



23

ETY COUNCIL

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OCTOBER 1 - 6, 2023

IRSC 20

INTERNATIONAL RAILWAY SAF

"Recharging Reimagining railway

CAPE TOWN, O

HOSTED BY  RAILWAY SAFETY  SAFETY REGULATOR
RAIL SAFETY ON THE RIGHT TRACK



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Etablissement Public de Sécurité Ferroviaire (EPSF)

Using data's safety value to optimise the supervision strategy.
An example of a risk-based approach

X2 5



France : **X 2** railway operators in the next **5** years



French rail market
opening to competition

In the 2000's

Freight and
international
passenger travel

Since 2019

Domestic
passenger
travel

Next years

French regions
expected to manage
7,000 km (25%)
of railways lines



Need to
prepare for
changes



Building the single
European railway area



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Supervise the safety of the national railway system



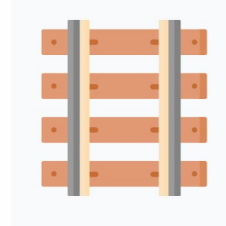
**DIRECTIVE (EU) 2016/798 OF
THE EUROPEAN PARLIAMENT
AND OF THE COUNCIL**



50
railway
undertakings



18
infrastructure
managers

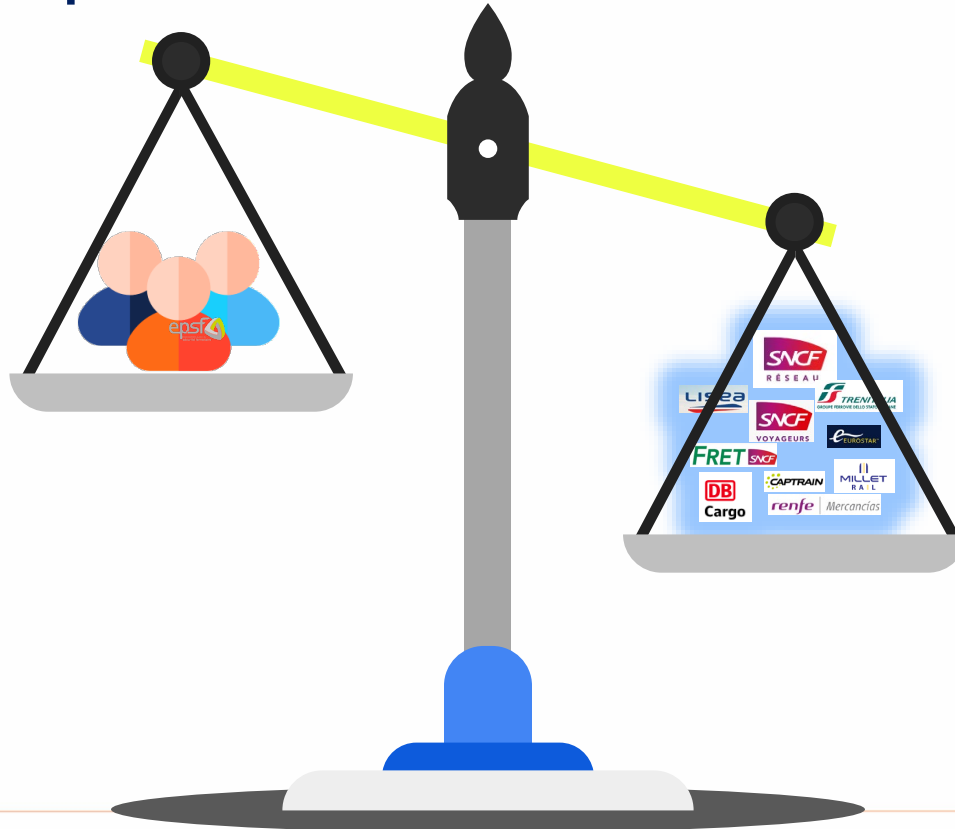


22
railway
inspectors



A proactive plan

The French NSA's
human resources
are limited

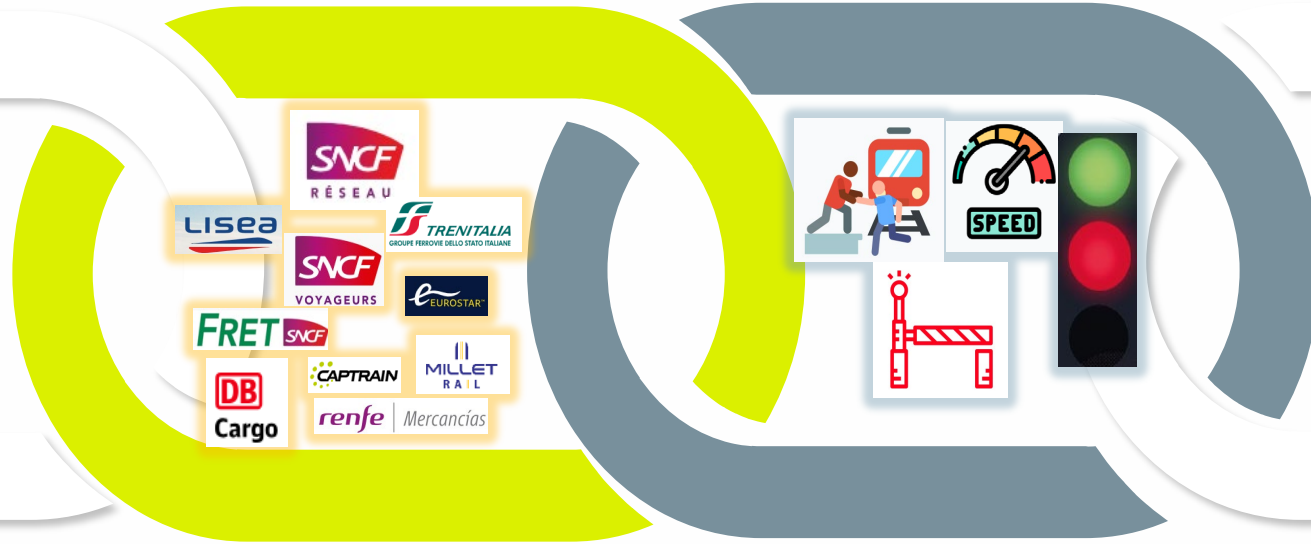


X2
railway operators
to supervise
in the next 5 years

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Sub-theme: Improving safety performance through digitalisation

A supervision decision-making tool with 2 interrelated goals

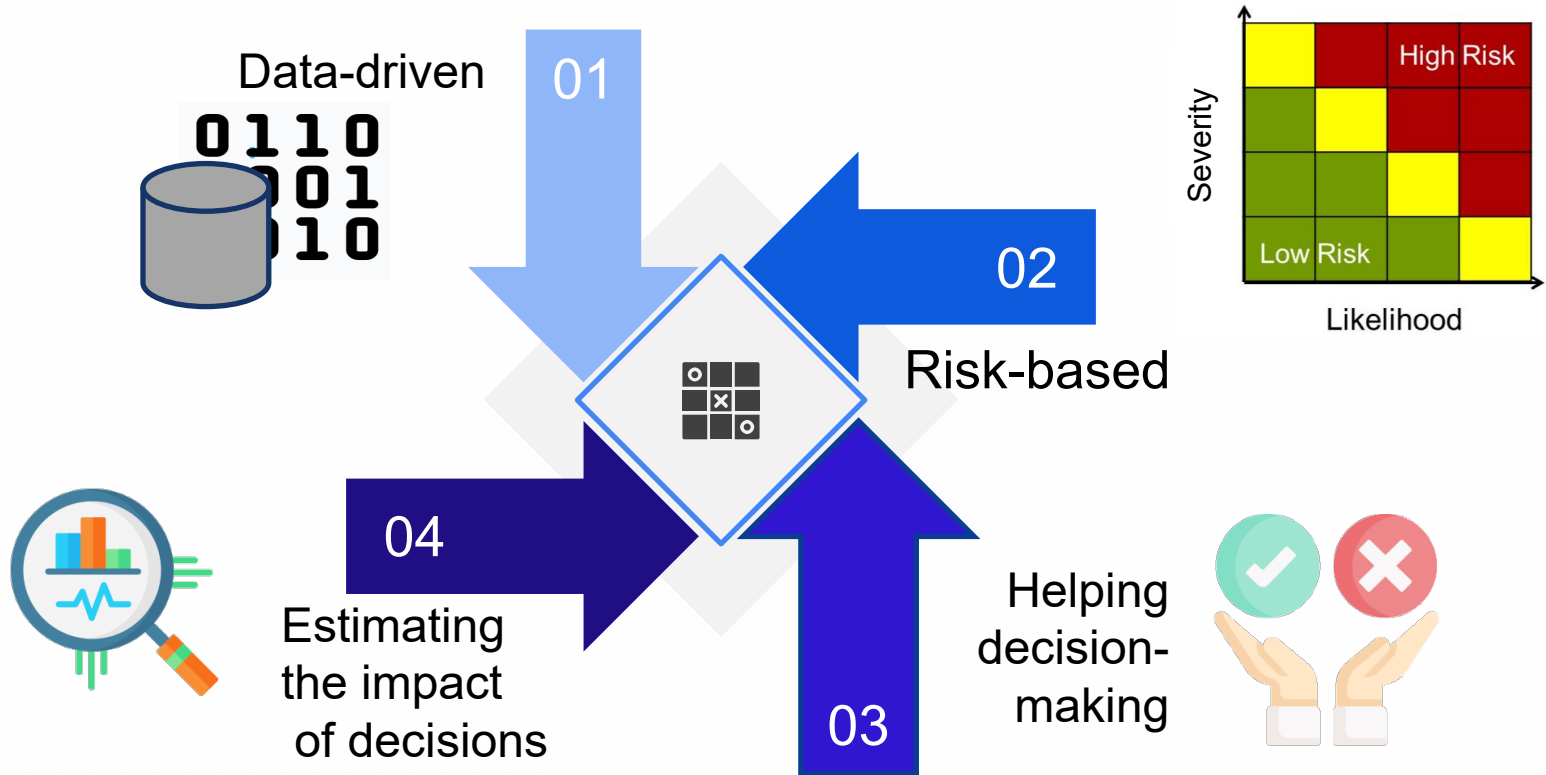


**Which railway operators
to prioritise?**

**Which types of safety events
to focus on?**

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An opportunity to strengthen the supervision strategy



1 – Data driven

CYRUS : Safety events

About 22,000 events
per year

Database available
since 2006

▶ From railway operators

Railway traffic

Train-km
by railway operator

▶ From railway operators

RESYGESS : Safety performance

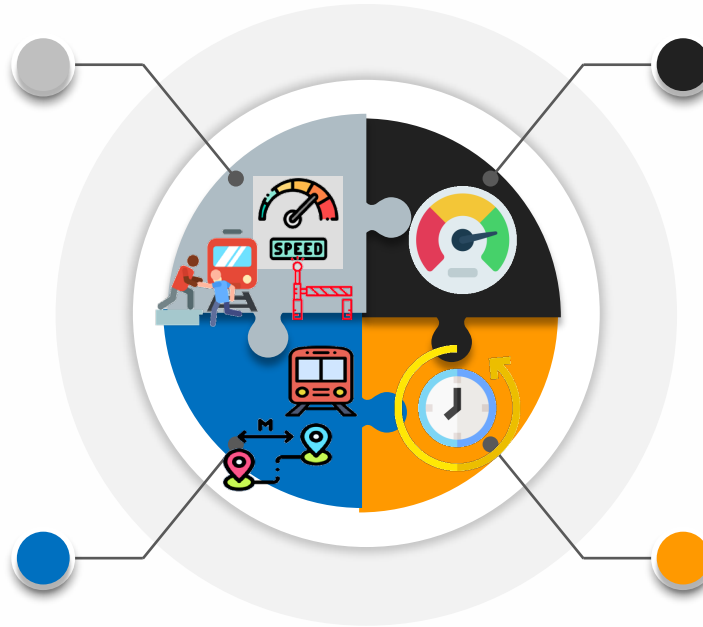
Annual assessment
of safety performance
by railway operator
since 2021

▶ Internal data

OSCAR : safety management

Supervision time
by inspection and audit
since 2018

▶ Internal data



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Using data is key for the project

Data is available now

Data collection and quality are manageable

In the future

The methodology will be usable for several years

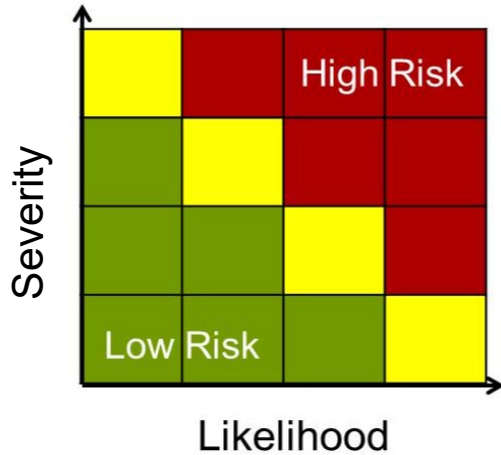
The supervision plan can be delivered every year

For decision-making

Decisions are less based on intuition

More confidence

2 – Risk-based



Likelihood
Risk exposure :
Railway traffic

Severity
Risk Control :
Safety performance



Likelihood
Number of safety events

Severity
Safety events severity

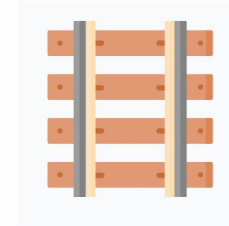
3 – Decision making : Prioritising the supervision of railway operators



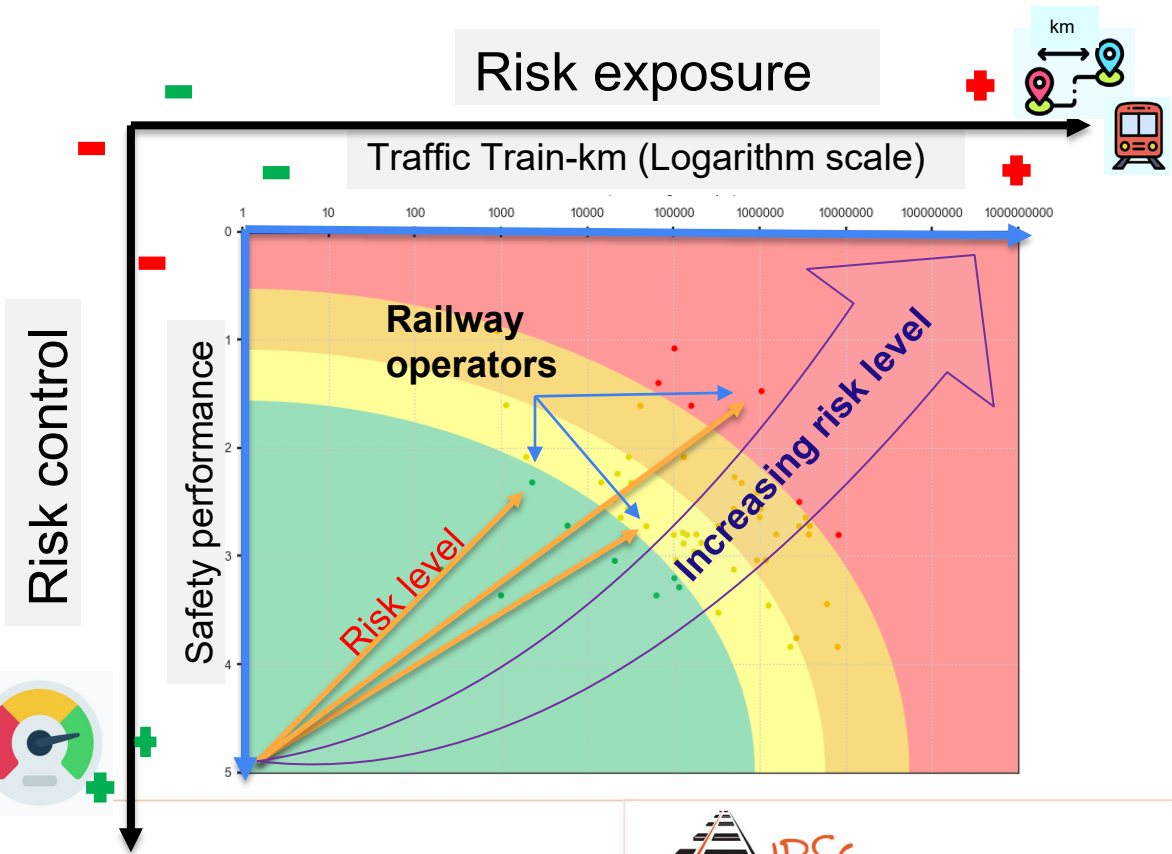
50
railway
undertakings



18
infrastructure
managers



Prioritising the supervision of railway operators



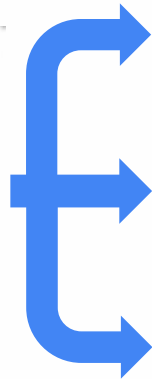
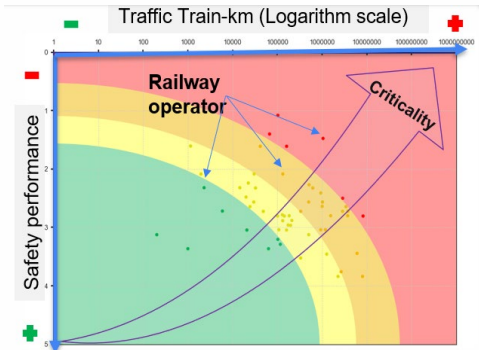
In the red zone :
railway operators
with the highest
priority

New supervision plan at short term

for railway operators' Safety Management System (SMS)

Rail operators' priority
for supervision

During authorisation period
(5 years)

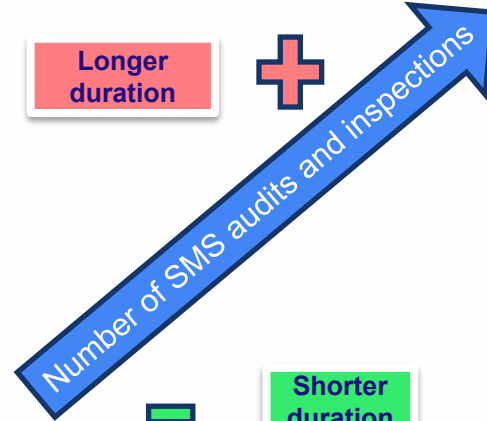


Top
priority

Medium
priority

Low
priority

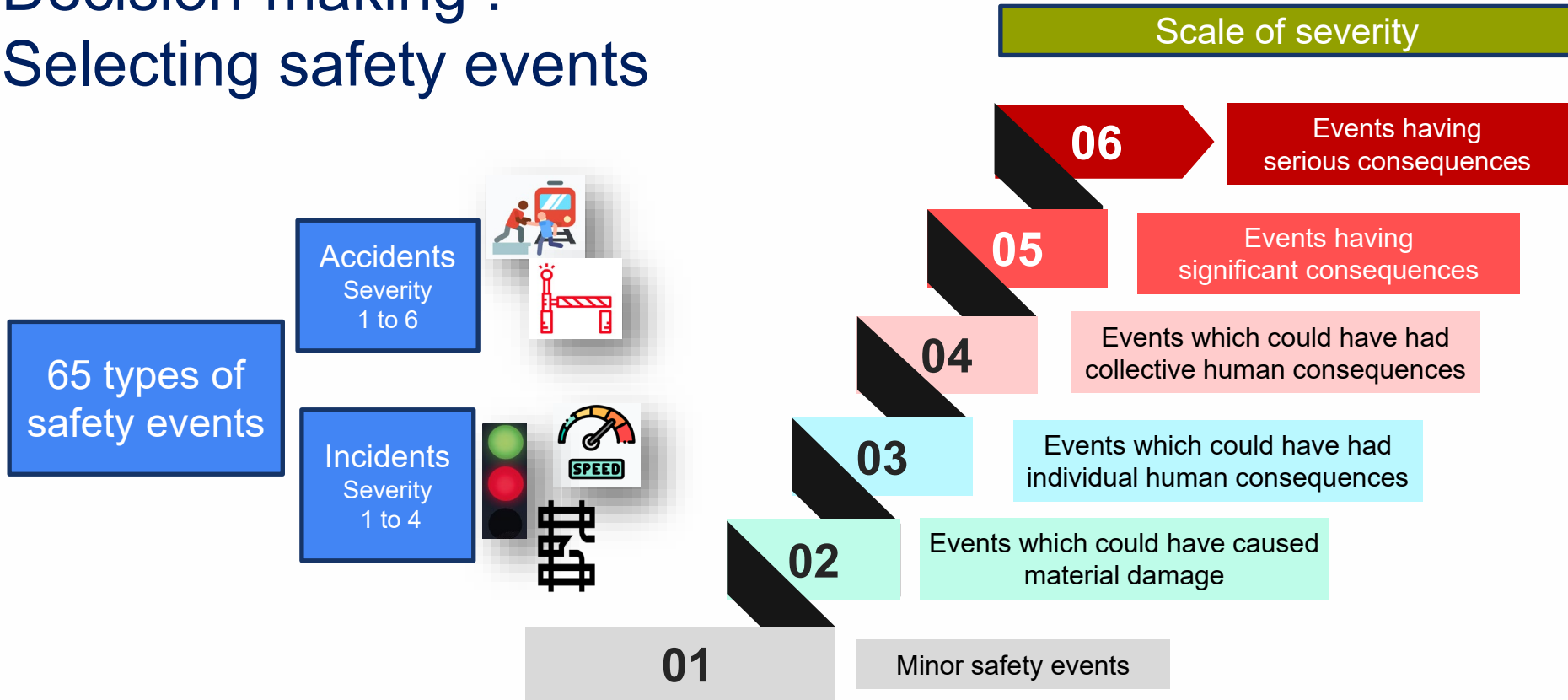
Longer
duration



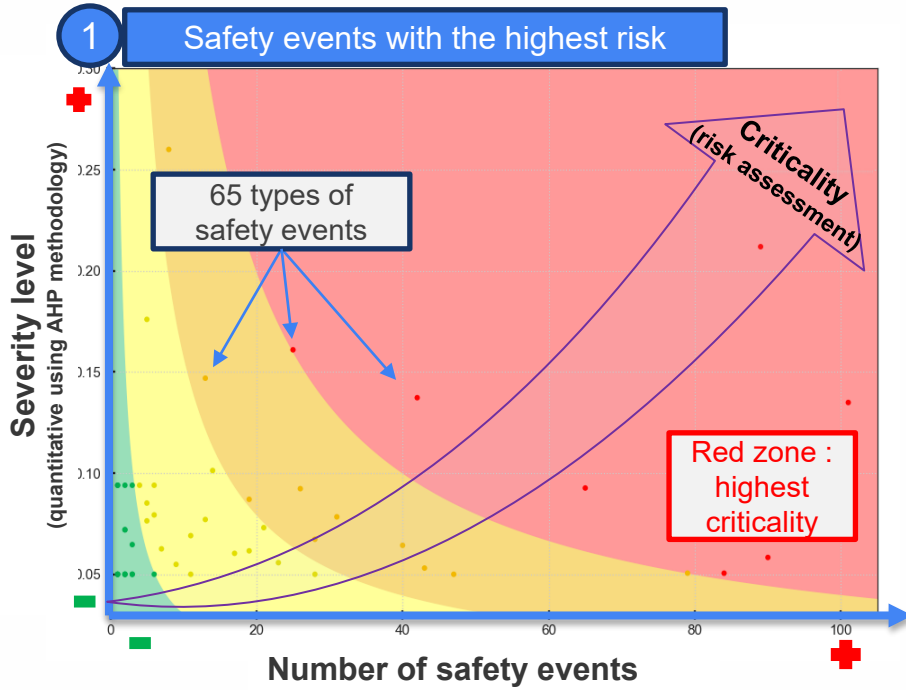
Shorter
duration

In addition,
at least
1 field
inspection
per year

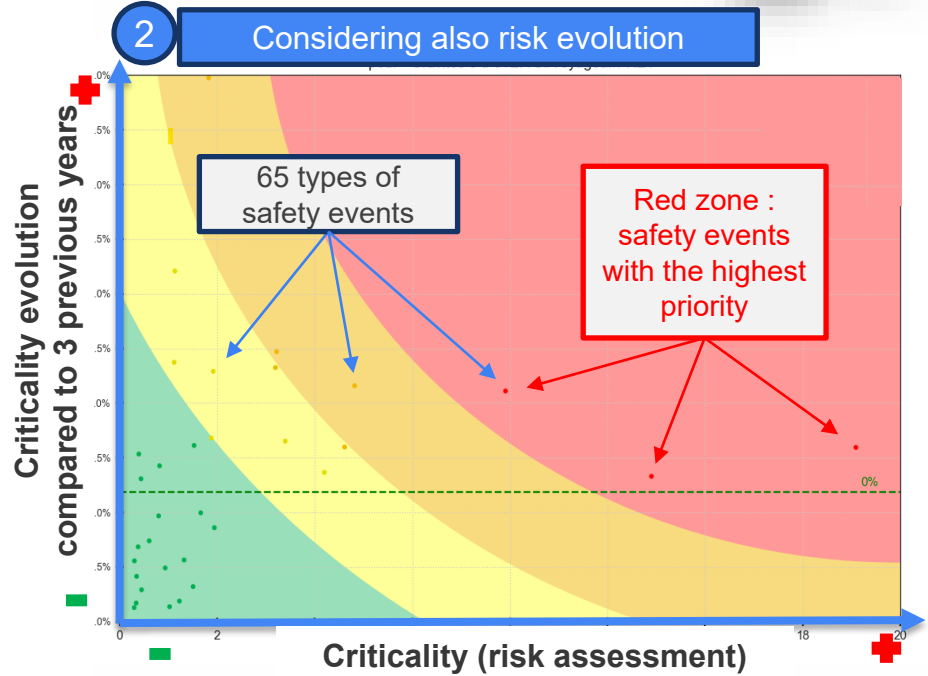
Decision-making : Selecting safety events



Prioritising safety events



$$\text{Criticality} = \text{Number of safety events} \times \text{severity level}$$

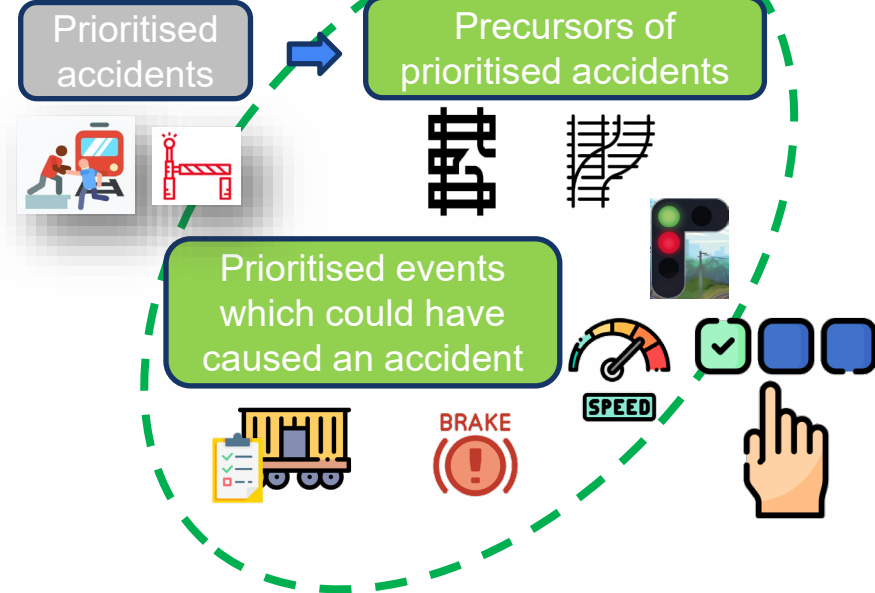


Selecting safety events to focus on

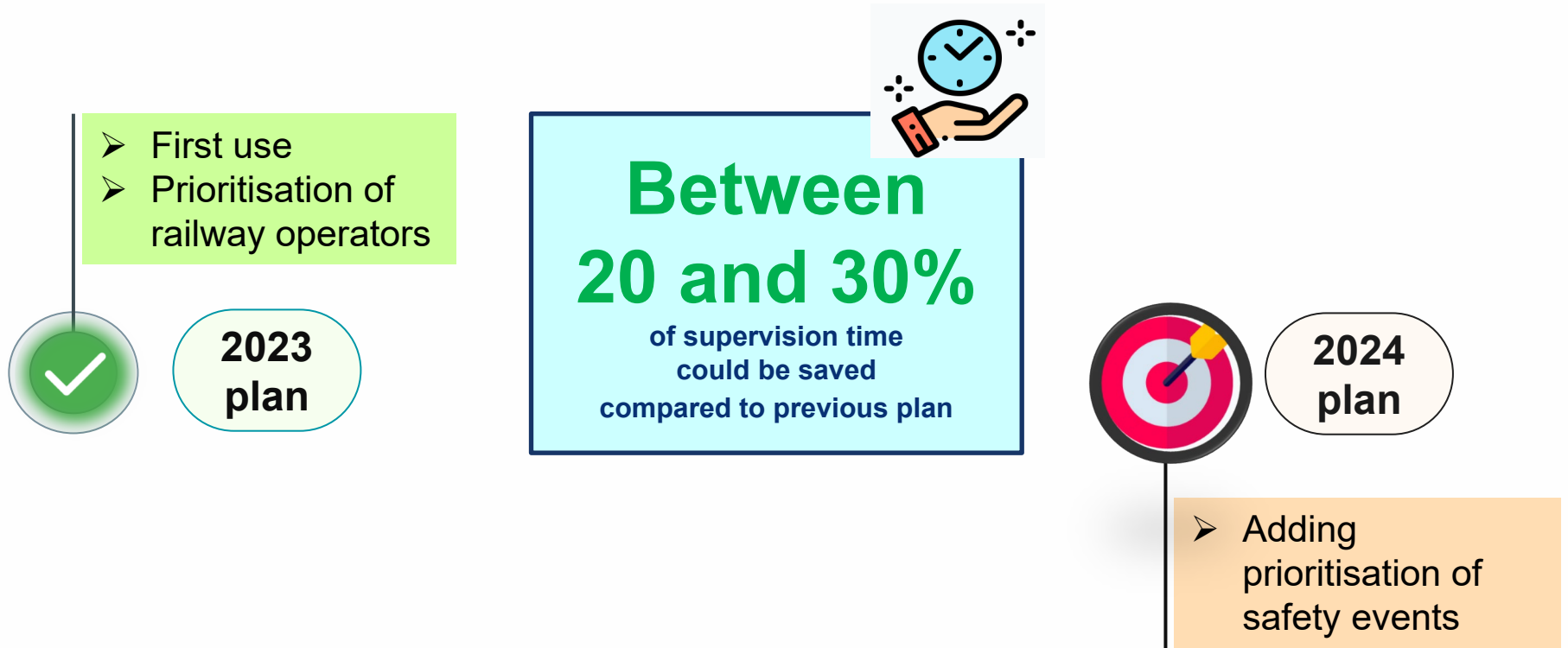
1 Prioritised safety events including accidents

Safety event	Criticality class	Priority class
Accident to persons involving rolling stock in movement	1	1
Level crossing accident	1	1
Train or rail vehicle loading irregularity	1	1
Failure of the track	1	2
Derailment	1	2
Collision of train with obstacle within the clearance gauge	1	2
Failure to follow a speed restriction order	2	2
Failure of a safety measure	2	2
Failure of the breaking system	2	2
Failure of the railway overhead line	3	2
Failure to communicate a speed restriction order to a train	1	3
Train composition failure	1	3
Authorised signal passing without verification	2	3
Train or rail vehicle running without authorisation	2	3

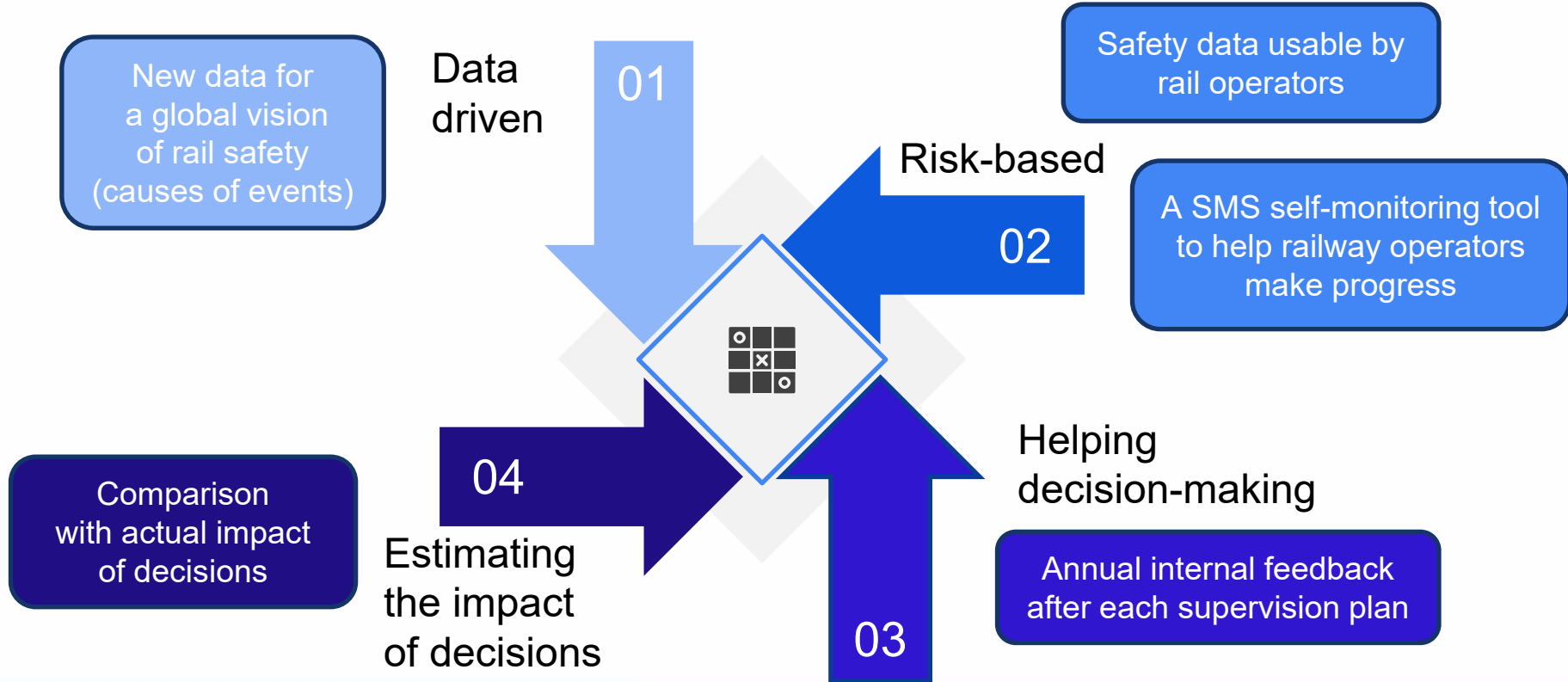
2 Selection of safety events



4- First estimate of the impact of decisions

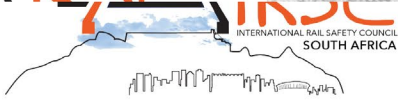


What next?





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