

Level crossing safety in the EU

6th Stakeholders' Conference

The Danube Region Transport Day 2021 – 17 December 2021

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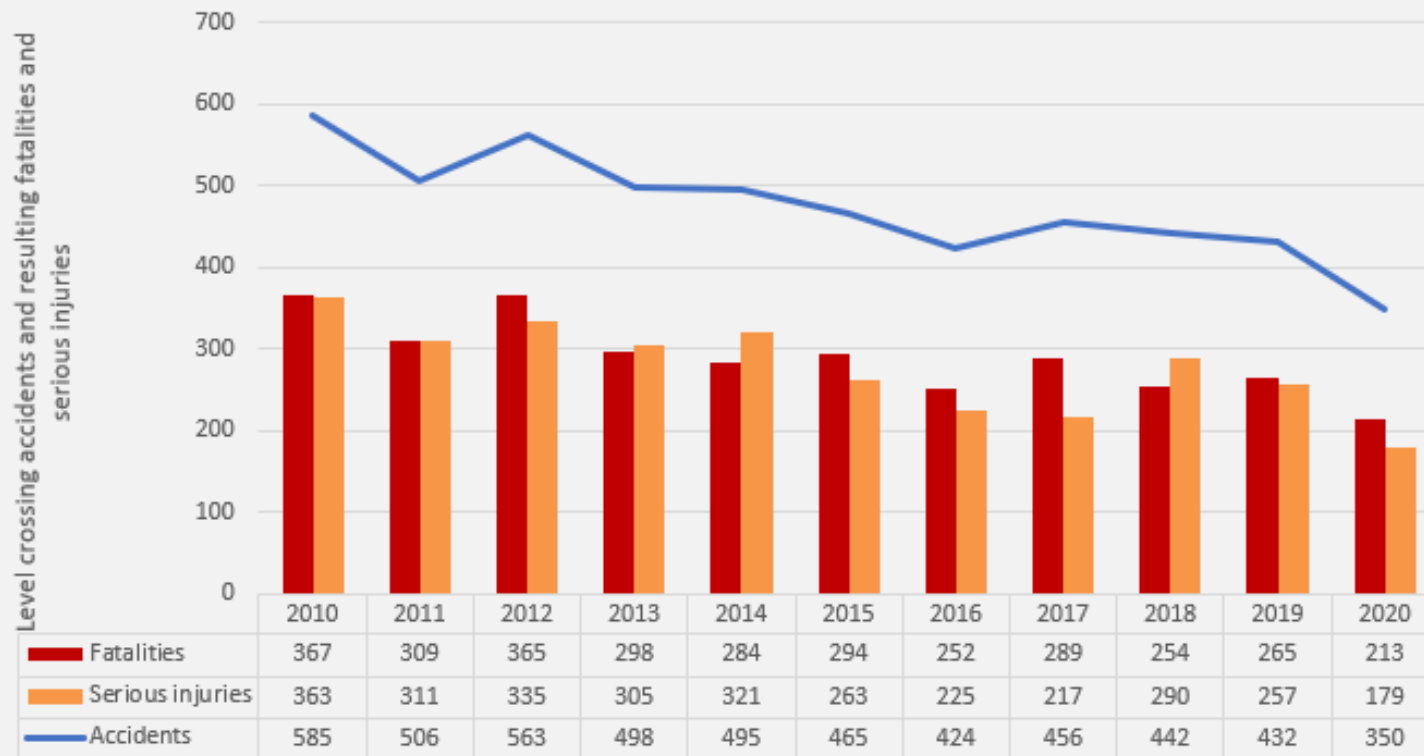
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- Road and rail networks are crossing due to historical design of roads/rail, urban areas or farming, cycling and walking paths;
- Level crossings are a serious hazard for rail safety killing more than 200 people/year in the EU. Material damages are also substantial in terms of loss of assets and disruptions to traffic



Level crossing accidents and resulting casualties, EU-27

Significant accidents, fatalities and serious injuries



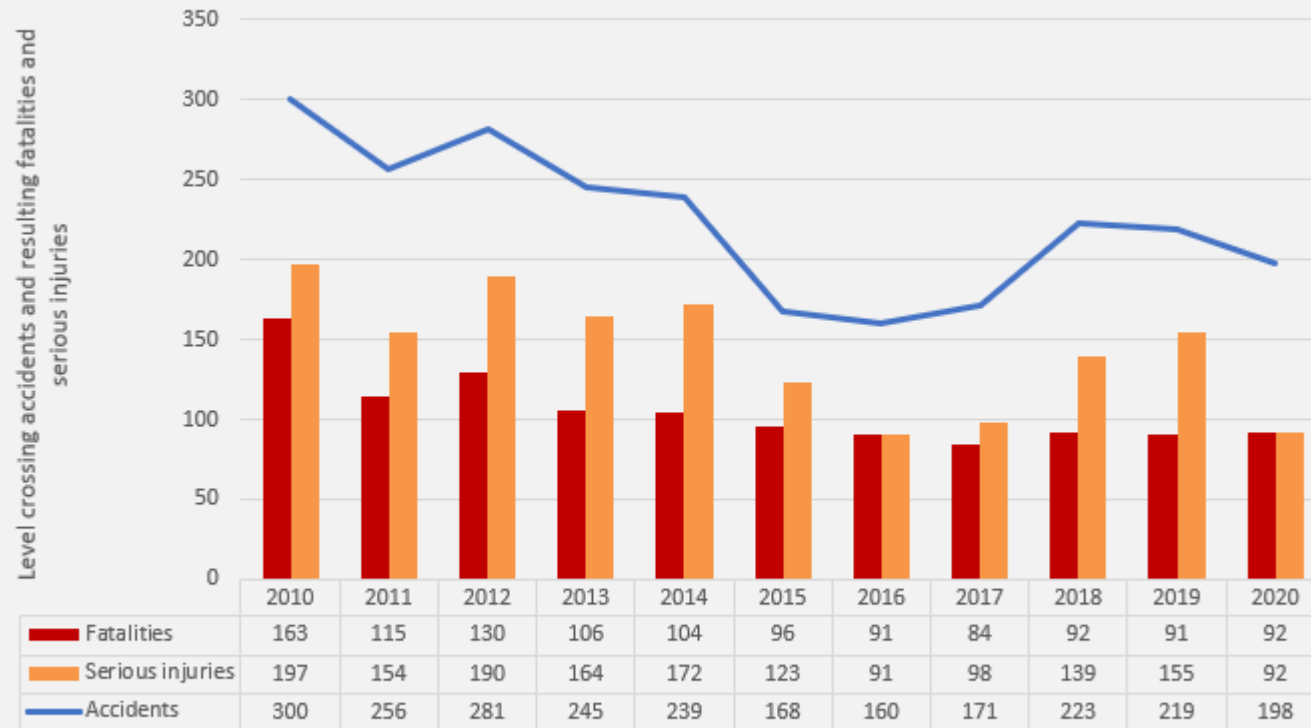
Source: Common Safety Indicators (CSIs) as reported by National Safety Authorities (NSAs) to the Agency, published in ERAIL

https://www.era.europa.eu/library/corporate-publications_en

Main safety outcomes in Danube Macro Region

Level crossing accidents and resulting casualties, Danube macro-region*

Significant accidents, fatalities and serious injuries



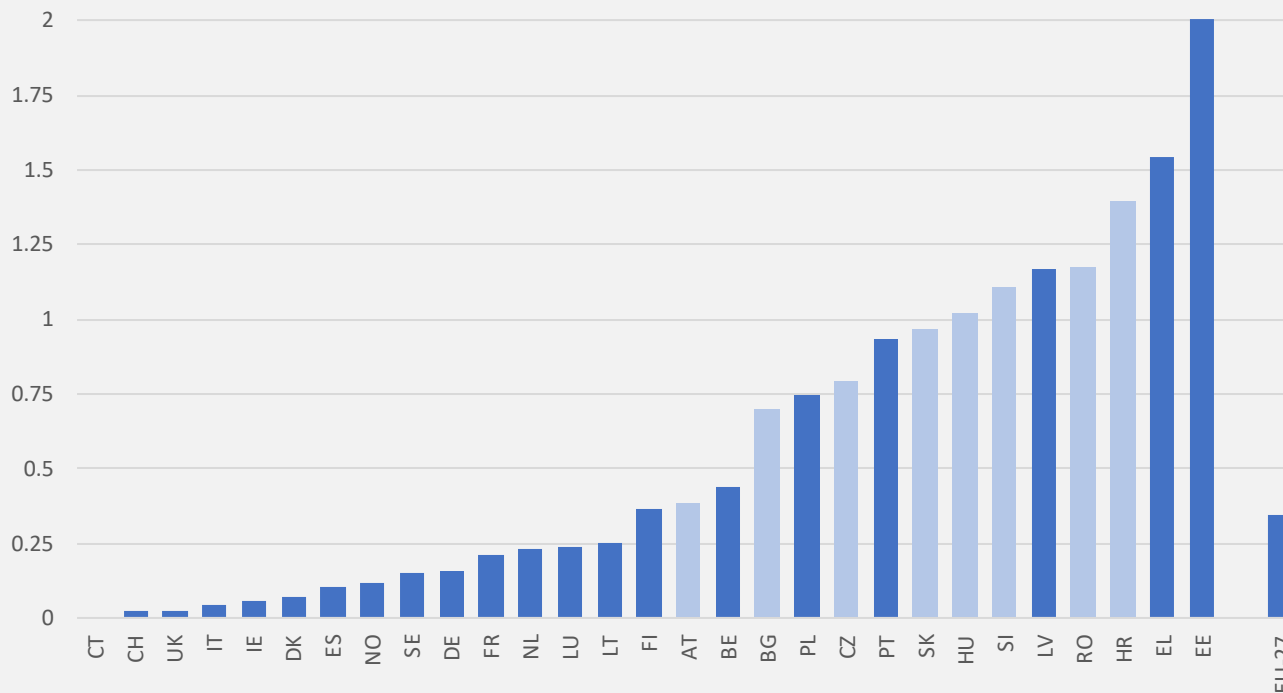
Source: Common Safety Indicators (CSIs) as reported by National Safety Authorities (NSAs) to the Agency, published in ERAIL, Ilcad for data on Serbia

*excluding Baden-Württemberg and Bayern, Bosnia & Herzegovina, Montenegro, Moldova and Ukraine's regions

- Over 2018-2020, compared to EU27 the Danube macro-region EU MS accounted for:
 - 41% of accidents, 35% of fatalities, 53% of serious injuries

Level crossing accident rates

Significant accidents at level crossings per million train-km, 2018-2020



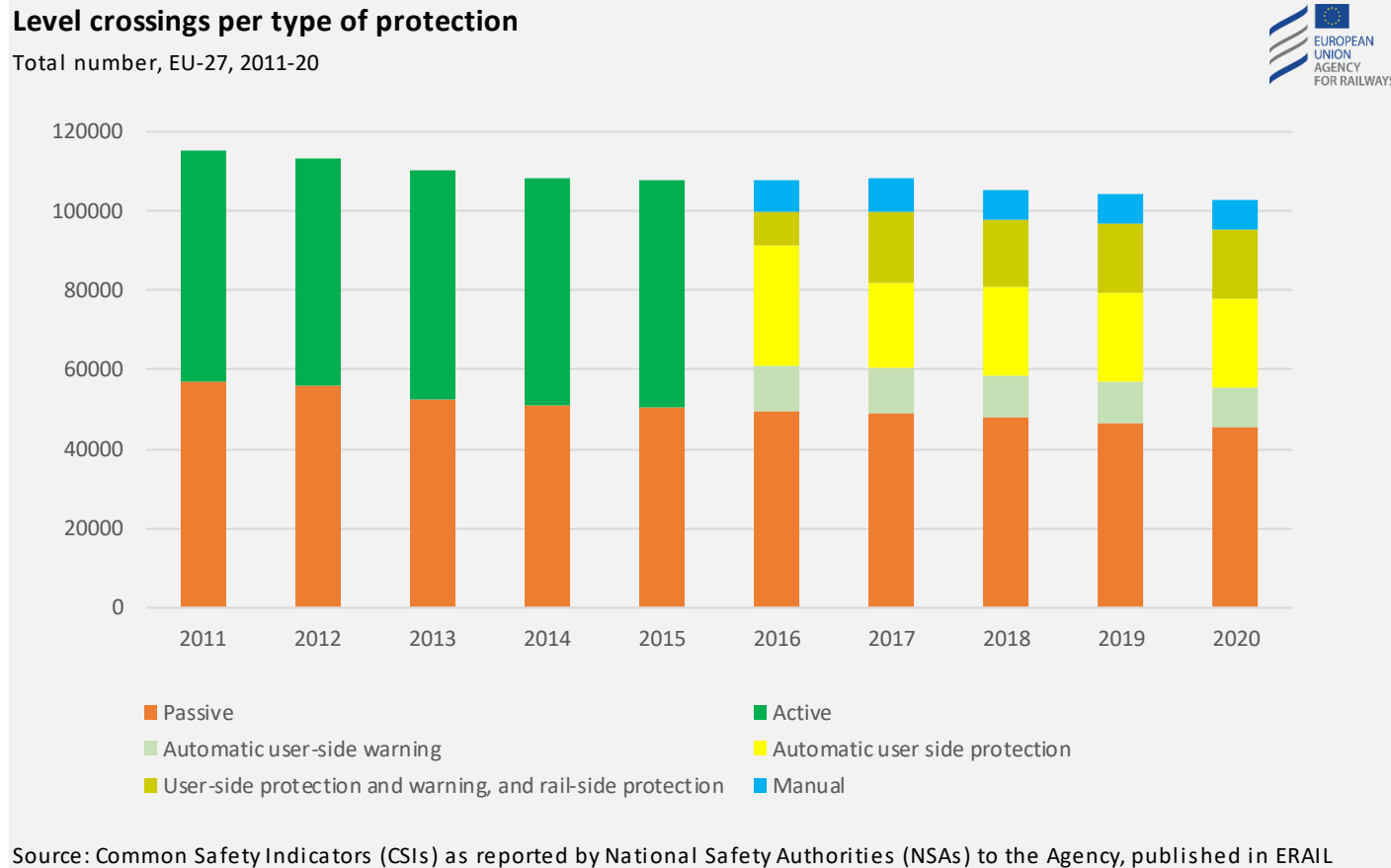
Source: Common Safety Indicators (CSIs) as reported by National Safety Authorities (NSAs) to the Agency, published in ERAIL

- Over 2018-2020, the Danube macro-region EU MS show high accident rates

Level crossing types

- Accidents are mostly due to road users' behaviours;
- Level crossing types do influence the accident rates:
 - Passive
 - Active
 - Automatic user side warning
 - Automatic user side protection
 - User-side protection and warning, and rail-side protection
 - Manual



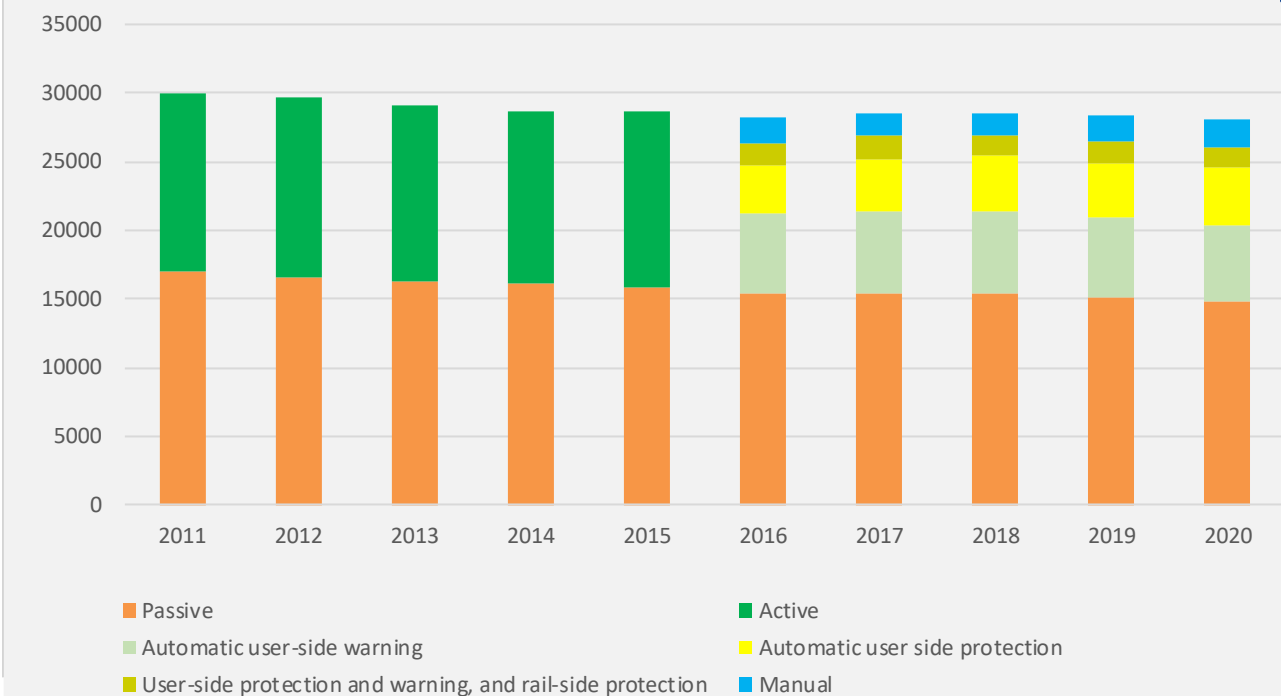


- Over 2011-2020, passive LC reduced by 21%
- In 2020 there are still more than 40000 passive LC out of 97000 LC in total

Level crossing types in the Danube macro-region EU MS

Level crossings per type of protection

Total number, Danube macro-region EU MS*, 2011-20



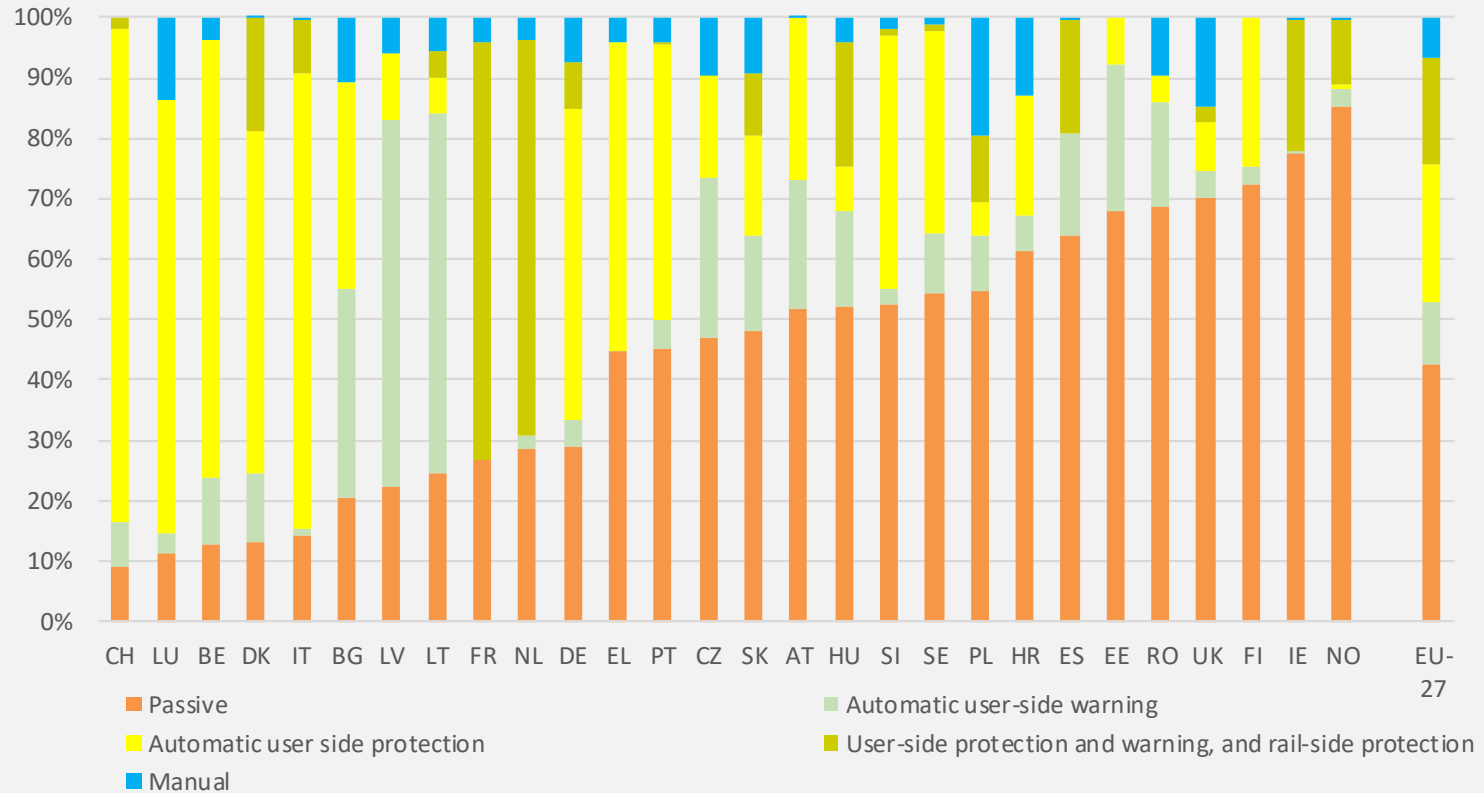
Source: Common Safety Indicators (CSIs) as reported by National Safety Authorities (NSAs) to the Agency, published in ERAIL

*excluding Baden-Württemberg and Bayern

- Over 2011-2020, passive LC reduced by 13%
- In 2020 there are still more than 14000 passive LC out of 28000 LC in total

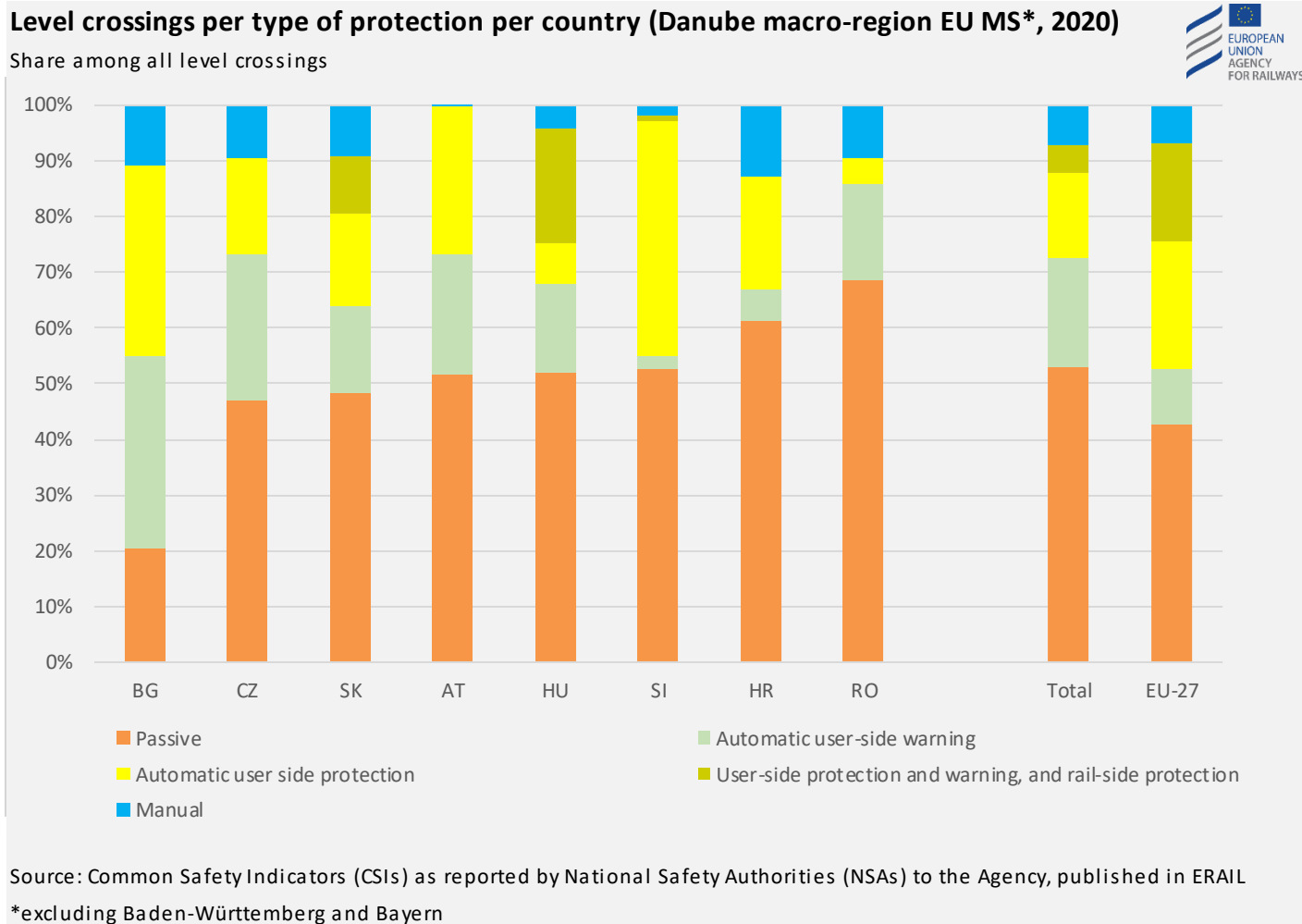
Level crossings per type of protection per country (ERA countries, 2020)

Share among all level crossings



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

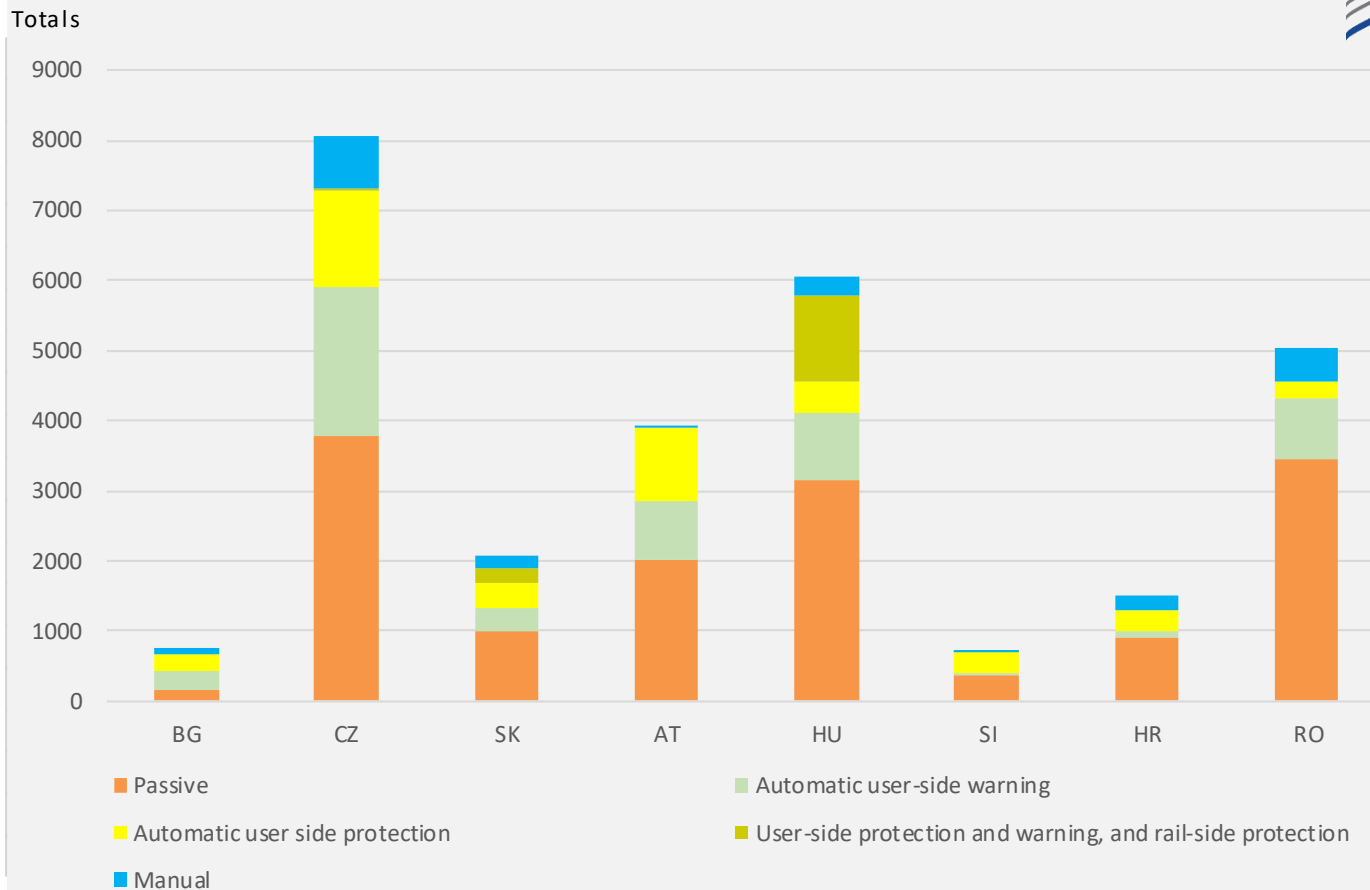
Focus on per country figures Danube macro-region EU MS



- In 2020 the EU MS Danube Region accounted for 29% of all LC in the EU27, however:
 - 36% of all passive LC, 56% of all LC with automatic user-side warning and only 8% of LC with also rail-side protection

Focus on per country figures Danube macro-region EU MS

Level crossings per type of protection per country (Danube macro-region EU MS*, 2020)



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

*excluding Baden-Württemberg and Bayern

**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 in the rail sector

Technical solution too expensive / no single market / no common technical requirements / too many decision-makers

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 LCs with protective devices user and rail side

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

- Many IMs and governments succeeded in eliminating LCs
- Until all LCs are eliminated, LCs need to be fully protected road/rail side and connected to ETCS, GSM-R or other TP systems



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