monitoring train operation's safety from big data
Railway accidents' trend and causes

The human factor

behavioural 76%

train driver 29-58%

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

Collisions between trains + derailments trend is increasing

COUNTERMEASURES

Collisions:
- Collision with an obstacle
  - 19% failures due to track & switch maintenance
  - 33% failures due to track & switch maintenance
  - 16% failures due to traffic operating & signalling
  - 10% failures due to other staff at IM
  - 5% failures due to other staff at RU
- Collision between trains
  - 58% failures due to train driver
  - 10% failures due to traffic operating & signalling
  - 21% failures due to track & switch maintenance
  - 2% failures due to track & switch maintenance
  - 2% failures due to other staff at IM
- Derailment
  - 22% failures due to track & switch maintenance
  - 28% failures due to traffic operating & signalling
  - 5% failures due to other staff at IM

Improving train driver factor

solution
Monitor operations safety

countermeasure

measure
Before vs after

- sampled checks = estimation, belief
- risky risk monitoring

vs

- systematic checks: knowledge
- higher level of accuracy
- best practices monitored
In a nutshell

- 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 operations monitoring to a new level with **RePTILE**

pluggable lizard **brain**
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