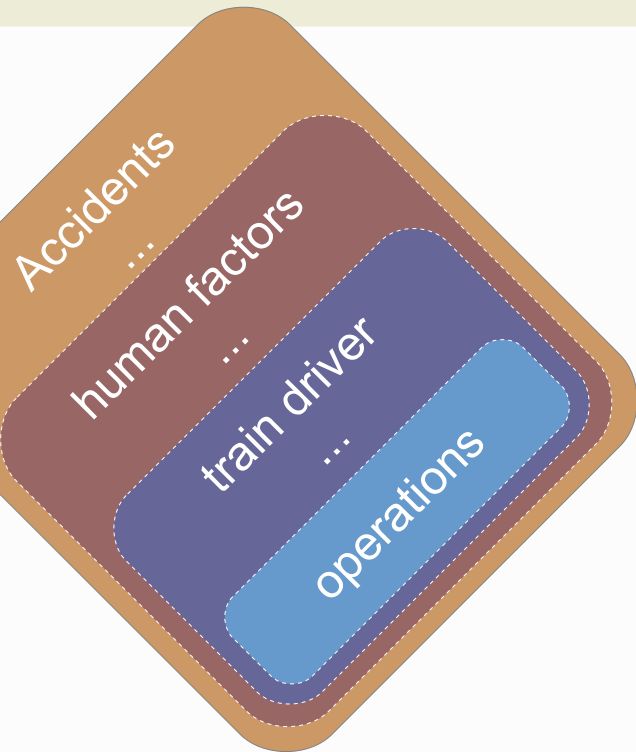


# Perceiving operations safety from remote

UIC FIATA Marketplace Seminar  
Antwerp 24 25 September 2015

Paolo Righetti  
founder Fretless Idea

*operations*  
**Bring monitoring to a new level**



**overview**

**the goal**

**how to reach**

**other benefits**



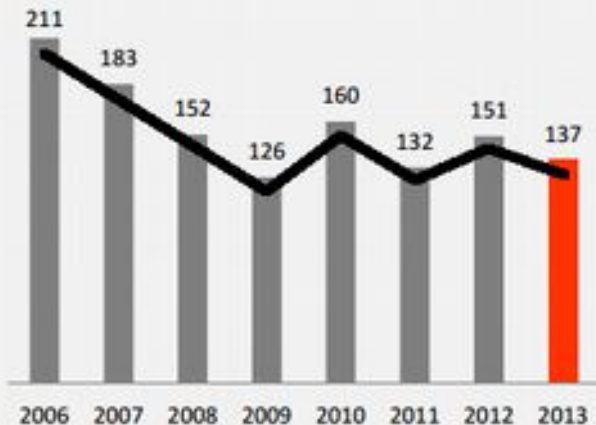
# Railway accidents: trend and causes

overview

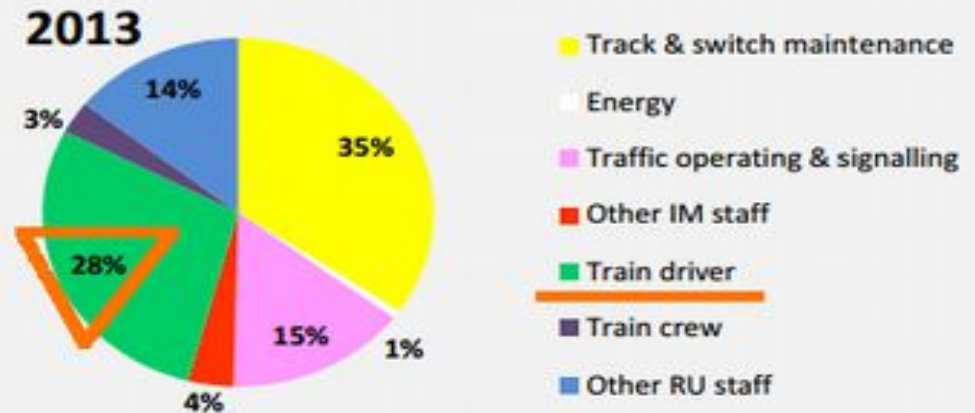
Accidents related to human factors are stabilizing (~144 per year)

Stable = need a change to decrease more

2.1 Accidents related to Human Factors since 2006



2.9 Causes at second level



data & graphs from UIC Safety Database Report 2014



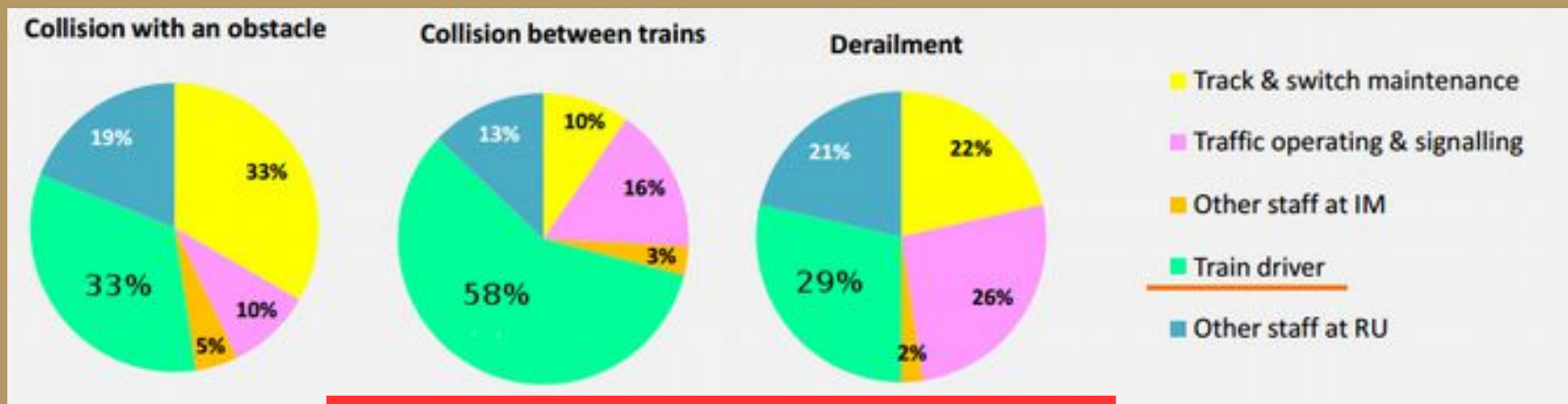
# Human factors

focus

76% behaviour  
14% communication/organisation



the train driver factor

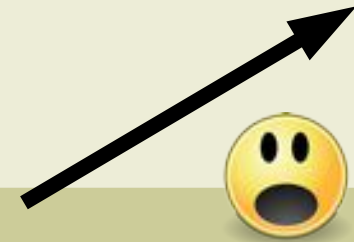


data & graphs from UIC Safety Database Report 2014



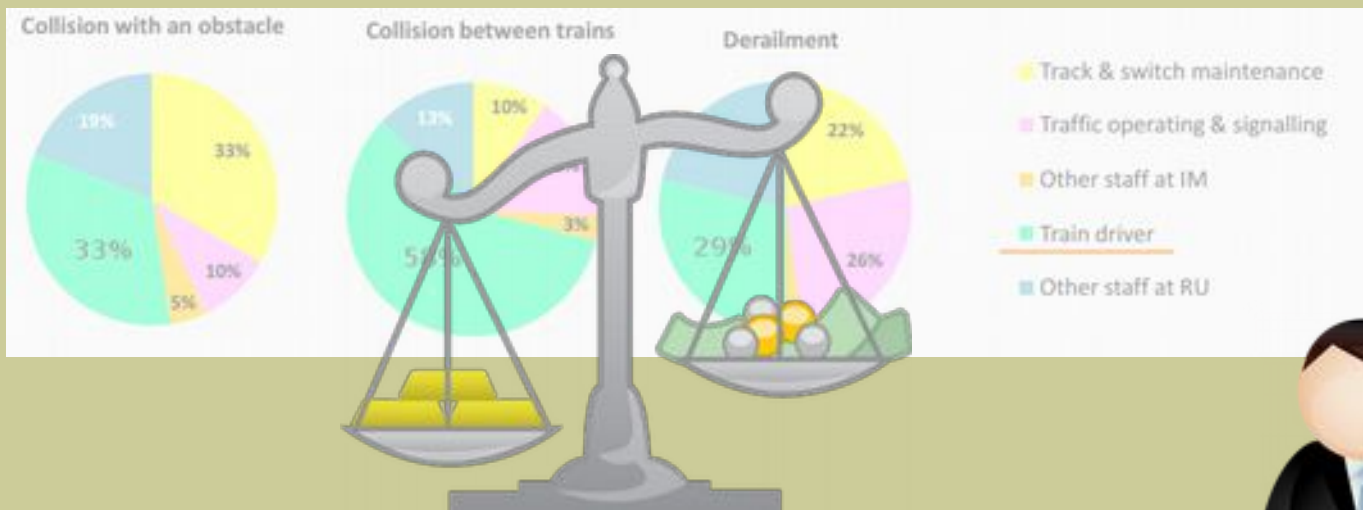
# Increasing trend

(UIC safety report 2014)



## Collisions between trains + derailments trend is increasing

### COUNTERMEASURES



improving  
train driver  
factor



# Monitor operations safety

goal

countermeasure



measure





# Key definitions

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**



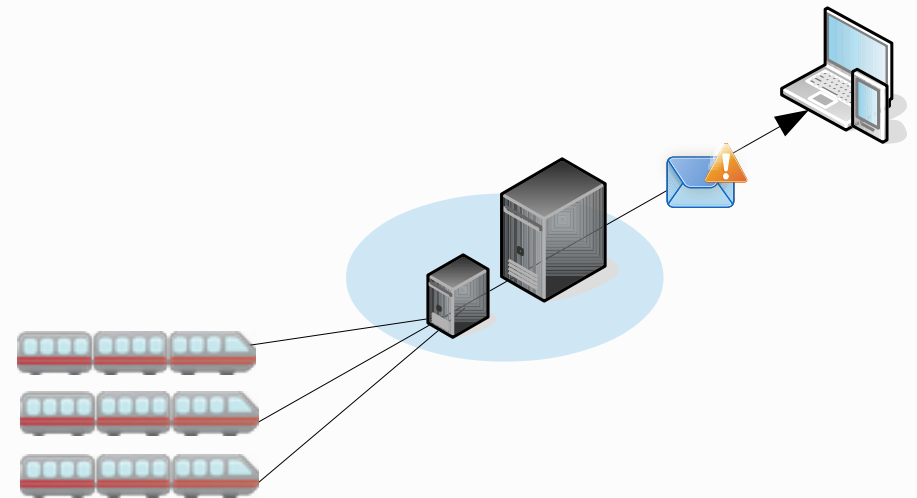
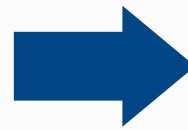
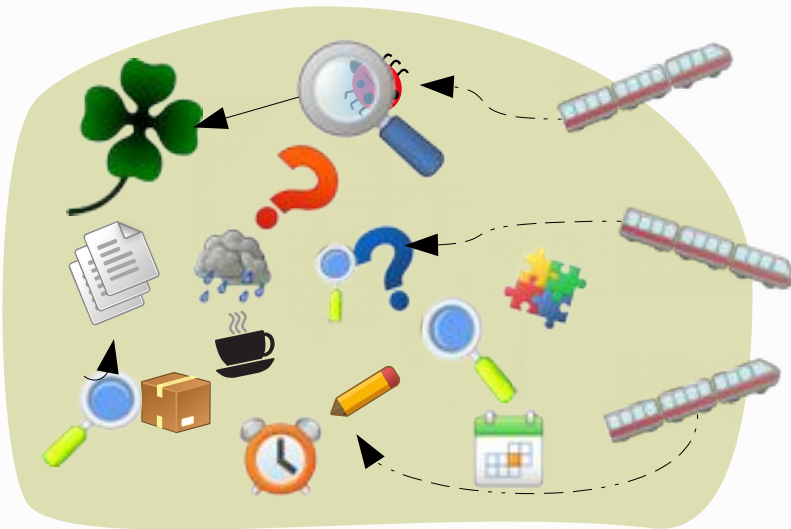
# Before vs after

quality

- sampled checks: **belief**
- **risky** risk monitoring

VS

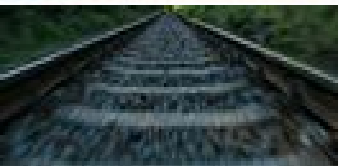
- systematic checks: **knowledge**
- **higher** level of accuracy
- **best practices** monitored





# A higher level of monitoring

examples



- 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 southbound systems with **exact** data
  - get **driver route knowledge** indicator for free



# Other benefits

examples



## 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

Locolog  
Journey Starts



operations  
**Bring monitoring to a new level**

