

Level crossing safety in the EU

Where do we stand and where are we heading, in Europe?

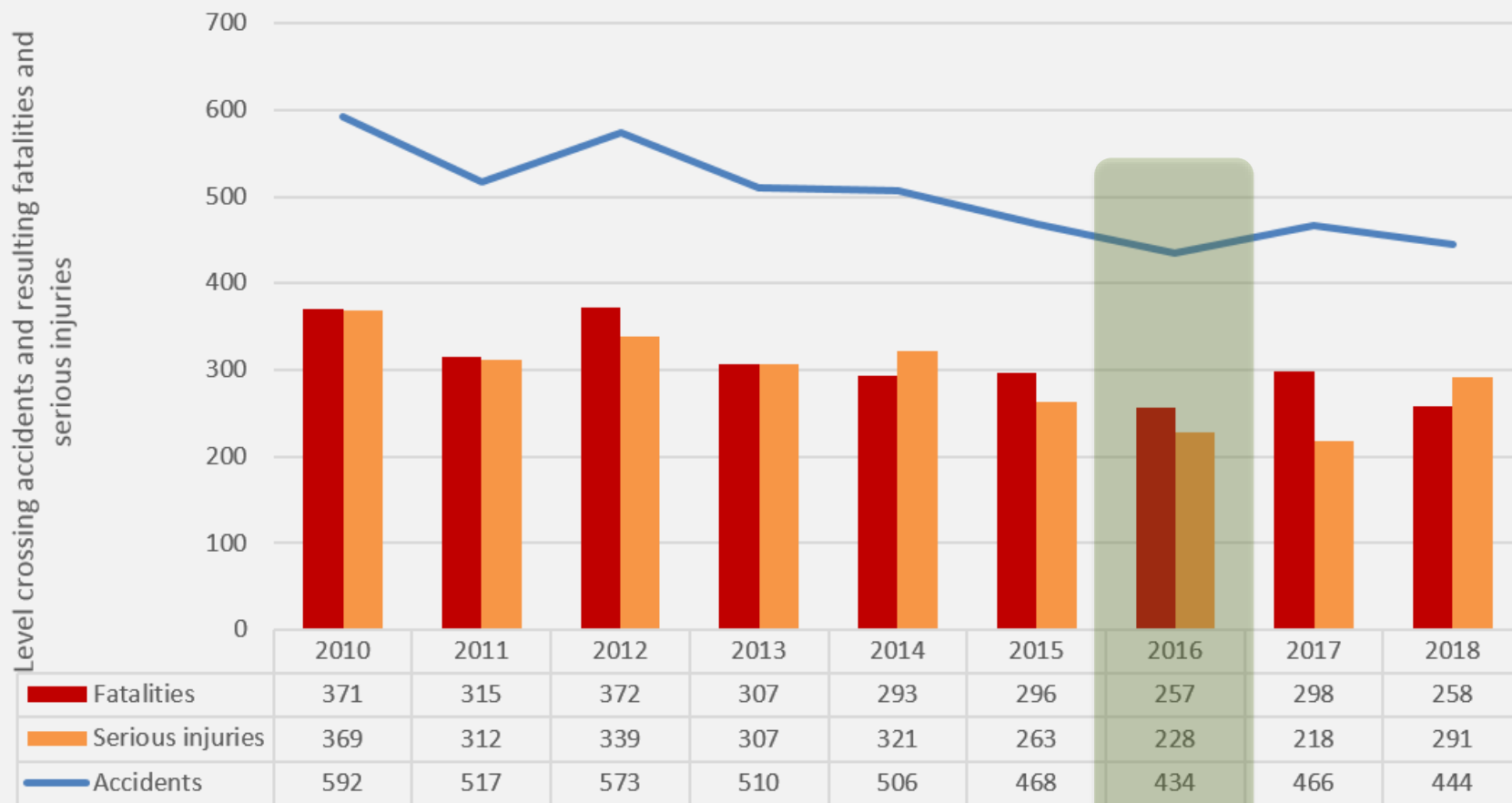
- Almost 300 people die annually in accidents at level crossings in the EU¹
- Total costs estimated at €1 billion per year²
- LC users fatalities represent 31 % of railway fatalities, but only 1 % of road fatalities > Urgency perception gap
- Diverging interests/priorities of responsible agents > Intersection of interests

1) EU-28 as of end 2019

2) Of which €850 million for casualties alone, Unit costs from [Handbook on the external costs of transport](#), CE Delft 2019

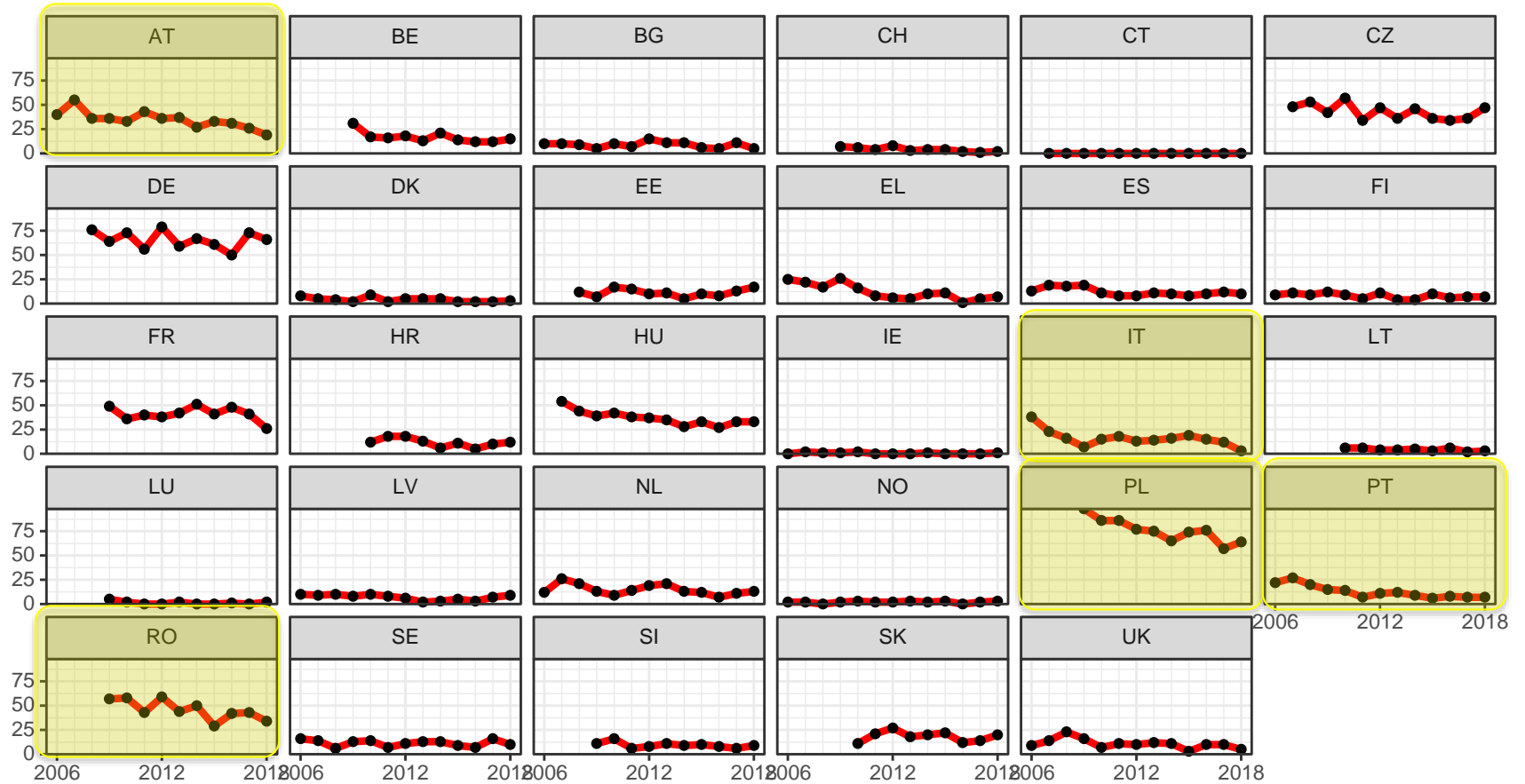
Level crossing accidents and resulting casualties

Significant accidents, fatalities and serious injuries, EU-28



Source: Common Safety Indicators (CSIs) as reported by National Safety Authorities (NSAs) to the Agency, published in ERAIL

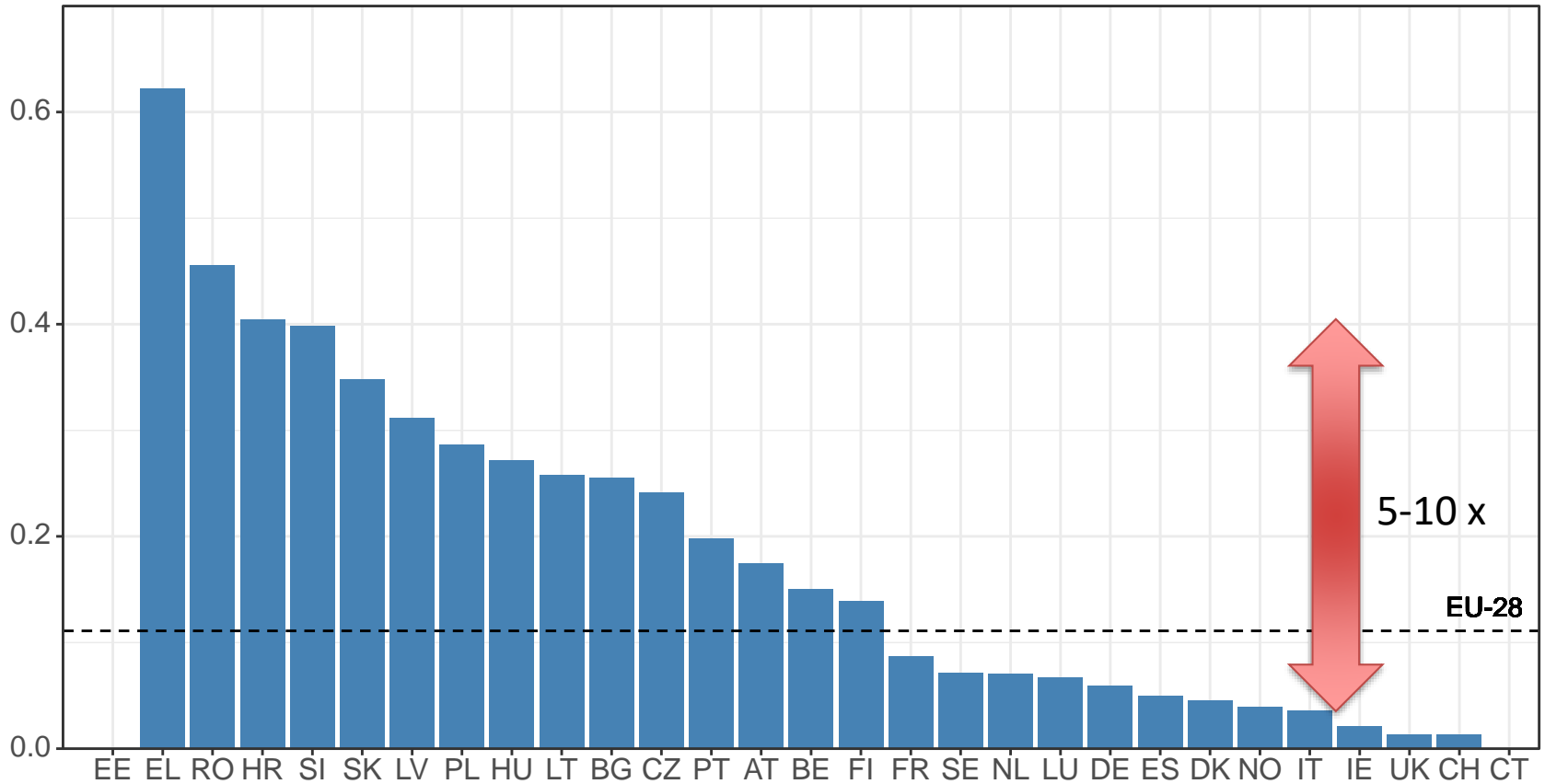
Significant accidents at level crossings



Source: CSI (ERAIL)

Level crossing accidents rate

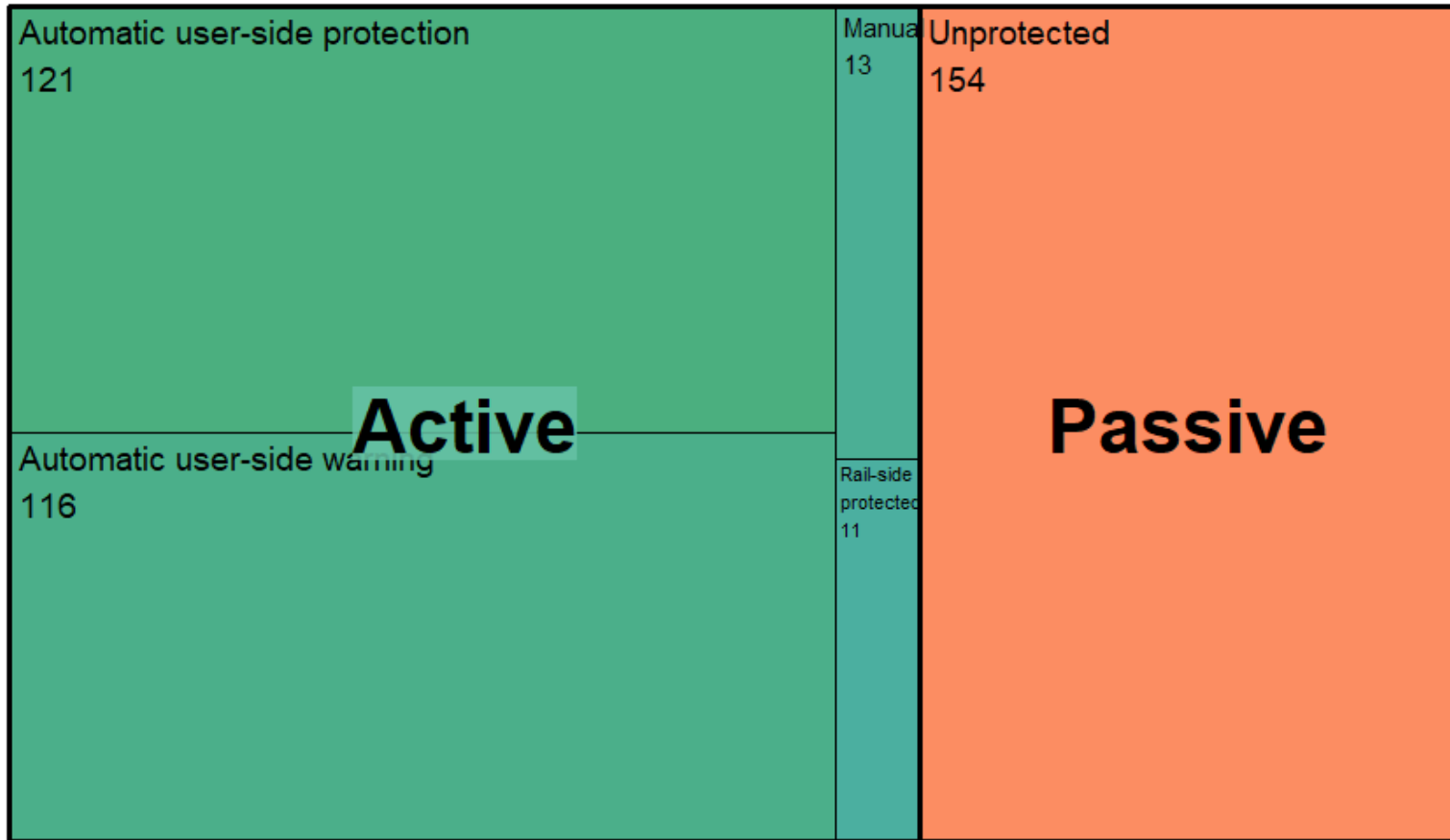
Significant accidents at level crossings per million train kilometers (2004-2018)



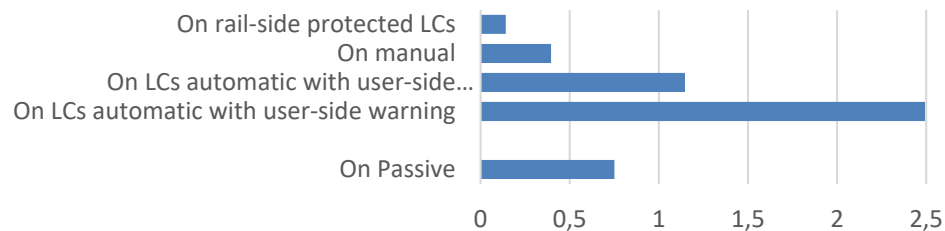
Source: CSI (ERAIL)

LC types and significant accidents on them

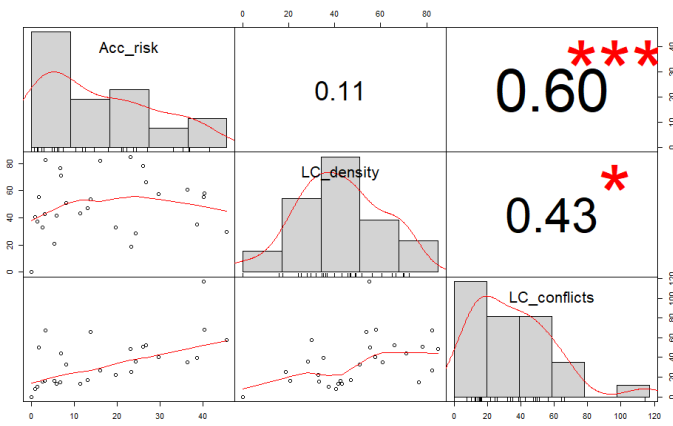
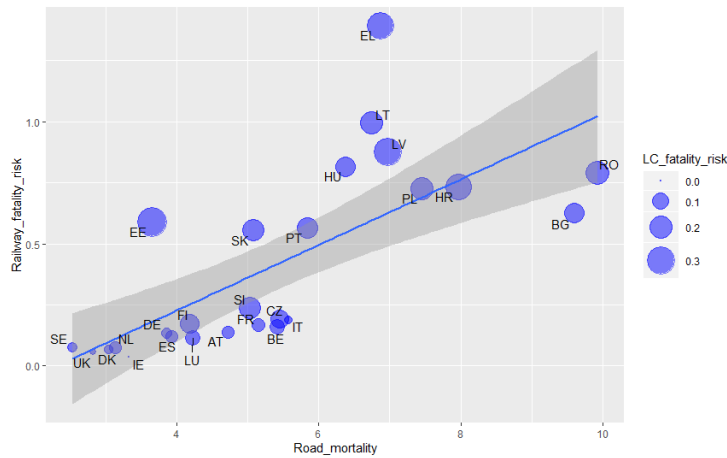
Significant accidents per LC type (EU-28, average (2016-2018))



Odds ratios: LC accidents per LC type

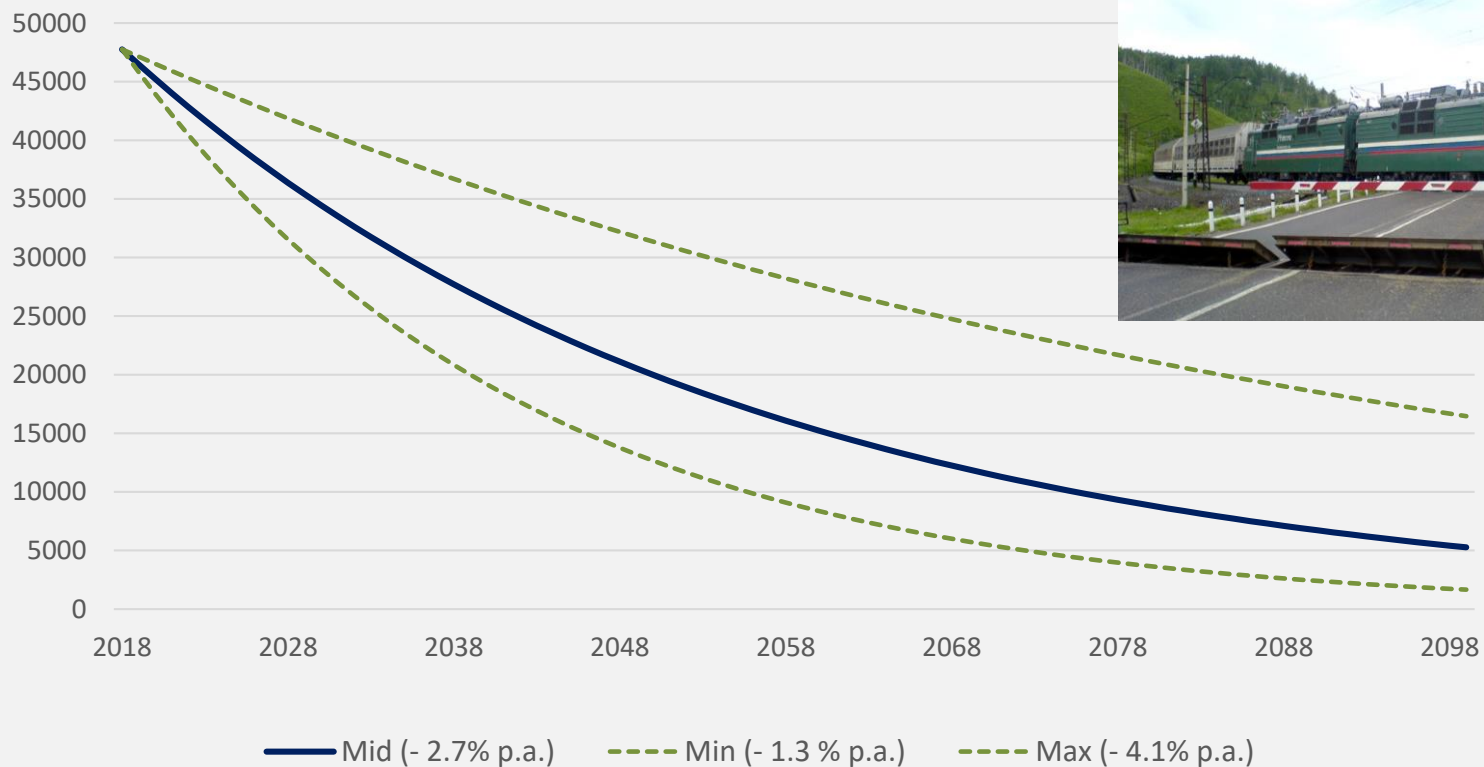


Road and user attributes available at the EU level provide very limited insight as they poorly represent known risk contributing factors > low learning potential.



- 105.300 level crossings in the EU-28 in 2018
- Passive LCs and LCs in general disappear at a low pace
 - Still some 35.000 LCs by the end of century, of which 5.000 passive!

Passive (unprotected) LCs in the EU-28 (forecast)



**Too frequent accidents at level crossing
(lowered quality of life, economic impact)**

Presence of LCs

1. Insufficient protection (road, rail side)

2. Insufficient evidence on problems, causes and costs

3. Ineffective risk assessment and management

4. Poor safety culture at IM

Technical solution too expensive / no single market / no common technical requirements

Insufficient statistical data / insufficient independent accident investigation

Lack of knowledge, capacity, methods

Lack of awareness of underlying cause, responsibility on road users / insufficient accident investigation

ACTIONS ON ROOT CAUSES

LEGEND:

PROBLEM

MEDIATOR

DRIVERS

Sub-drivers

Problems turned into actions

1. Eliminate LCs,
upgrade with
protective devices

2. Collect and analyze
data and information
from LC accidents

3. Use of risk
assessment and
management
techniques

4. Improving safety
culture

*Credible plan: target,
strategy, actions,
measures*

*Better statistical and
in-depth investigation
data*

*Knowledge and
capacity building,
methods and tools*

*Raising awareness of
genuine underlying
causes, just and
reporting culture*

A goal without a plan
is just a wish.

We do not know what
we do not know.

Do have experts on
yesterday, do we have
ones for tomorrow?

What is not “taken for
granted” yet?



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