

Level crossing safety in the European Union

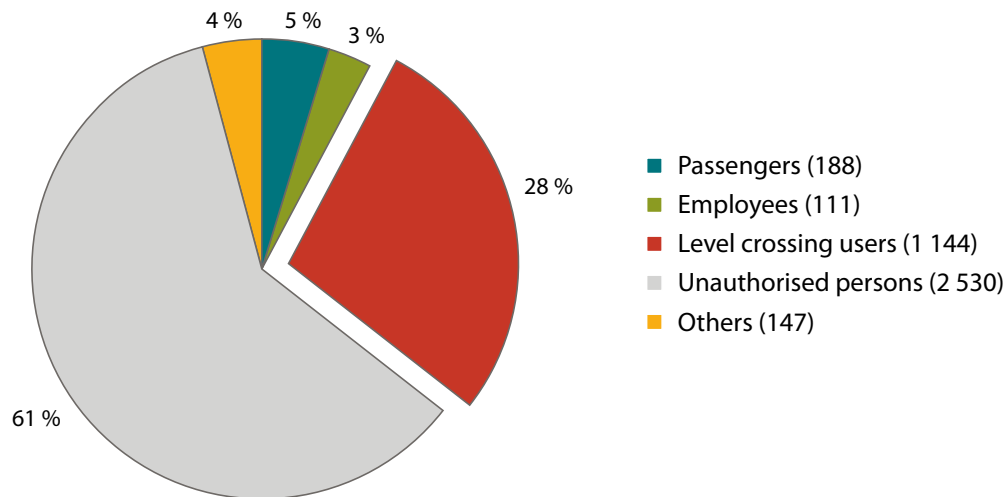


How big is the level crossing safety problem?

In 2010, 619 significant LC accidents occurred in the EU resulting in 359 fatalities and 327 serious injuries. LC accidents represent 27 % of all significant railway accidents and 28 % of all fatalities on railway, suicides excluded. At the same time, only one in one hundred of road users that die each year on EU roads dies on level crossing.

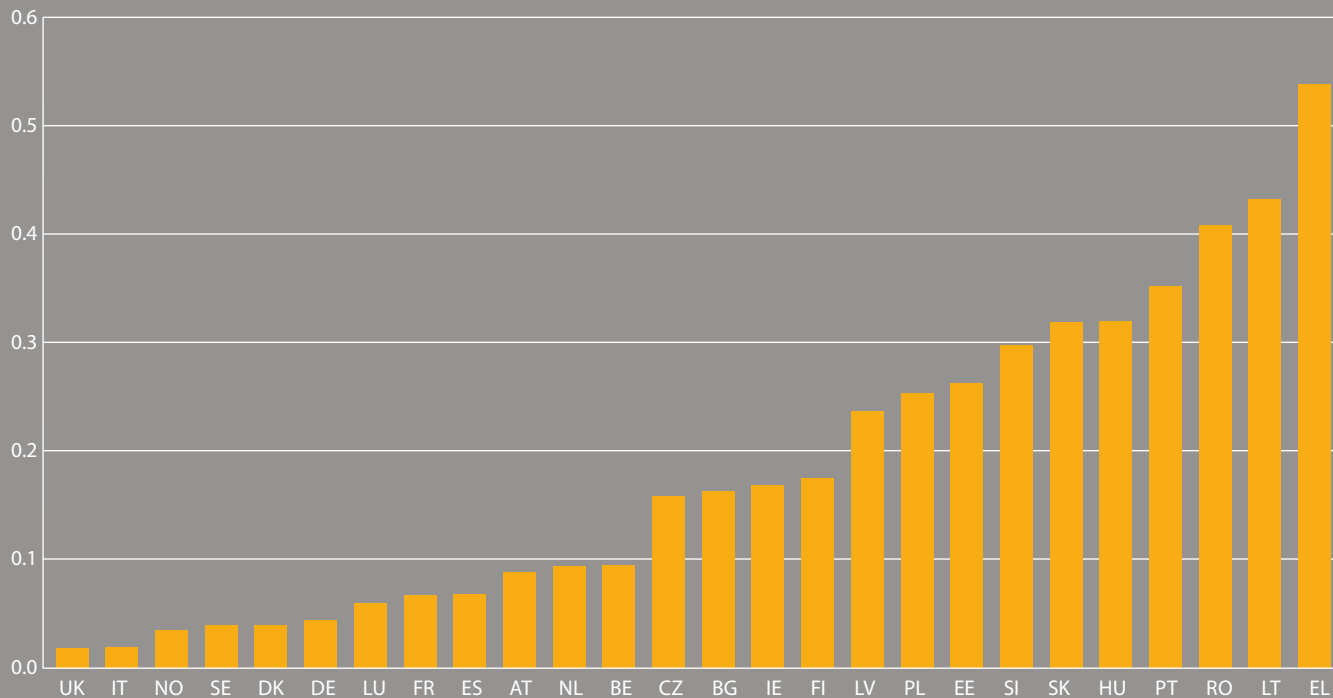
Economic impact of fatalities and serious injuries in level crossing accidents in 2010 is estimated at EUR 350 million. Costs of delays due to level crossing accidents are not available at EU level, but LC accidents have damaging impact on the key strengths of the rail transport: safety, reliability and speed.

Railway fatalities per user category (2008-2010)



What is the risk at level crossings in EU countries?

Level-crossing deaths per million train kilometers (2008-2010)



Note: All graphs presented are based on data reported by Member States to ERA as part of Common Safety Indicators (CSIs), in line with the Annex 1 of Directive 2004/49/EC (Railway Safety Directive) as amended by Commission Directive 2009/149/EC.

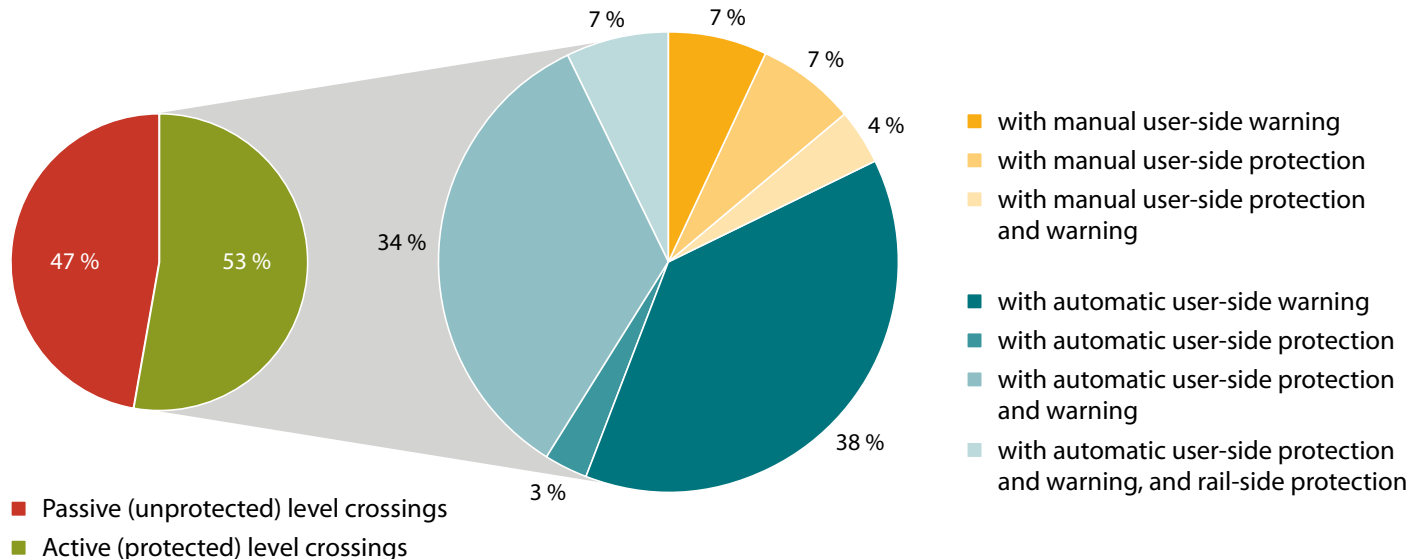
Types of level crossings

There are currently about 120 000 level crossings in the EU. On average, there are five level crossings per 10 line-km in the EU; half of them are active level crossings with some sort of user-side warning. The reminder are passive level crossings typically only equipped with the St. Andrew's cross traffic sign.

Level crossings with automatic user-side warning (typically flashing lights and sound) are the most common type of active crossings (38 %) closely followed by the level crossings with automatic user-side protection and warning (barriers with lights) (34 %).

Share of active level crossings among all level crossing (2010)

Active level crossing types (2010)



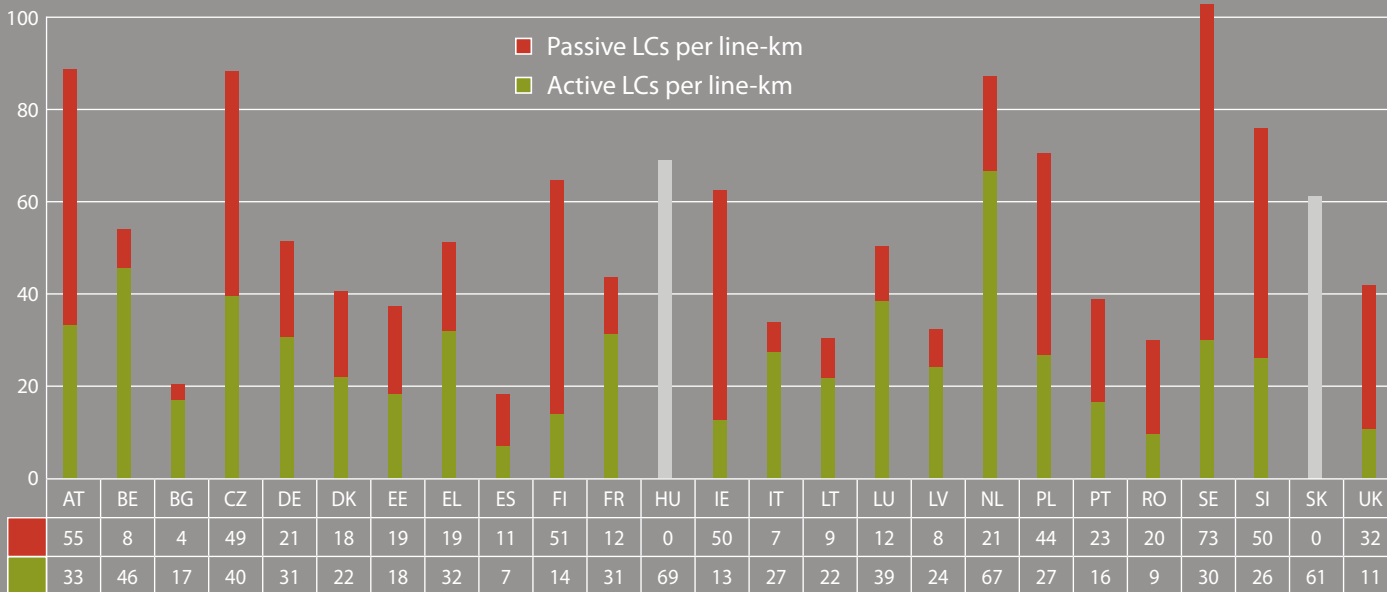


Level crossings density in EU countries

On average, there are five level crossings per 10 line-km in the EU; Sweden, Austria, the Czech Republic and the Netherlands have the highest density of level crossings in terms of level crossings per line-kilometre. Of these, the Netherlands has the highest ratio of active level crossings to all level crossings. A low ratio of active level crossings to all level crossings is typical for the less densely populated countries.

Spain has the lowest average number of level crossings per line-kilometre: there is one level crossing per 5 line-km. Separate statistics on the number of active and passive level crossings were not available for Denmark, Hungary and Slovakia in 2010.

Average number of level crossings per 100 kilometers (2010)



Identifying causes of level crossing accidents: the role of NIBs

Accidents at level crossings are occasionally subject to independent accident investigation carried out by national investigation bodies (NIBs). They issue accident investigation reports pointing to not only direct but also indirect and underlying causes of these accidents.

It is only in a minority of cases that the accident can be attributed solely to the road user. Very often, the underlying causes were related to the technical equipment or the layout of the level crossing. If identified, root causes were pointing to insufficiencies in the safety management systems of infrastructure managers and the framework of rules and regulations.

In some European countries, the NIB is a part of a wider organization investigating not only rail, but also aviation or maritime accidents. Independent investigation of road accident is nowadays not institutionalized in EU countries and it is carried out on a limited scale by a few EU countries only.

Analytical approach to level-crossing safety includes regular analysis of accident and incident risk, systematic investigation of level-crossing accidents carried out jointly by road and rail safety authorities. European Railway Agency Database of Interoperability and Safety (ERADIS) contains more than 300 final investigation reports on level crossing accidents that occurred on EU railways since 2004.

<http://eradis.era.europa.eu/>



