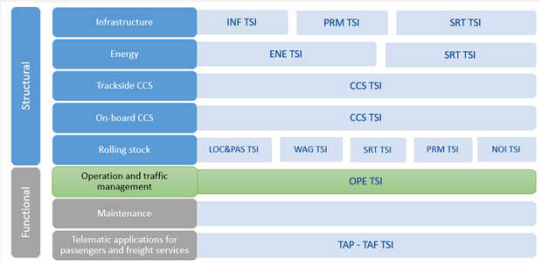
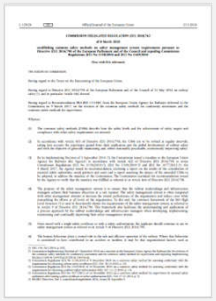
Practical Arrangements
Practical arrangements for issuing SSC

TSIs
INF, PRM, SRT, ENE, CCS, LOC&PAS, WAG, NOI, TAF&TAP



Regulation 2018/762
CSM on SMS requirements



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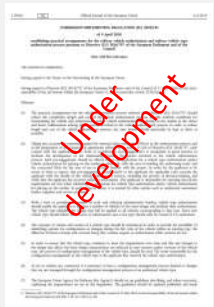
Regulation xxxx/xx
CSM ASLP



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Regulation 2018/761
CSM on supervision

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(c) 'safety performance' means the level of maturity of a railway operator to manage its risk control measures, as assessed by the methods defined in Appendix C;

- Facilitate railway operators to **document their continuous improvement of their risk management**
  - Risk management important and interlinks SMS modules
  - Yearly exercise (instead of every 5 years SSC assessment)
  - Facilitate dialogue with the supervising entities
  - Help operators identify improvement opportunities
- Facilitate **collective learning**
  - Identify at company, national and EU level the focus areas
  - Operators also report their most important risk control measures

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4. Each railway operator shall report every year in accordance with Appendix B:

(a) a 'Self-Estimation of Safety Performance' of the railway operator including the references to its supporting evidences,

(b) the 'Risk Control Measures' planned by the railway operator for controlling the most relevant risks for its railway operations in accordance with previous point (a),

within the deadline notified by the Agency, which is determined in coordination with the supervising National Safety Authority(ies), taking into account the starting date of validity of the operator safety certificate or safety authorisation.

This is a **SELF** assessment – each Railway Undertaking and Infrastructure Manager will have to assess it's **own maturity** level

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Self Assessment relies on evidences

The data and information collected for assessing the safety performance of railway operators are limited to the domain of the management of risk control measures and aim to encourage the development of a continuously increased safety performance.

The railway operators may use their self-estimation to better identify possible improvements of their current management of risk control measure towards higher maturity levels.

2. When requested by the Agency, the railway operator shall self-estimate its maturity level in using the self-estimation tables provided in Appendix B – Part B for each following risk management area:

(a) Area P: Planning of risk control measures;

(b) Area D: Setting up and operating of risk control measures;

(c) Area C: Monitoring of risk control measures;

(d) Area A: Reviewing and adjusting of risk control measures.

3. For each area, the level self-estimated by the railway operator shall be the one fulfilling the following criteria:

(a) The railway operator is able to provide, immediately on request, the supporting evidence corresponding to all the elements of proof required by the table corresponding to this level;

And,

(b) The railway operator is able to provide, immediately on request, the supporting evidence corresponding to all the elements of proof required by lower level(s) self-estimation tables of the same area.

4. For a given area, if one or more supporting evidence required for this level is missing it shall be interpreted that neither the level corresponding to this self-estimation table is reached nor higher level(s).

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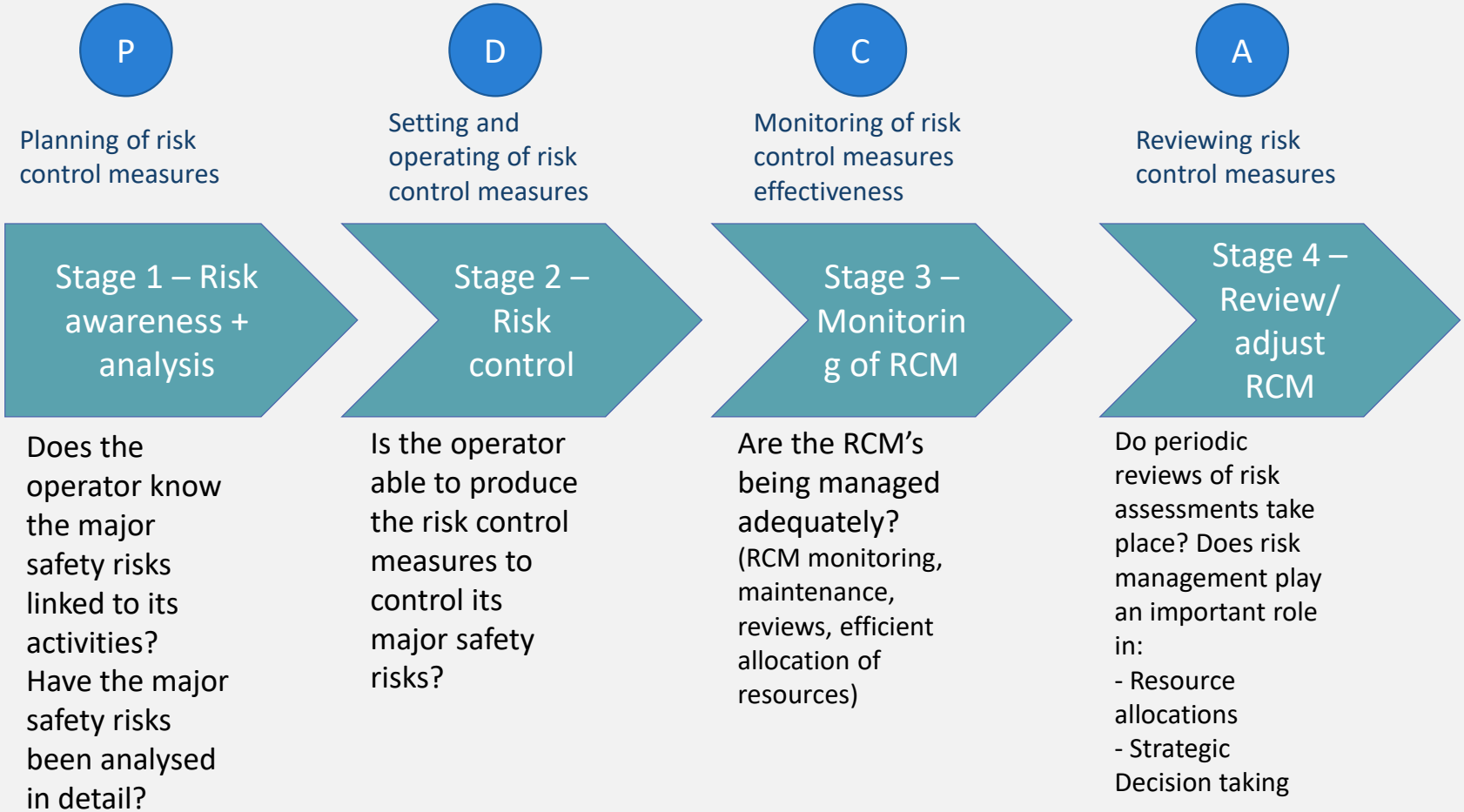
Safety Performance - further detail of risk management activities



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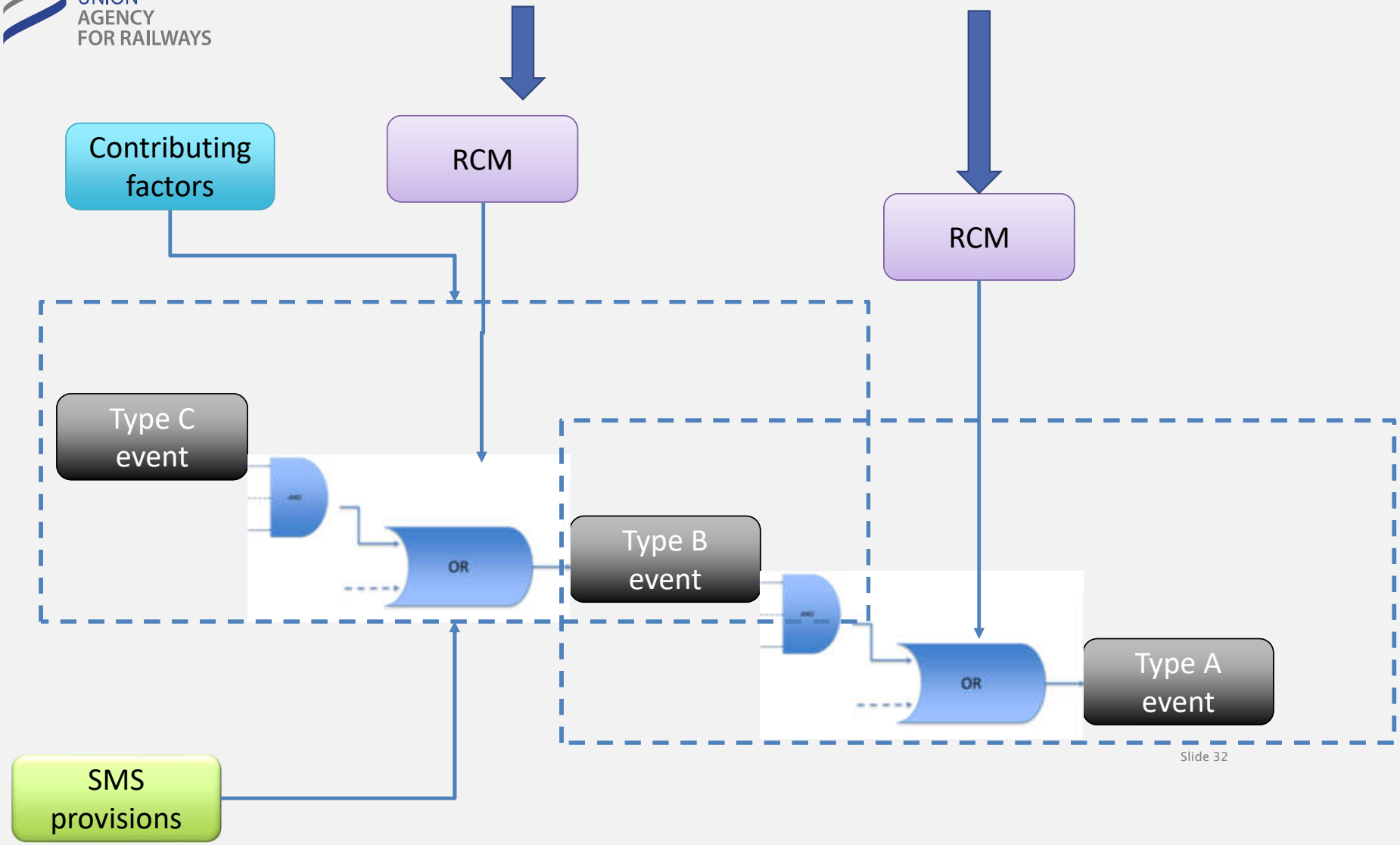
(c) 'safety performance' means the level of maturity of a railway operator to manage its risk control measures, as assessed by the methods defined in Appendix C;



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Explanation of PDCA cycle for RCM management

P	D	C	A

Elements in SMS

P	D	C	A
Risk assessment Change management Risk aggregation	Decision taking Resource management Asset management (incl. maintenance)	Accident investigation RCM monitoring Risk monitoring Incident management Data analysis Internal audit	Strategic decision taking Management review Continuous improvement

Concertation with regulatory bodies

Support: competence management

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SP results representation
General approach

Safety performance = How well does an operator manage its Risk Control Measures?

	Maturity level range
P - Planning of risk control measures	2 - 5
D - Setting up and operating of risk control measures	2 - 5
C - Monitoring of risk control measures	2 - 5
A - Reviewing and adjusting of risk control measures	2 - 5

Maturity levels aligned with Management Maturity Level:

2	3	4	5
Coping	Consistent	Anticipating	Excellence

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Combination: increase in maturity in “Planning of RCM”

P

Example for ‘Planning of risk control measures’

Evidences

RCMs not sufficiently planned

- Risk analyses carried out on ad-hoc basis

Planning is documented

- Process for risk analyses
- Process for change management

Planning is embedded

- Description of interface between the risk assessment process and the change management process

Planning is predictable

- Periodic review meetings with regard to the risk assessment process take place

Continuous improvement of planning

- The applicant regularly conducts in-depth reviews of its risk assessment methods and adapts them in function of these findings

- Evidence 1
- …
- Evidence 9

- Evidence 10
- …
- Evidence 14

- Evidence 15
- …
- Evidence 18

- Evidence 19
- …
- Evidence 21

Increasing maturity in planning of RCM

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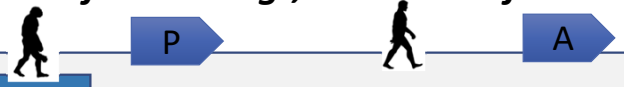
Description of maturity level

High level description of what is expected from the organization at this maturity level.

I.e. level 3 of "Planning", or level 5 of "Act"



Reference elements of proof for maturity level

1. **Element**
2. **Element**
3. **…**

Alternatives

"The provision of equivalent elements of proof justifying the achievements of the level may be accepted"

1..

2..

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P

5.1.2. Description of Maturity level 2:

Description of expected performance for maturity level 2 in 'Planning of risk control measures' area
➢ RCM are identified and for safety critical RCM the expected performance is indicated to support monitoring. ➢ Assumptions and constraints (including Human and Organisational Factors) are considered when identifying the risk scenarios. ➢ Interfaces between the involved parties are identified to ensure both effective communication and exchange of expertise for the identification of risk scenarios ➢ Staff are trained in the identification of risks
Reference elements of proof for level 2
1. The hazard record includes all hazards, together with all related RCM and system assumptions identified during the risk assessment process. It contains a clear reference to the origin of the hazards and to the selected risk acceptance principles 2. Process for risk assessment documented 3. Overview of training of staff members with regard to risk assessment 4 Process for change management documented view of scenarios / risks for

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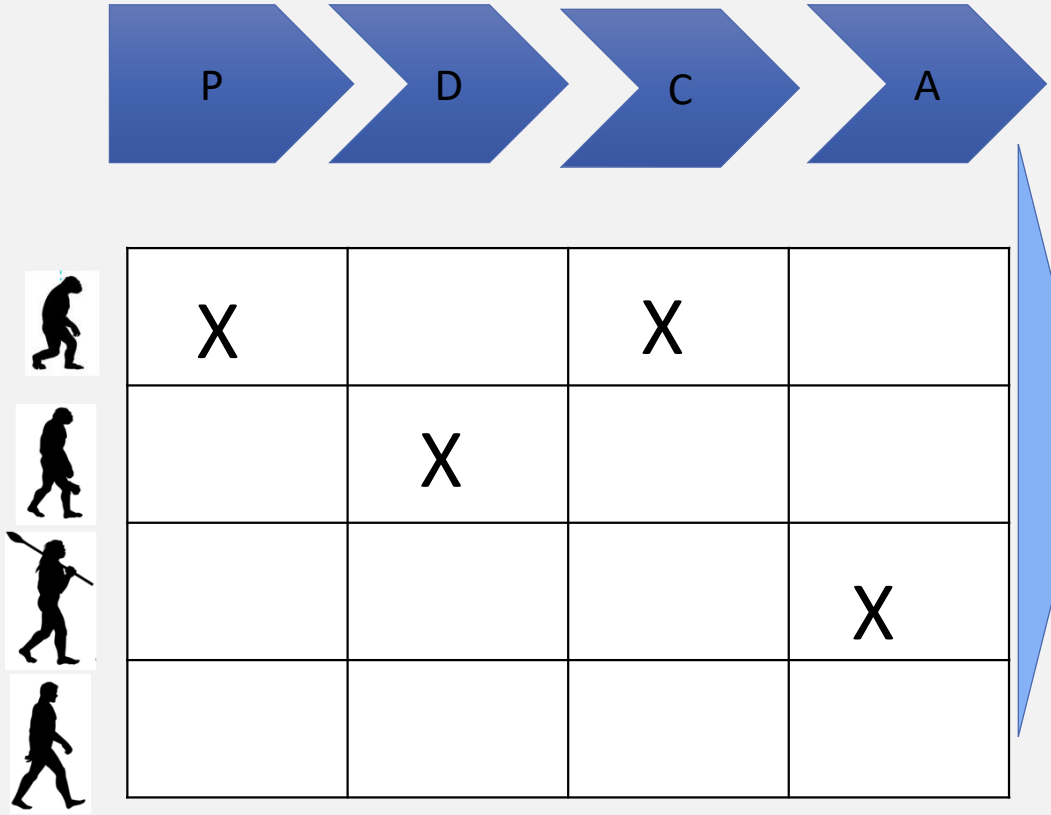
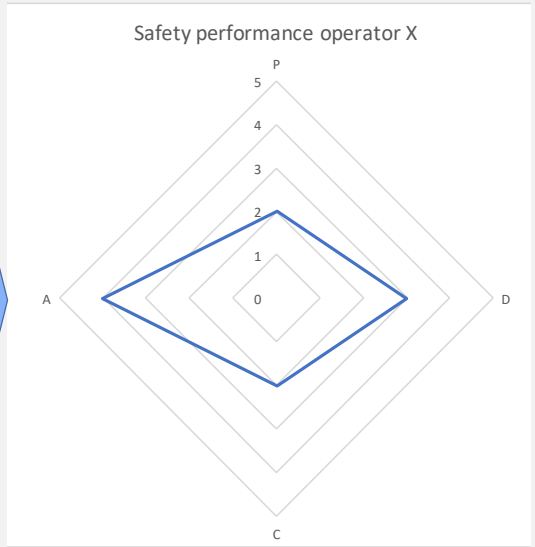
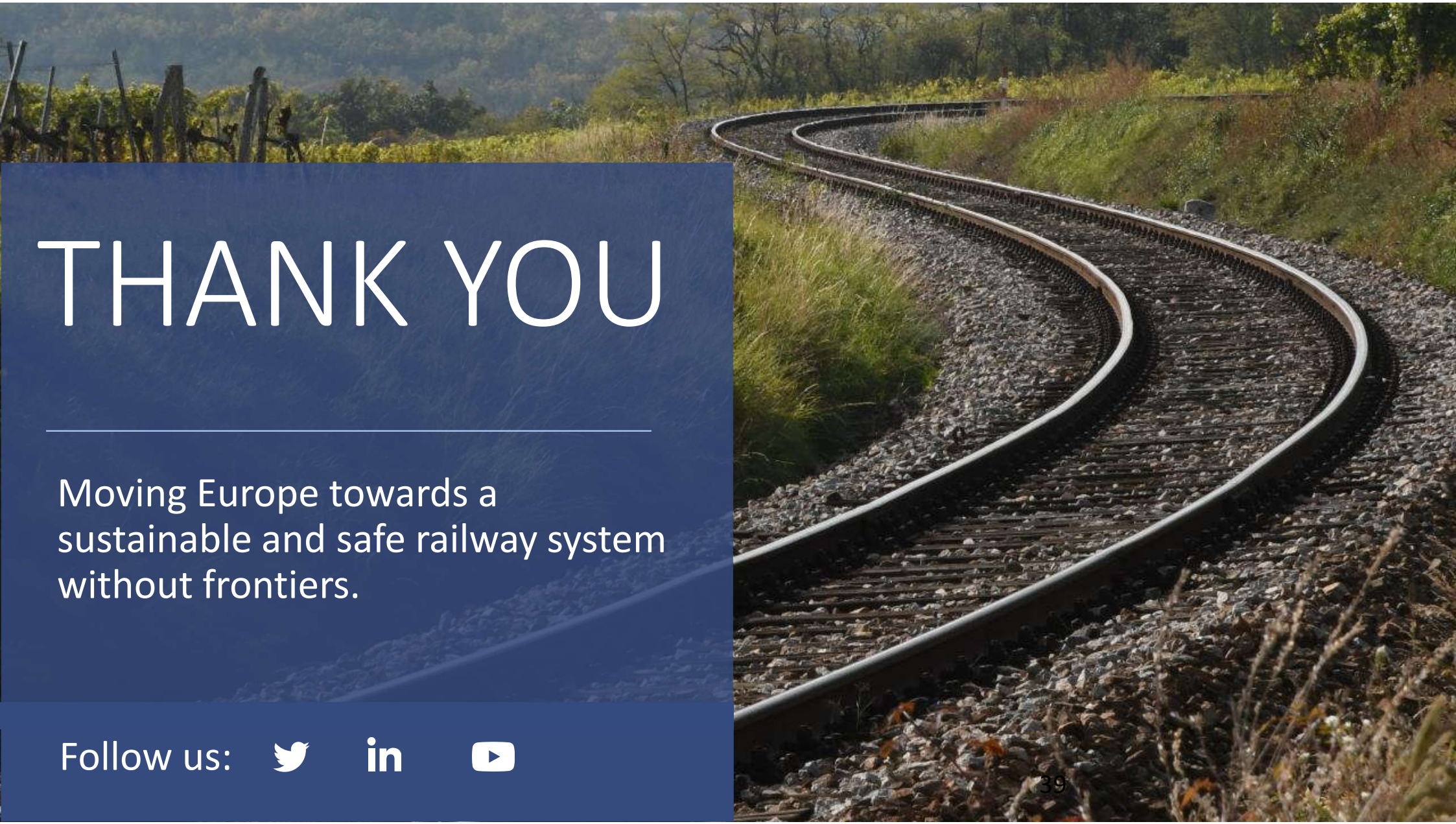
Example Safety Performance score resulting from self assessments







THANK YOU

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