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INTERNATIONAL
RAILWAY SAFETY COUNCIL

▶ The advantages of an integrated company on safety and availability matters

Charles LAFORGUE, manager of the RAMS entity of the rolling stock department



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Part 1

1 – The RATP, an integrated company

The RATP, an integrated company

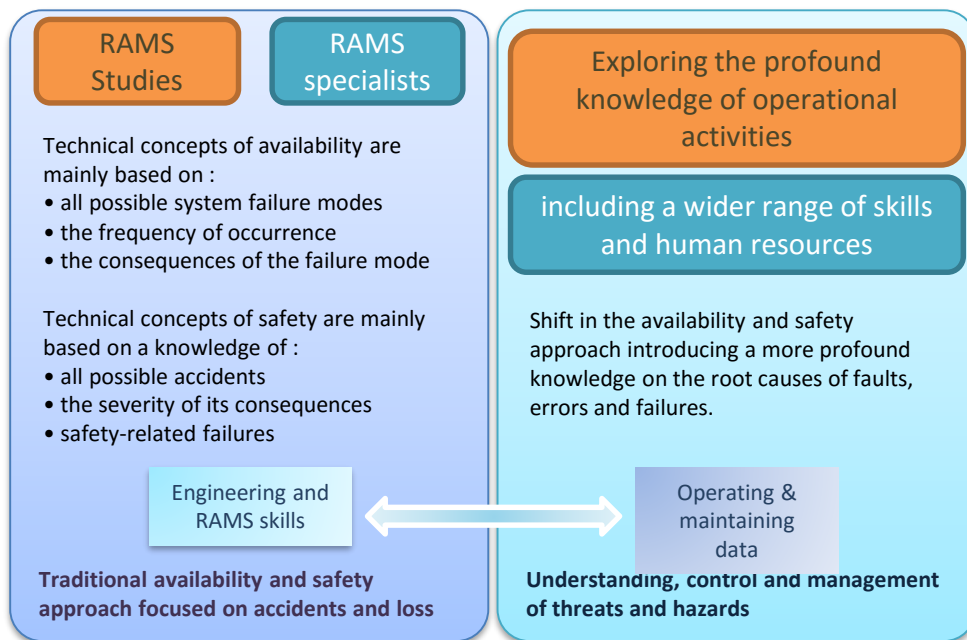
- ▶ Line 1 automation, an organisational challenge:
 - ▶ Automation of the line 1 without service interruption
 - ▶ 100 works in progress at the same time
 - ▶ understanding of the operation and maintenance constraints
- ▶ The integrated engineering
 - ▶ cross-fertilisation among operation skills, safety, availability and maintenance matters
 - ▶ enhancement of the collaboration between skills
 - ▶ Integration has to be carried out by every stakeholder
- ▶ Organising the collaboration
 - ▶ raise awareness of integration matters among the project contributors

Part 2

2 – The advantages of an integrated company in the project life cycle

Advantages of an integrated company

- ▶ Interrelation of RAMS activities and nearness between operator, maintainer and engineering
 - ▶ an approach of treatment of risks in two combined ways:

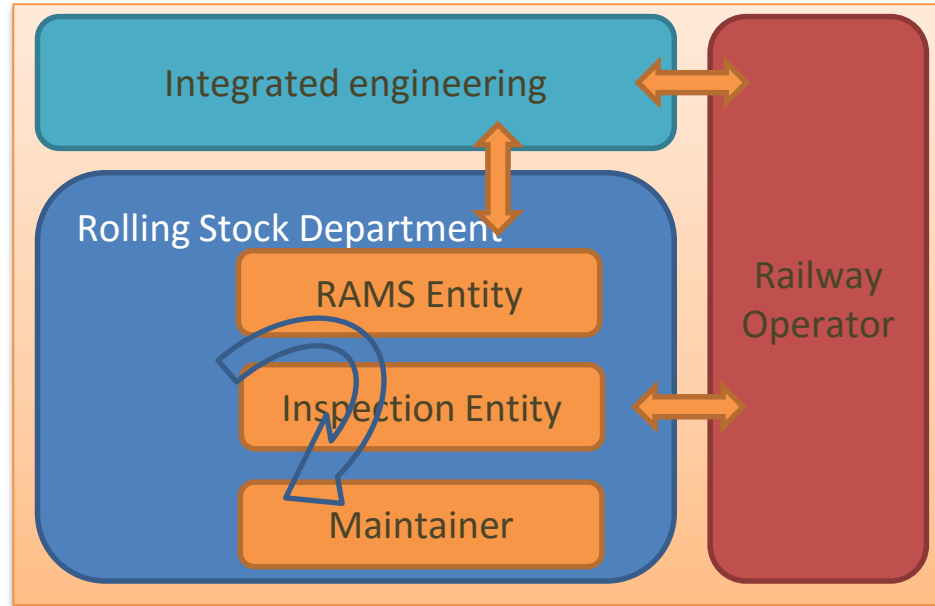


Advantages of an integrated company

- ▶ The organisation principle to ensure exhaustive feedback and lessons retain
 - ▶ Safety and availability culture and values in accident prevention should be common to all who have a role in the provision of service or systems with a potential to cause harm
 - ▶ Roles of the rolling stock department inspection entity:
 - ▶ Observations, suggestions and feedback collection
 - ▶ Providing with exhaustive feed-backs and trusted trigger events
 - ▶ pervasive broadcast of safety and availability culture to both maintainer and operator
 - ▶ The ability to learn and capitalise on the railway operation:
 - ▶ Collecting up-to-date directory of operational threats/hazards
 - ▶ Informing by the daily inspection report to the whole department about all pertinent safety and availability issues
 - ▶ Records of reported failures, threats, incidents and accidents

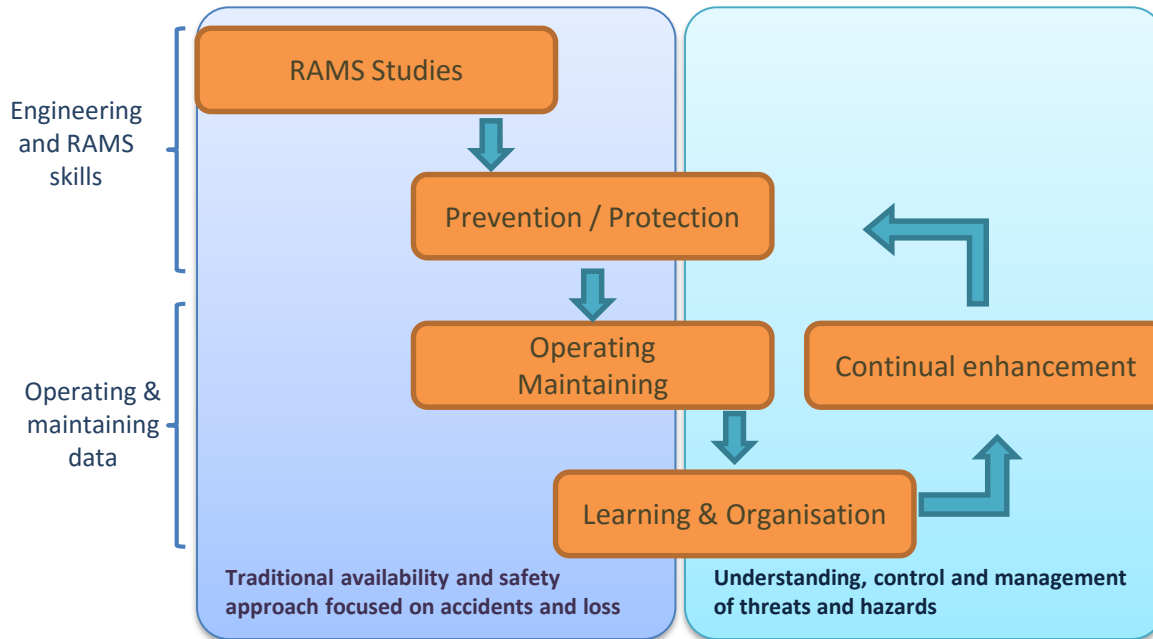
Advantages of an integrated company

- Interrelation between operator, maintainer and engineering



Advantages of an integrated company

- ▶ The organisation principle provides further advantages than prevention and protection to threats. It ensures exhaustive feedback, lessons retain and continual enhancement



Part 3

3 – The rolling stock, a sub-system in the middle of the interfaces of the integrated engineering

The example of the rolling stock

- ▶ Technical problem solving without railway operating damage
 - ▶ Solving collector shoe problems:
 - ▶ Different factors have changed with the automation of the line 1
 - ▶ Problem has been solved without operation impact by the collaboration of the infrastructure manager, the rolling stock engineering and the rolling stock maintainer
 - ▶ The organisation as a key to this success. The proximity maintenance manager is hierarchically related to the operator manager of the line

The example of the rolling stock

- ▶ Technical problem solving without railway operating damage
 - ▶ Solving iron wheel unusual wear:
 - ▶ The interface implicated in the root cause was different from the interface implicated in the event
 - ▶ Thorough knowledge in each matters and collaboration between operation, maintenance and engineering was essential to solve this problem without operation impact

The example of the rolling stock

- ▶ Technical problem solving without railway operating damage
 - ▶ Solving flange lubrication problems
 - ▶ This interface is left to adjust and needs a continuous observation
 - ▶ Flange lubrication problem of the line 2 has been solved without operating impact thanks to the collaboration of the operator, the rolling stock maintainer and the railway track maintainer
 - ▶ Optimisation of maintenance efficiency

Conclusion

- ▶ The RATP gathers railway operating, maintenance and engineering activities
- ▶ Adoption of integrated engineering organisation and principles to maximize the benefit
- ▶ The organisation principle provides further advantages than prevention and protection to threats. It ensures exhaustive feedback, lessons retain and continual enhancement
- ▶ The nearness of operator, maintainer and engineering staff facilitates collaborations between employees, insights and improvement actions.