Perceiving operations safety from remote

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operations
Bring monitoring to a new level

overview
the goal
how to reach
other benefits
Railway accidents: trend and causes

overview

Accidents related to human factors are **stabilizing** (~144 per year)

Stable = need a change to decrease more
Human factors

76% behaviour
14% communication/organisation

the train driver factor

data & graphs from UIC Safety Database Report 2014
Increasing trend
(UIC safety report 2014)

Collisions between trains + derailments trend is increasing

COUNTERMEASURES

Improving train driver factor

Solution
Monitor operations safety

countermeasure
measure

goal
Key definitions

PERCEIVE to **achieve** understanding of something directly through **senses**

SAFETY not exposed to the threat of danger or injury free from risk; **sure**

OPERATIONS the state of being operative or functional

REMOTE **distant** in space and/or time

KNOW to apprehend with **certainty**
Before vs after

- sampled checks: belief
- risky risk monitoring

vs

- systematic checks: knowledge
- higher level of accuracy
- best practices monitored
A higher level of monitoring

- monitor human factors
  - detect habits
  - know the performance
  - inspect all engines/drivers/trips/shunting
  - correlate data with contextes

- set thresholds to get alerts
  - define areas to refine alerts

- feed southboud systems with exact data
  - get driver route knowledge indicator for free
Other benefits

Short term

- know training needs and topics
- get new indicators for the company
- save on on-the-run monitoring
- *uncouple* process from diverse data recorder vendors

Medium term

- detect and monitor best practices
- demonstrate risk reductions
- get a *baselined* information stream to build on
Conclusions

- human factors affect safety
- safety has vital importance
- knowledge is a basis for safety
- engine data is a source of knowledge about operations performance
- systematic analysis provides trends on behaviours

Bring monitoring to a new level