2010

Railway Safety Performance in the European Union



European Railway Agency









Railway Safety Performance in the European Union

2010

European Railway Agency



Foreword

This is the third report that the Agency has published on the development of railway safety in Europe. The editing was finished only a few weeks after the train collision in Buizingen near Halle in Belgium on 15 February 2010. As a matter of fact, we have had two major serious accidents in Europe in less than a year — in Viareggio in June 2009 and the recent one in Buizingen. Around 50 people have been killed in the two accidents and numerous persons have been seriously injured. This reminds us that rail transport is a risky activity and that all possible diligence must be exercised to try to avoid accidents like these. The investigation reports are still not available and it would be premature to draw conclusions on the causes of the accidents.

There are, however, some similarities between the two accidents which raise concern about how safety is managed by railway operators in Europe. In both accident cases the chief executive officers (CEOs) of the railway undertakings and infrastructure managers involved did not stand up and take responsibility. Instead we had to witness a shameful and degrading play in front of media and victims where CEOs tried to put the blame on someone else and even (in the last case) tried to pass responsibility to the European Commission.

Experience shows that catastrophes, like the Viareggio and Buizingen accidents, never have a single and simple cause. There is always a complex chain of events and deficiencies that lead to these kinds of accidents. Causes can almost always be traced back to managerial, organisational and human interface factors. A catastrophe is an accident of the organisation. In addition, there are always precursors that, correctly interpreted, should have rung the alarm bell to the management, if it takes care to properly manage safety.

The Railway Safety Directive (2004/49/EC) requires railway undertakings and infrastructure managers to implement a safety management system — actually a pre-condition to obtain a certificate to operate. The key element of such a safety management system is always the commitment from top management, in particular the CEO. He or she must understand that responsibility for managing safety remains at the top level of the company and that it cannot be passed on to operational staff or contractors. If this commitment does not exist the safety management system is more or less void and merely a binder of documents.

Further on in the report the reader may find more information about the concept of safety management and the proposals developed by the Agency to arrive at a common approach to assessment of the safety management systems.



Anders Lundström
Head of Safety Unit



Contents

2 Foreword
8 Summary, commentary and analysis
- 9 The development of safety
- 10 The risk profile of the railways
  - 11 Level crossing accidents
  - 11 Suicides on railway premises

14 Safety reporting and coordination
- 14 Safety performance
  - 14 Reporting of accident statistics and indicators
  - 14 Revision of Annex I to the Railway Safety Directive
  - 15 Data quality
- 15 Serious accidents
  - 15 Reporting of serious accidents and accident investigations

16 Safety performance
- 17 Accident types
- 17 Fatalities and injuries
- 19 Suicides
- 20 Precursors to accidents
- 21 Accident costs and other CSIs
  - 21 Infrastructure
  - 23 Traffic volumes

24 Serious accidents in Europe
- 25 Reporting by the investigation bodies
  - 26 NIB annual reports
  - 26 Historical archive of accidents
  - 28 Accidents in Europe
    - 28 Zoufftgen accident, France
    - 28 Passenger train fire, Bulgaria
    - 29 Collision with sheep and derailment, Germany
    - 29 Bridge collapse, Czech Republic
    - 29 Tunnel fire, Channel Tunnel
    - 29 Train collision, Hungary
    - 30 Derailment and dangerous goods accident, Viareggio, Italy
    - 30 Bridge collapse, Ireland
    - 31 Suicides, Germany
    - 31 Train collision, Belgium

32 Managing safety
33 Assessing safety management systems
34 Safety certificates issued
34 Common safety targets
34 Safety regulation
35 Further studies on freight train derailments
35 Network of safety authorities
36 Challenges and changes: the future of railway safety
37 Development of safety reporting
37 Development of common safety targets
37 Migration to a single safety certificate
37 The future role of the Railway Agency
39 Looking forward
41 Annex 1 — Common safety indicators
54 Annex 2 — Serious accidents with five or more fatalities since 1990
58 Annex 3 — List of national safety authorities and national investigation bodies
60 Key documents and references



Summary, commentary and analysis



The development of safety

Railways remain a safe form of transport but further analysis of trends based on common safety indicator (CSI) data cannot be done yet. Even though both the number of accidents and the total number of fatalities fell compared to 2007, there are still a substantial number of unauthorised persons and level crossing users killed and the total reported number of fatalities was higher than in 2006.

The national investigation bodies (NIBs) have notified the Agency of 146 accidents that occurred during 2009. The Agency also received 210 investigation reports during 2009 covering accidents dating from 2006 and onwards. In January 2010, the Agency set up a safety information system which enables the Member States and the industry to disseminate information on safety-critical issues.

The issuing of safety certificates according to the Railway Safety Directive is not proceeding as expected. A review of the annual reports from the national safety authorities (NSAs) shows that a number of countries have not yet issued any certificates and some use a combination of the new and old legislation. The use of dual or old legislation will not be possible as from 1 January 2011, when all railway undertakings (RUs) are required to have a certificate issued according to the Railway Safety Directive.

The Agency has concerns as to whether all pending applications for safety certificates will be processed in time before the deadline of 1 January 2011. Up until now, over 300 certificates have been issued. There are, though, three Member States that have not yet issued any part A certificates and that have a large number of pending applications.

Transparency of national safety rules, particularly during this period of change towards the open market, is one of the key conditions for safe operation of the railways. The Agency has evaluated how some of the requirements contributing to transparency of the rules have been implemented in the Member States. We have concluded that a more systematic and common approach is necessary to ensure the comprehensiveness of the national systems of safety rules and their accessibility.

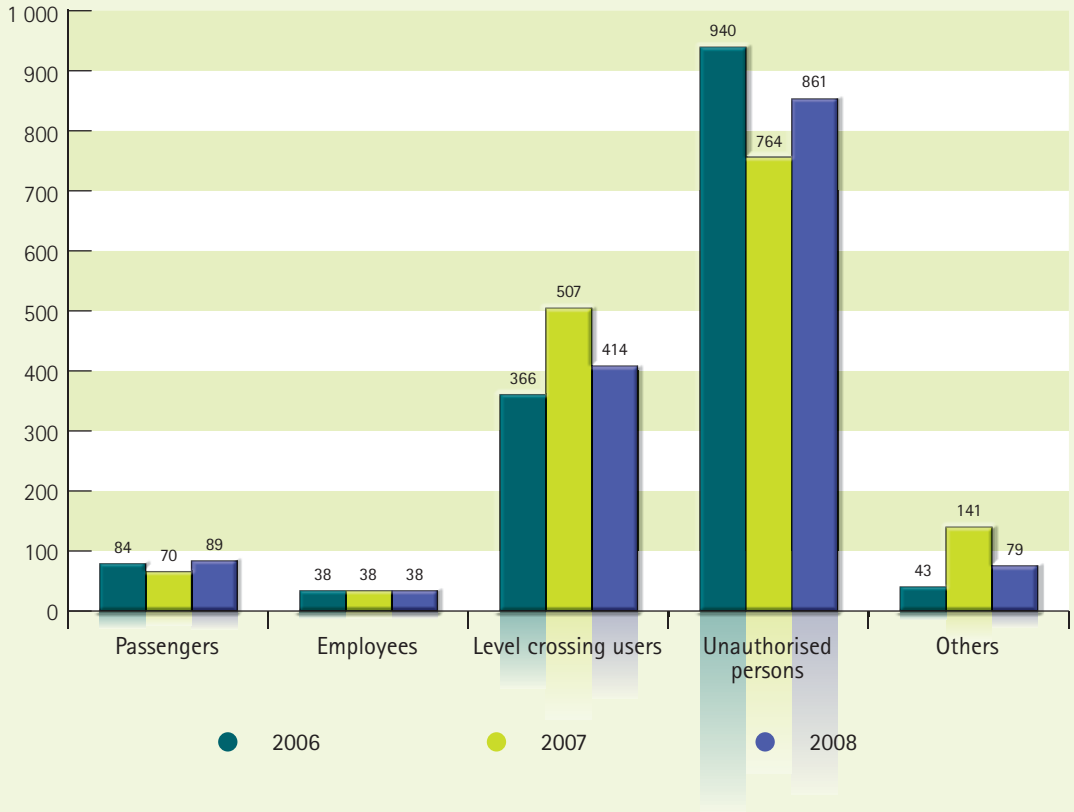
During 2009 the Agency made available a historical archive of fatal accidents in Europe. The accident data were collected in a research project and the information is stored in our database. The archive contains data on 384 serious accidents which occurred between 1990 and 2005. In this report we present the archive and some of the trends that emerge from the data.

The risk profile of the railways

The railways are generally safe for passengers and employees and this is confirmed by the 2008 data. Single fatality accidents, i.e. unauthorised persons being hit by rolling stock in motion or level crossing accidents, form the major part of the number of fatalities. Railway accidents, collisions, derailments and fires, only cause less than 2 % of the fatalities.

The total number of passengers killed for the period 2006-2008 is 243, a comparatively small figure compared to the total number of 4 472 persons killed ([1]). Most of the passenger fatalities occur when passengers try to embark or disembark trains that are moving. However, there were a number of serious accidents in 2008 that caused a larger number of passenger fatalities. The accidents are described on page 28. The fluctuations in reported number of level crossing fatalities and unauthorised persons killed can be explained by changes in how the Member States classify the victims. Viewed together, the reported numbers are at a stable level during the mentioned period.

Chart 1. Fatalities on European railways 2006–2008



([1]) Figures according to CSI data as reported by the NSAs.

Level crossing accidents

The number of level crossing accidents constitutes a substantial share of the total number of accidents. The NSAs have reported a total of 3 774 level crossing accidents and 1 287 level crossing users killed during the three years 2006-2008.

The reported total number of level crossings fell by 6 % from 2006 to 2007; however, there is a less than 1 % reduction between 2007 and 2008. This indicates changes in reporting procedures and that the figures are not yet fully reliable. The total number of level crossings was over 125 000 for 2008. There is a potential for reductions in the number of fatalities through structured and focused work with level crossing safety.



Suicides on railway premises

The majority of fatalities in the railway system are suicides. The consequences are not only trauma for the other parties involved, but also significant for the cost of delays and costs to the rescue services, police investigations, etc. There is a need for a discussion on the possibilities of reducing the numbers through preventative measures.

Media attention and reporting can adversely affect the number of suicides. As an example, Chart 2 shows the number of suicides per six months in a metro in Austria, where an agreement with the local media dramatically reduced suicides. The number of suicides dropped immediately after the agreement (the red line) and stabilised on a third of the number before the agreement ([2]). This is the so-called 'Werther effect' ([3]) and has been shown in several studies. Further, there are indications that simple measures, such as increased lighting in station areas can have a significant effect on reducing the number of suicides ([4]).

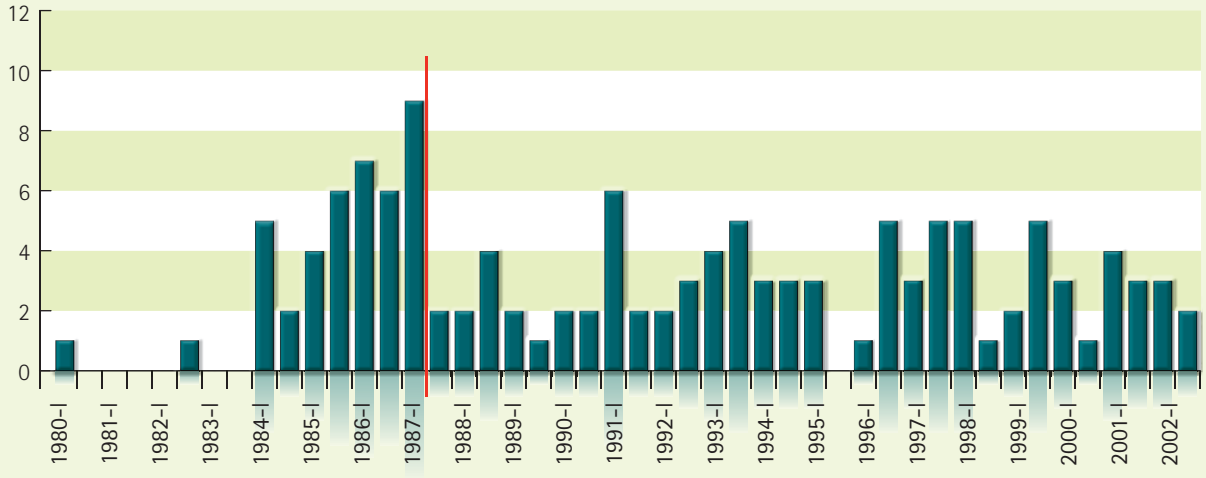
The railways face an even more difficult problem than the metros because of the size of the network. However, identification of 'hot-spots' has proved possible. Some studies indicate that up to 75 % of all suicides occur in the vicinity of psychiatric institutions, and measures such as fencing etc. in strategic places can prove effective.

([2]) G Sonneck, 2003.

([3]) After the novel *The sorrows of young Werther*, by Goethe, where a suicide described in the book led to a series of copycat suicides throughout Europe.

([4]) Effects have been seen in the Berlin and Tokyo metros but so far not scientifically studied.

Chart 2. Number of suicides before and after an agreement with local media. Example from Austria.



A research project on suicides and trespasser fatalities is expected to be included in the seventh framework programme ([5]). This project will be supported by the Agency and will aim at identifying the practices that could be applied to introduce mitigation measures of different kinds, analyse them and identify the most effective and cost-efficient counteractions to prevent suicides and trespasser fatalities.

([5]) European Commission's research programme.



Safety reporting and coordination

Safety performance

Reporting of accident statistics and indicators

The third set of common safety indicators (CSIs) was largely reported on time and with less need for corrections than previous years' submissions.

The common safety indicators to be reported to the Agency are laid down in Annex I to the Railway Safety Directive with definitions to be found in the Eurostat regulation. Member States are also required to report accident data to Eurostat.

Revision of Annex I to the Railway Safety Directive

A revised Annex I to the Railway Safety Directive was published on 27 November 2009. This new annex provides, for the first time, a set of safety indicators to be reported according to common definitions and calculation methods.

Accident statistics

Railway accidents and incidents reporting is required in two separate EU legislative acts.

- The Eurostat regulation ((EC) No 2003/91) requires reporting data to Eurostat.
- The Railway Safety Directive (2004/49/EC) requires reporting data to the Railway Agency.

The Railway Safety Directive requires the NSAs to report **significant accidents** as defined in Regulation (EC) No 2003/91. According to this regulation, the Member States may use national definitions of the indicators during the first five years.

'"Significant accident" means any accident involving at least one rail vehicle in motion, resulting in at least one killed or seriously injured person, or in significant damage to stock, track, other installations or environment, or extensive disruptions to traffic. Accidents in workshops, warehouses and depots are excluded' (91/2003/EC).

Data quality

The work on improving data quality has continued using the same approach developed for the previous years' submissions. All the indicators have been checked for consistency and fluctuation, and a comparison with the Eurostat data has been carried out. There are continuous improvements in data quality; this year it has also been possible to update the data reported in previous years. Therefore, the CSI tables in the annex to this report replace the tables published in previous reports.

Serious accidents

Reporting of serious accidents and accident investigations

Independent accident investigation is a key element of learning lessons from accidents and incidents. Even though all Member States except one have established an independent investigation body, the Agency still has concerns as to whether the organisation and the procedures in some Member States comply with the requirements of the directive.

The Railway Safety Directive requires the Member States to set up an independent accident investigation body that shall notify the Agency of any investigations opened as well as to send the full investigation report when the investigation is closed. In 2009, the national investigation bodies notified the Agency of 190 investigations opened and submitted 210 investigation reports. The information is publicly available in the Agency's database ERADIS.

National investigation bodies

According to Article 21 of the Railway Safety Directive, each Member State is required to set up a permanent investigation body with responsibility for investigating serious accidents and incidents.

The NIBs should investigate serious accidents, defined as an accident with at least one fatality, or five seriously injured persons, or with an immediate estimated monetary cost of at least EUR 2 million.

The investigation bodies should notify the Agency within one week of the opening of an investigation into a serious accident and should send a full investigation report normally within one year, after the occurrence of a serious accident.

The accident report should 'contain, where appropriate, safety recommendations'. The recommendations should be addressed to the safety authorities, which must report back to the investigation body on actions taken.



Safety performance



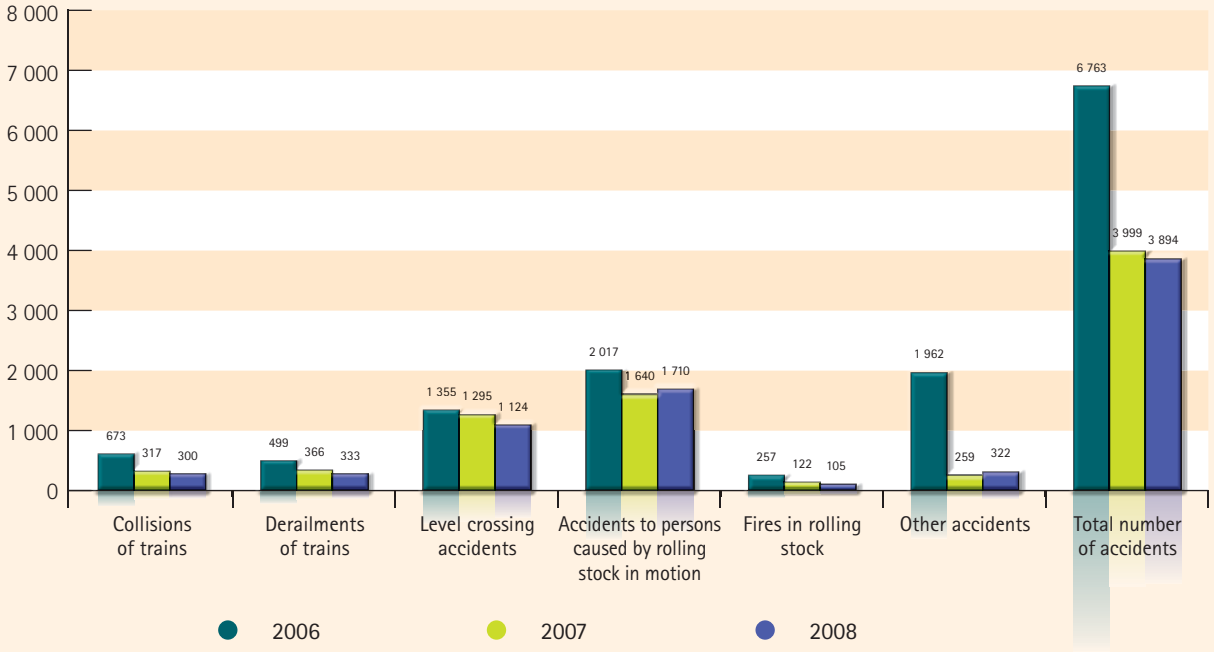
Accident types

Accidents to persons caused by rolling stock in motion and level crossing accidents constitute around 75 % of the total number of accidents on the railways, suicides excluded ([6]). The graph below presents the number of accidents per accident type. The emerging pattern, a big decrease in the reported number of accidents from 2006 to 2007, can be explained by the reporting of two countries.

Germany reported all collisions of trains in 2006, because significant accidents could not be extracted. Similarly, Bulgaria reported all accidents in 2006, specifically 1 630 'Other' accidents. Excluding these non-significant Bulgarian 'Other' accidents and the German collisions from the dataset, gives 4 726 accidents in 2006 in total; this is closer to the totals for 2007 and 2008.

The chart illustrates that the reporting was developing in 2006 and that it takes time to establish a reporting regime. The situation had improved in 2007 and was confirmed by the figures reported for 2008.

Chart 3. Reported number of accidents per accident type 2006-2008



Fatalities and injuries

The majority of the reported fatalities are for unauthorised persons and level crossing users. The most common type of accident is trespassers hit by rolling stock in motion. Passenger fatalities account for only 5 % of the total number of deaths.

In Chart 5, showing the reported number of fatalities per victim type and year, there are big fluctuations in the reported numbers for fatalities to level crossing users and unauthorised persons. However, by adding together the number of level crossing fatalities and fatalities of unauthorised persons, year by year, we obtain a series of 1 306, 1 271 and 1 275, which are remarkably stable figures. This clearly indicates that the Member States are still in a learning process on how to classify fatalities and it is probable that this applies

([6]) Calculation based on corrected figures for 'Other accidents' for BG and Collisions for DE, as explained in the text, using 4 726 as total number of accidents 2006.

for all indicators. The total number of employee fatalities has remained at 38 for all three years. This is a coincidence as there is some variation in the figures reported by the Member States, as can be seen in Table 1 in Annex 1.

Chart 4. Fatalities per victim type 2006-2008

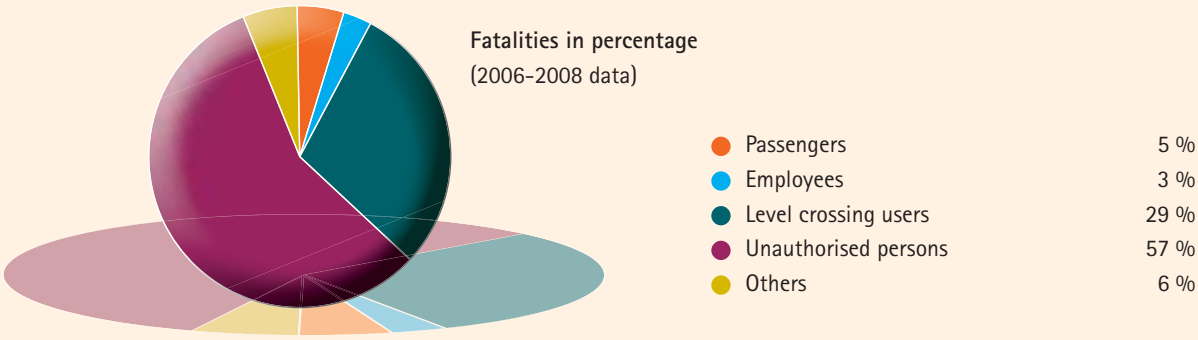
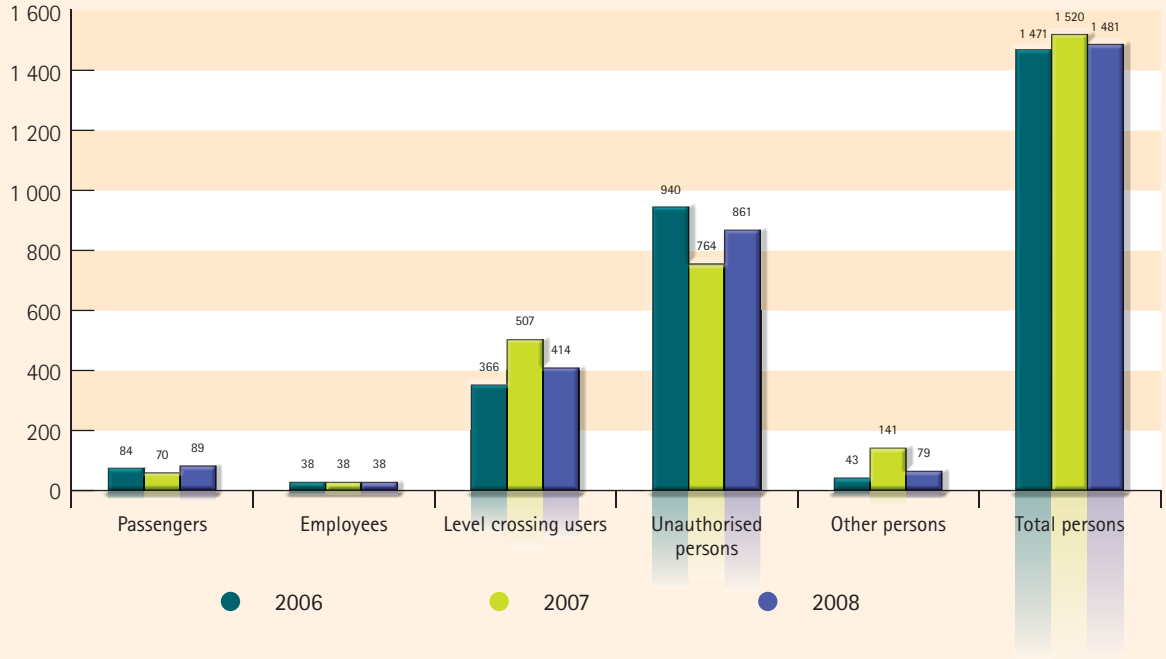


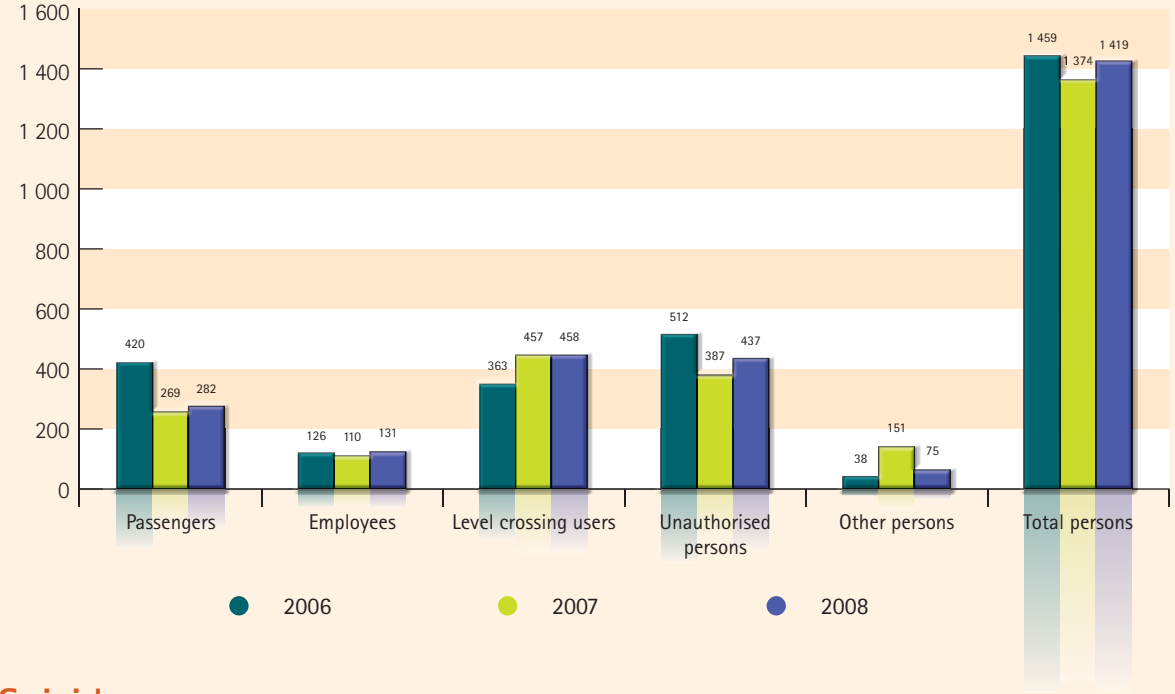
Chart 5. Reported number of fatalities per victim type 2006-2008



A number of NSAs have reported changes in reporting procedures or definitions applied in the data collection. This can also be seen in Chart 6. For serious injuries, the reported numbers of injured passengers and unauthorised persons show large variations beyond what might be expected from natural fluctuation.

The graph shows a rather large drop in the number of passenger injuries from 2006 to 2007. There is no single value that can explain this, a number of countries have reported a reduction in the number of passenger injuries that together account for the total reduction. The majority of the countries show variation in the reporting for 2006-2008 for all victim types. A better understanding of the trends and patterns will come when the 2009 data is reported.

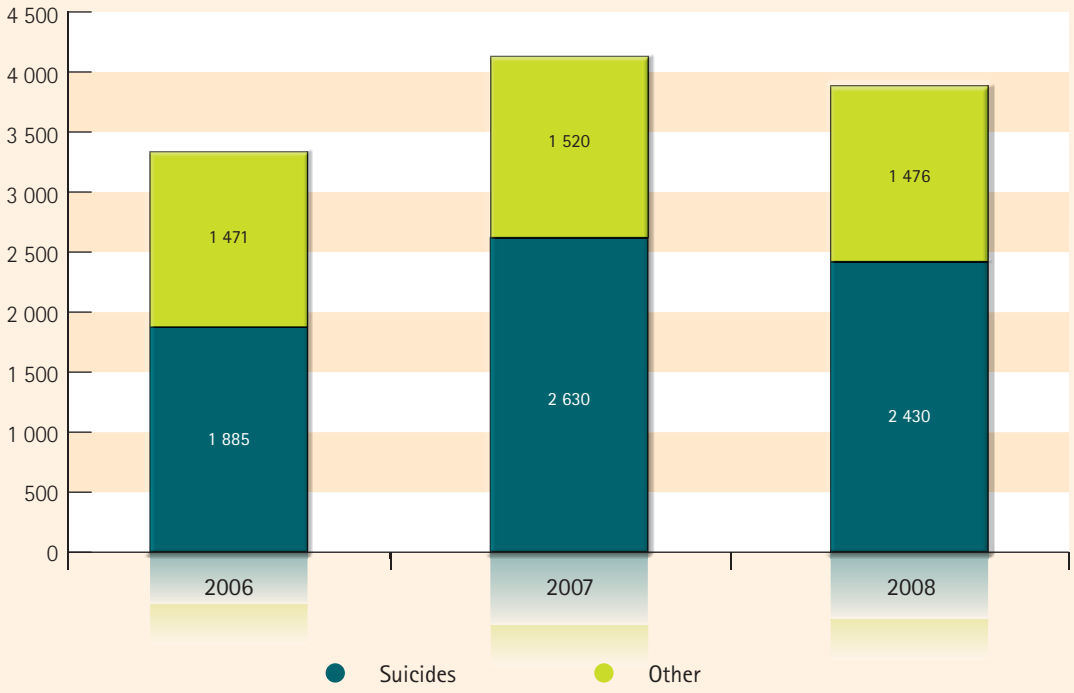
Chart 6. Reported number of serious injuries per victim type 2006–2008



Suicides

Suicides are reported separately from accident fatalities. Suicides represent 62 % of the casualties and, together with the unauthorised persons, constitute 83 % of the fatalities occurring within the railway system. The Member States use different ways of classifying the fatalities. The revised Annex 1 and its guidance will lead to a more harmonised approach to classifying suicides.

Chart 7. Suicides and total deaths 2006–2008



Precursors to accidents

'Precursors to accidents' refers to indicators measuring incidents that under other circumstances would have led to an accident. There are indicators for broken rails, track buckles, signals passed at danger, wrong-side signalling failures, broken wheels and broken axles.

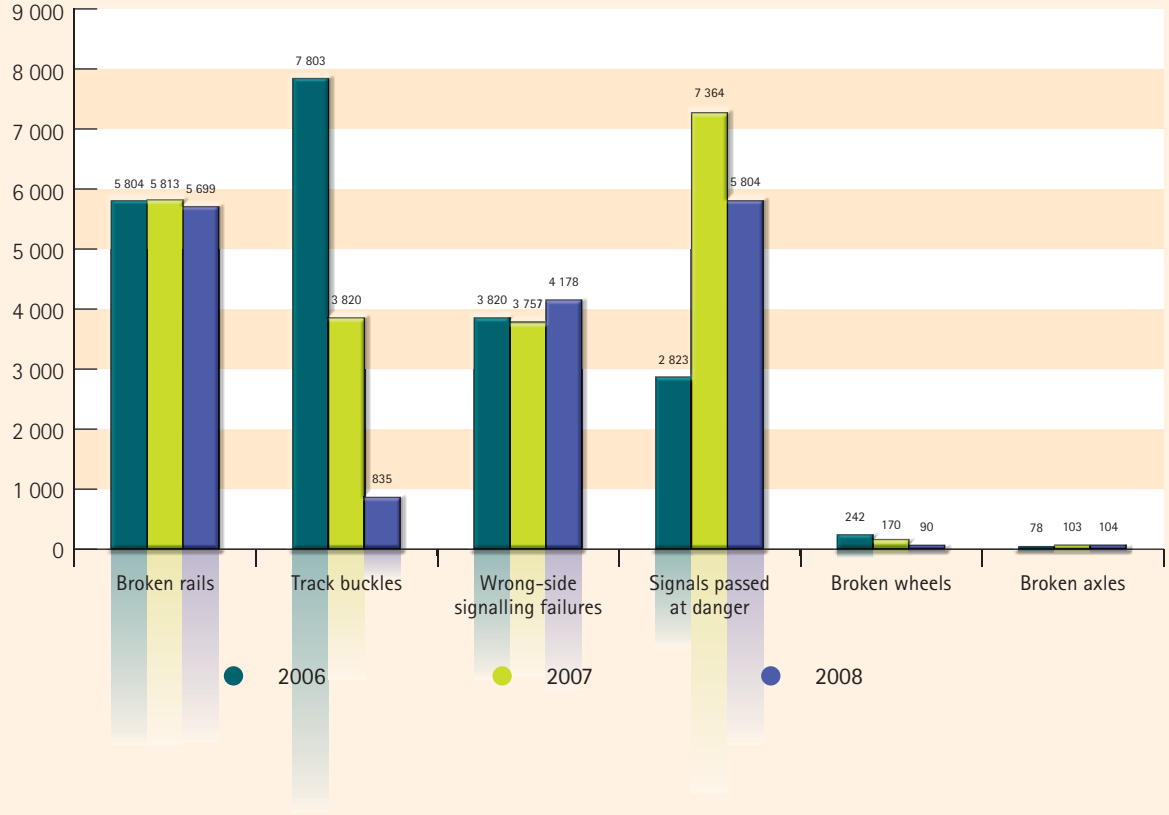
The reported number of track buckles has reduced from 7 803 in 2006 to 835 in 2008, and the reported number of signals passed at danger (SPADs) has increased threefold. The differences are mainly accounted for by Italy and Poland which have changed definitions during the period, as is apparent in Table 1.

	IT Track buckles	PL SPADs
2006	6 743	No data
2007	3 113	4 113
2008	41	2 653

Table 1. Italian track buckles and Polish SPADs 2006–2008

Following the accident in Viareggio in Italy in 2009, the Agency has established a task force on freight wagon maintenance in cooperation with the Member States. Among the objectives of the task force are the review, exchange and analysis of information relating to problems with broken axles/fatigue and relevant testing methods, the proposal or development of appropriate controls and monitoring tools, the proposal of measures to review the different maintenance regimes existing across Europe and the drawing up of a programme for further harmonisation. Within this scope, the Agency has also conducted a survey among the NSAs on the number of broken axles and wheels. The aim of the survey was to review the figures reported to the Agency and the definitions used. The survey showed that most NSAs only reported cracks in wheels and axles that led to an accident. Only one country, Germany, included cracks detected during regular maintenance, which is in accordance with the guidance for the revised Annex I to the Railway Safety Directive. Germany reported three cracks that led to accidents in 2008, and a total of 752 cracks. This means that the figures reported for broken wheels and axles, displayed in Chart 8, only show a part of the situation. The survey also showed that problems with hot boxes are of more concern than cracks in wheels and axles.

Chart 8. Precursors to accidents



Accident costs and other CSIs

The data on the cost of accidents show wide variation and it is evident to the Agency that the Member States have problems in establishing reporting regimes for accident cost data. The revised Annex I to the Railway Safety Directive will require the NSAs to use the willingness-to-pay approach using estimates of the Value for Preventing a Fatality (VPF). They can either estimate a national value or use the reference values given in the Agency's guidance. It is foreseen that this will simplify the work for the Member States and will lead to a consistent and harmonised approach. The Agency will start analysing data on the cost of accidents starting when the 2010 accident indicators are submitted.

Automatic train protection

Definition:
'Automatic Train Protection (ATP)' means a system that enforces obedience to signals and speed restrictions by speed supervision, including automatic stop at signals.

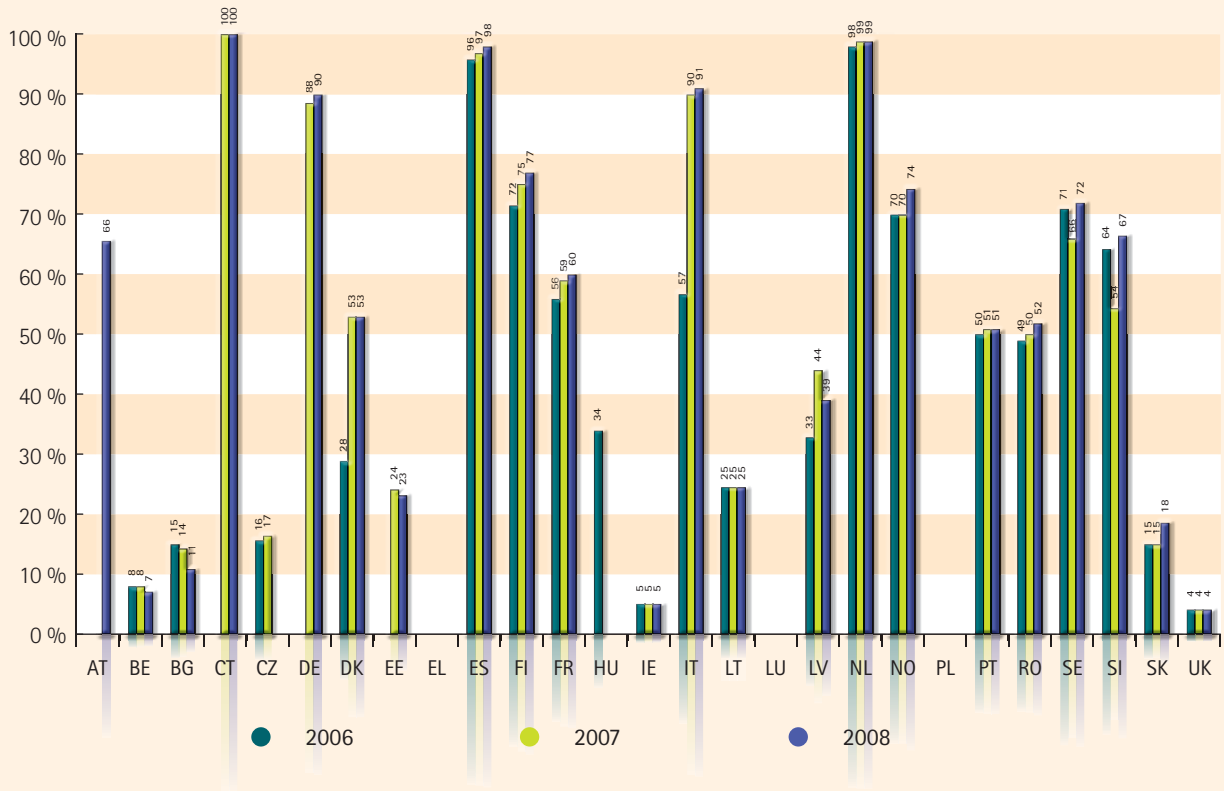
Guidance:
Systems where track signalling information is substituted and/or supplemented by cab signalling are included.

The part of the definition relating to 'automatic stop at signals' is intended to include also automatic stops at conflict points between clearance gauges.

Infrastructure

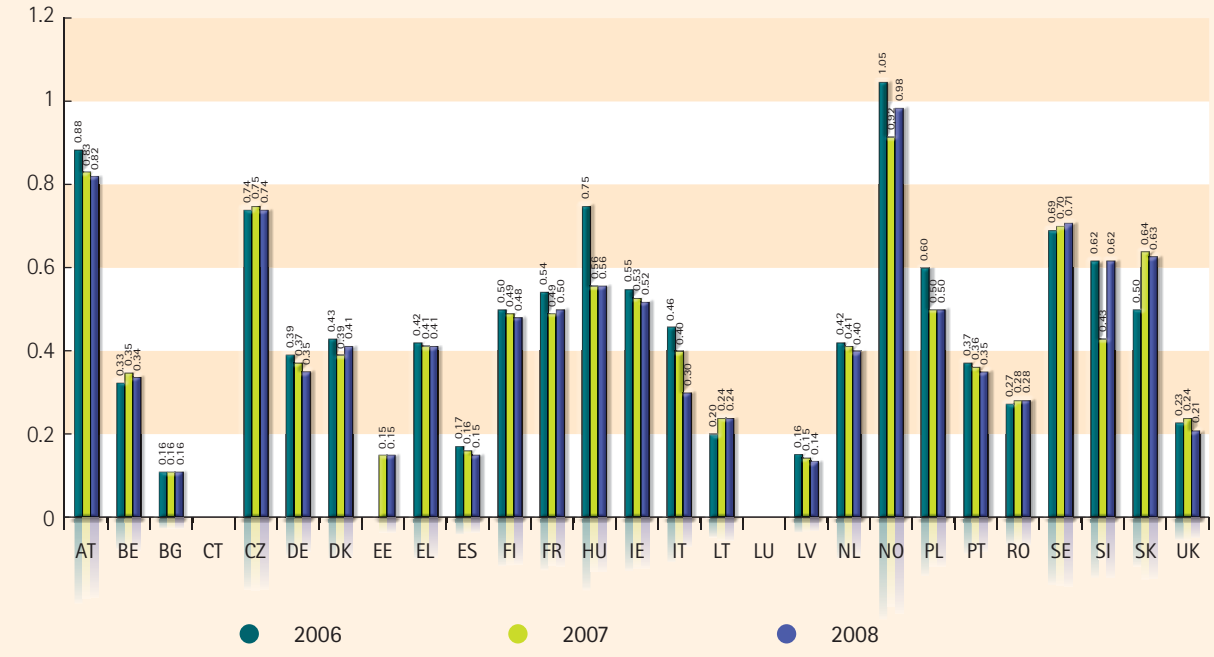
Three CSIs concern railway infrastructure, one is a measure of the coverage of automatic train protection systems on the lines; the other is the number of level crossings, normalised by the length of the network expressed in track km and the third gives information on the level of protection at level crossings.

Chart 9. Percentage of tracks equipped with automatic train protection (ATP) (7)



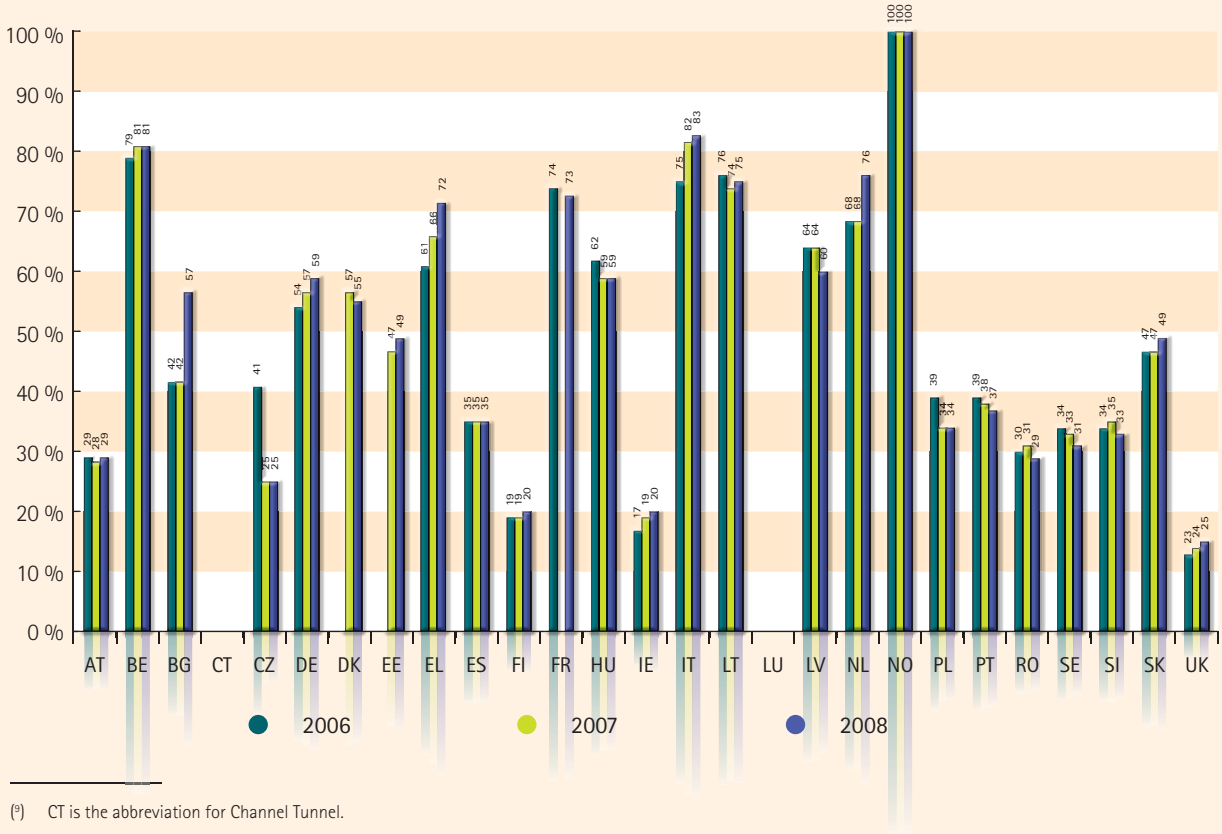
(7) CT is the abbreviation for Channel Tunnel.

Chart 10. Number of level crossings per track km 2006-2008 ([8])



([8]) CT is the abbreviation for Channel Tunnel.

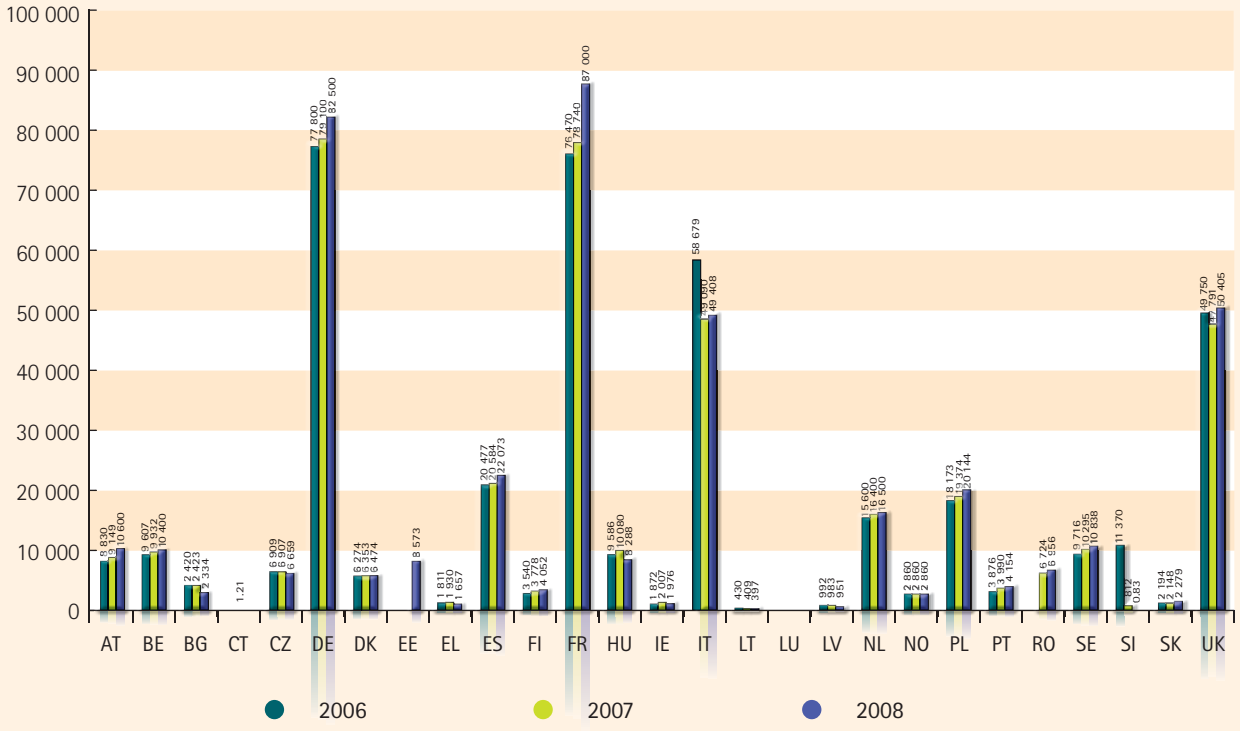
Chart 11. Percentage of level crossings with automatic or manual protection ([9])



([9]) CT is the abbreviation for Channel Tunnel.

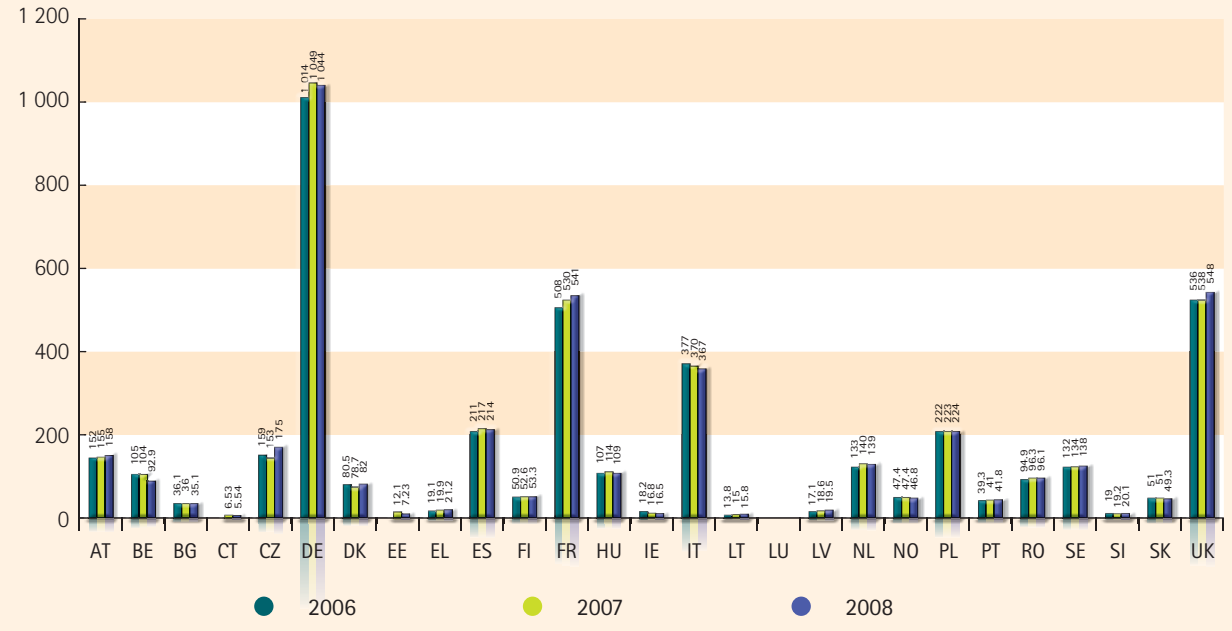
Traffic volumes

Chart 12. Number of million passenger kilometres ([10])



([10]) CT is the abbreviation for Channel Tunnel.

Chart 13. Number of million train km ([11])



([11]) CT is the abbreviation for Channel Tunnel.



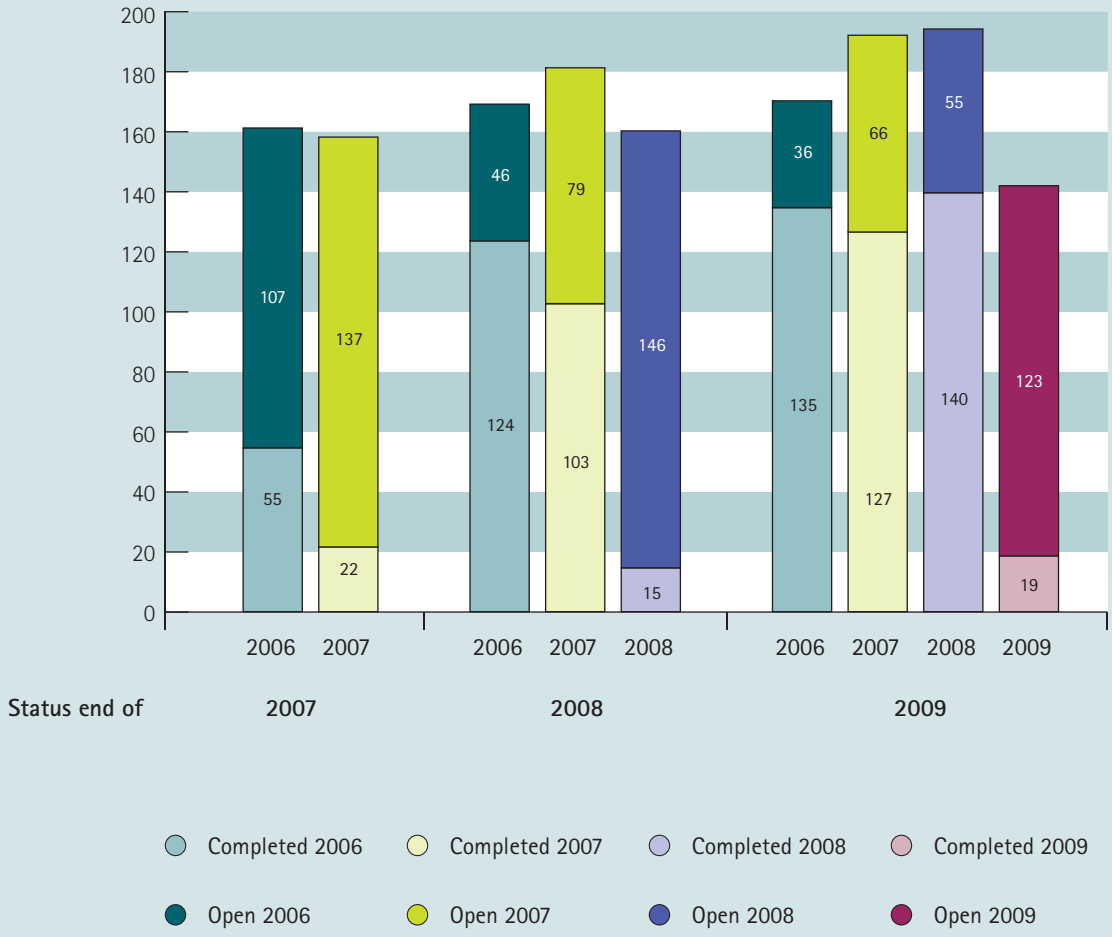
Serious accidents in Europe

Reporting by the investigation bodies

The Agency's public database of safety documents includes notifications of investigations and reports submitted by the investigation bodies.

Chart 14 shows the trend in the submissions of notifications and investigation reports. Even though the majority of the investigation reports are submitted within one year it is also clear that a substantial number of investigations take a longer time. At the end of 2009 there were still 157 open investigations for accidents that occurred 2006-2008, which shows that the final reports for 28 % of all investigations were not submitted within 12 months. Some Member States report a lack of resources as the main reason for not being able to finish all the notified investigations.

Chart 14. Open and completed investigations 2007–2009



The chart also shows that not all accident investigations are notified to the Agency within a week. The Railway Safety Directive requires the NIBs to notify the Agency of opened investigations within one week of opening an investigation. Looking only at the notifications submitted during 2009, the pattern becomes even more visible.

Chart 15 shows the time span between occurrence and notification. Some 48 of the 190 notifications received in 2009 referred to investigations of accidents that occurred 2008 or earlier. The Agency will look further into this and the reporting procedures of the NIBs.

NIB annual reports

The annual reports submitted by the NIBs show large variation in the activities of the investigation bodies. The Agency received 23 annual reports for 2008. The number of investigations opened during 2008 varies from 0 to over 50, and the number of recommendations issued from 0 to over 180.

Historical archive of accidents

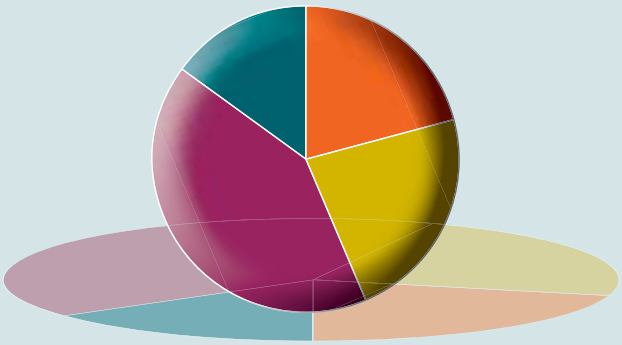
In a research project the Agency has collected data on serious accidents for the period 1990–2007. The accident archive is publicly available in our database, accessible through the Agency's website at the following address: http://pdb.era.europa.eu. The criterion for including an accident in the archive was the definition of a serious accident, as given in the Railway Safety Directive. For the purpose of the project, a list of specific scenarios for inclusion or exclusion of accidents was set up.

The project identified 402 accidents, of which 382 were not previously known to ERA. The initial list of accidents was set up through a media and news report search. The list was then completed and verified by the National Investigation Bodies. Regarding the completeness of the data, the project concluded that the coverage and accuracy of data was satisfactory for the following accident types:

- Fatal train collisions, derailments and fires.
- Level crossing accidents with on-train fatalities.
- Other accidents with four or more fatalities.

Table 2 lists all rail accidents in Europe with 15 or more fatalities since 1990.
In Annex 2 there is a list of all accidents with five or more fatalities.

Chart 15. Time span between accident occurrence and notification submitted to the Agency. Notifications submitted during 2009.



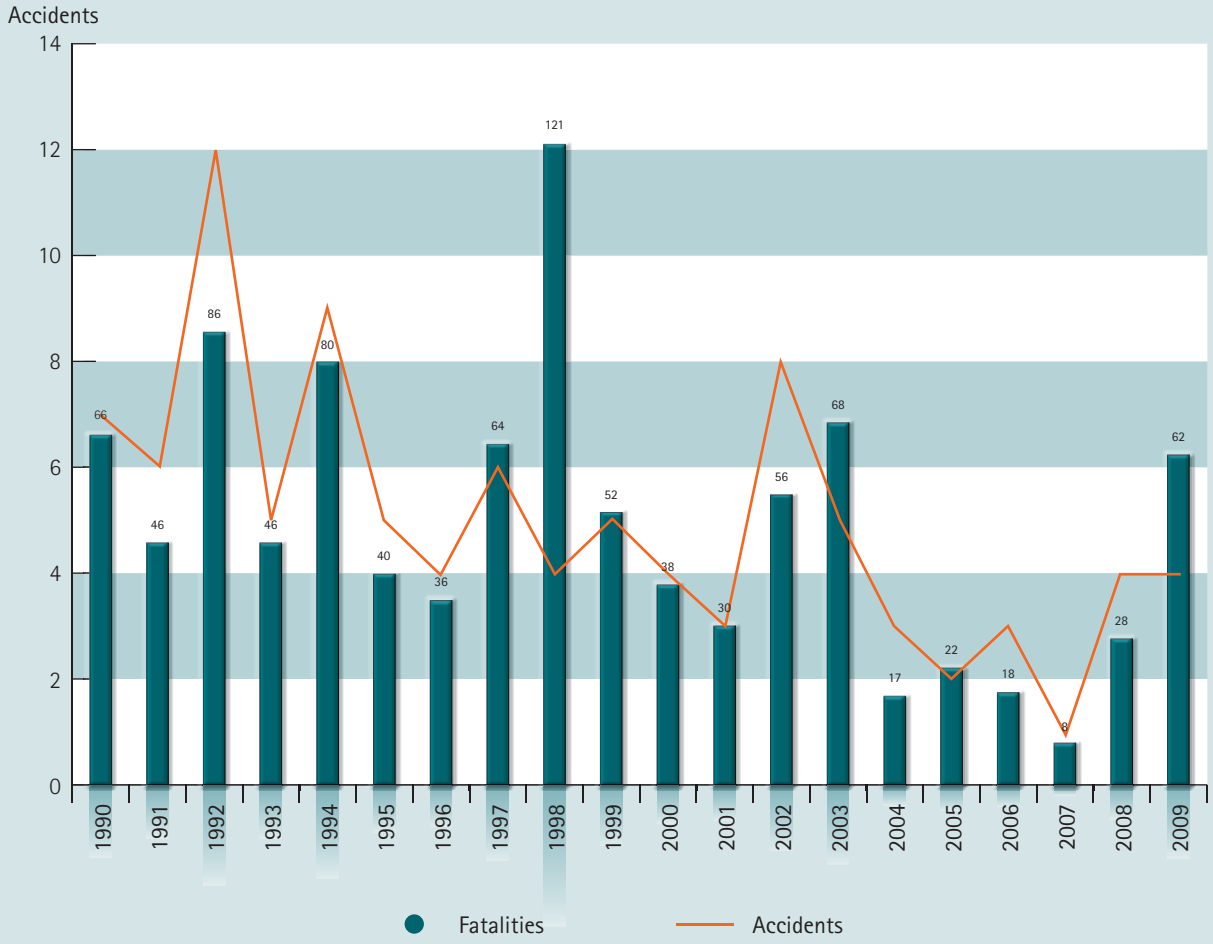
Date	Country	Place	Type	Fatalities	Injuries
02/02/1990	DE	Rüsselsheim station	Train collision	17	37
21/08/1990	PL	Wlochy	Train collision	16	42
17/10/1991	FR	Melun Station, near Paris	Train collision	16	50
26/09/1992	HU	Agárd, Gárdony	LC accident	16	0
02/12/1994	HU	Szajol station	Derailment	31	54
24/06/1995	CZ	Krouna	Train collision	19	4
31/03/1997	ES	Uharte Arakil station, Navarra	Derailment	18	40
03/06/1998	DE	Eschede	Derailment	101	87
05/10/1999	UK	Ladbroke Grove, London	Train collision	31	227
04/01/2000	NO	Asta	Train collision	19	18
08/05/2003	HU	Lake Balaton	LC accident	33	7
03/06/2003	ES	Chinchilla/Navajuelos	Train collision	19	6
07/01/2005	IT	Bolognina di'Crevalcore	Train collision	17	15
29/06/2009	IT	Viareggio	Derailment	32	27
15/02/2010	BE	Buizingen station	Train collision	18	83 (*)

Table 2. Accidents in Europe with more than 15 fatalities since 1990. *Source:* ERA historical archive of railway accidents, notifications submitted by NIBs and other sources.

(*) The number of fatalities and serious injuries in the Halle accident as per 19 March 2010. Figures can change. LC accident means Level crossing accident.

There are several ways to analyse the data. Chart 16 shows the number of fatal accidents with at least five fatalities and the number of fatalities in these accidents. There is a slight downward trend in the number of fatal accidents per year.

Chart 16. Fatal train accidents with five or more fatalities 1990–2009. *Source:* ERA Accident Archive combined with ERADIS database containing accident notifications submitted by the national investigation bodies.



The outcome, the number of fatalities per year, does not show the same trend. The accidents in Eschede, Germany, in 1998, with 101 fatalities, and the Viareggio accident in Italy in 2009, with 32 fatalities, have obvious clear impact on the totals for those years.

Accidents in Europe

Each year a number of very serious accidents with passenger or train crew fatalities occur. This section contains descriptions of a selection of accidents and events that have been exceptionally severe or that have implications for the management of safety and contains information that is of interest on a European level. More information about the accidents can be found in the Agency's database at the web address http://pdb.era.europa.eu.

Zoufftgen accident, France

On 11 October 2006, a freight train and a regional express train collided head-on on the border between France and Luxembourg, near Zoufftgen. In February 2009, the final report on the train collision was published. The accident led to the death of six people, one seriously injured person and 15 lightly injured persons.

At the time, only one of the two tracks was used because of maintenance work. The investigation showed that the direct cause of the accident was communications error: 'the Traffic Controller of the Bettembourg Central Control Post mistakenly issued the driver of the RET an order to pass through the "danger" signal protecting the section of track on which the freight train was travelling' ([12]). A number of underlying causes for this error were identified.

The investigation led to 22 recommendations addressing a range of issues; regulations and routines for staff in command control centres, communication and warning equipment and procedures which focus on cross-border aspects; as well as more technical aspects such as faults in signalling equipment.



Image 1. Train collision, Zoufftgen, France, 11 October 2006.
Photo: French NIB

Passenger train fire, Bulgaria

Nine passengers were killed and 10 were seriously injured when a sleeping coach caught fire on 28 February 2008 on the line between the railway stations Kunino and Cherven Briyag. Train staff tried to evacuate passengers and fight the fire using on-board extinguishers, the train was stopped on the line and unsuccessful attempts were made to disconnect the coach on fire from the rest of the train.

The investigation conducted by the Bulgarian NIB concluded that the fire was caused by an electrical failure in the lighting of one of the compartments. This resulted in sparking and intensive heat, which destroyed the insulation material in the roof of the coach and produced a flammable gas which ignited and exploded, and led to the fire in the compartment.



Image 2. Passenger train fire, Bulgaria, 28 February 2008.
Photo: Bulgarian NIB

([12]) Investigation report, English translation, Summary on page 14.

Collision with sheep and derailment, Germany

On 26 April 2008, 22 people were seriously injured when a high speed passenger train hit a herd of sheep at the entrance to the Landrücken tunnel south of Fulda, and subsequently derailed and impacted against the tunnel walls.

The German investigation body issued recommendations on aspects of the design of high speed trains, communication during operation and between the railway undertaking, infrastructure manager and the rescue services.

Bridge collapse, Czech Republic

On 8 August 2008 a motorway road bridge above the Studenka station collapsed just in front of an approaching Eurocity train travelling at 134 km/h. An emergency braking by the driver reduced the speed to 90 km/h. The train collided with the ruins of the bridge and derailed. Derailed carriages consequently collided with an infrastructure works train waiting in the station. The accident led to seven fatalities and 88 injuries. An eighth victim subsequently died two months later. The total damage is estimated to have been around EUR 2.5 million. The bridge was undergoing repairs and the investigation showed that regulations were not observed by the construction company.



Image 3. Bridge collapse, Czech republic, 8 August 2008.
Photo: Czech NIB

Tunnel fire, Channel Tunnel

A road vehicle on a shuttle train caught fire during transit through the Channel Tunnel on 11 September 2008. The train crew and passengers escaped to a safe place in the adjacent service tunnel and there were no injuries. The material damage was substantial as the fire spread to all 27 vehicles on the shuttle, damaging both the tunnel infrastructure and the train.

The French national investigation body has conducted an accident investigation, however, no investigation report has been released at the time of editing this report.

Train collision, Hungary

A failure of the signal system on a line between Pilis and Monor stations on 6 October 2008 led to a collision between an intercity train and a regional passenger train. The intercity train left the Pilis station first and travelled at 15 km/hour. In the following regional passenger train, the driver did not follow the rules to run at the permitted speed, and accelerated the train to 100 km/hour. Since the interlocking system was out of order and the automatic train protection was inactivated, the passenger train ran into the end of the intercity train and collided at a speed of 71 km/hour. The collision caused four passenger fatalities and four persons were seriously injured.



Image 4. Train collision, Hungary, 6 October 2008.
Photo: Hungarian NIB

Derailment and dangerous goods accident, Viareggio, Italy

Some 32 persons were killed and 27 persons seriously injured by a gas explosion when a freight train derailed in Viareggio in northern Italy on Monday, 29 June 2009. The accident occurred at 23.48 local time on the approach to Viareggio Station.

The train involved in the accident consisted of 14 tank wagons that carried liquefied petroleum gas (LPG). Following the derailment, one of the wagons was punctured, gas leaked out and, after a few minutes the gas cloud, which spread out over the station and a nearby street, exploded causing severe damage to the station and the houses and leading to fatalities in the surroundings.

The preliminary investigation showed that the cause of the accident was a broken axle on one of the overturned cars. The accident investigation opened by the Italian investigation body is to be completed by mid-2010.



Image 5. Freight train derailment, Viareggio, Italy 29 June 2009.

Bridge collapse, Ireland

At 18.07 on 21 August 2009, a train driver, travelling between Donabate and Malahide Stations over the Broadmeadow Estuary in north County Dublin, reported a partial collapse of the Malahide viaduct. The viaduct is a 176-metre wide structure, with 11 stone masonry piers, which support a pre-stressed, precast concrete deck.

The train driver immediately called the signaller, who isolated the track section on the viaduct and stopped all train services travelling over the viaduct. A rock causeway runs between the piers of the viaduct mitigating the effects of tidal flow on the viaduct. When the Irish investigation body arrived at the site, one of the middle supporting masonry piers of the viaduct had crumbled, causing a 20-metre section of the deck (track, sleepers and ballast) to collapse.

Initial investigations of the viaduct structure indicate that scour undermining of the pier was a causal factor to the accident. The investigation body is continuing its investigations and a report on the accident is expected to be released within one year.

Image 6. Bridge collapse at Malahide, Ireland, 21 August 2009. Photo: Irish NIB



Suicides, Germany

On 10 November 2009, a well-known German football goalkeeper committed suicide by throwing himself in front of a train. This event triggered a wave of suicides, significantly increasing the number of suicides on the railways in the weeks following the incident ([13]). It is a well-known fact that tragic events like this lead to an increase in suicides. The German railways had previously managed to bring down the number of suicides, partly as a result of agreements with the press not to publish information on suicides. However, in a case like this, media attention and publicity were unavoidable and the following increase in suicides inevitable.

Train collision, Belgium

In the morning rush hour of 15 February 2010, two passenger trains collided at Buizingen station, 2 km north of Halle in Belgium. The accident forced one train to plough deep into the front carriage of the other, ripping open and totally destroying another carriage. There were some 300 passengers on the two trains and the accident caused the death of 19 people and a total of 171 injured.

The devastation at the accident scene was enormous and there was also substantial damage to the overhead power lines, as two of the carriages were forced up into the air by the collision.

The Belgian investigation body has started an investigation into the causes of the accident.



Image 7. Train collision at Buizingen station, Belgium, 15 February 2010. Photo: Belgian NIB

([13]) Information given by the German NSA.



Managing safety

Assessing safety management systems

The Railway Safety Directive requires national safety authorities to assess the safety management systems of railway undertakings and infrastructure managers. If the SMS meets requirements set out in the Railway Safety Directive the NSA can issue a safety certificate to a RU or an authorisation to an infrastructure manager. This is known as part A certification. The part B certificate is the network-specific requirements relating to the infrastructure and/or the vehicles used and operated. Part A certificates for railway undertakings are valid throughout the EU whereas the RUs will need to obtain a Part B certificate for each Member State that they operate in.

The Agency issued draft assessment criteria in 2007 for NSAs to use when assessing the safety management system relevant for the part A certificate. The criteria, that together with a set of principles for both the assessment process and the supervision regime form the common safety method on conformity assessment (CSM on CA), is due to become a regulation in 2010. The use of this method will help to ensure trust between Member States, assist railway undertakings to gain access to networks in different Member States and form a first step in the migration towards a single certificate.

Safety management systems

A safety management system (SMS) is a documented process for managing risks and it integrates the operation of the railway, the vehicles and the infrastructure.

It is an important way of demonstrating that railway undertakings and infrastructure managers are operating and maintaining their part of the railway systems.

A harmonisation of the assessment of SMS ensures that the market is open and competitive because each Member State will be adopting a consistent and transparent process for managing safety.



Safety certificates issued

Up until now, 19 NSAs have used the Railway Safety Directive to award certificates. The rest are either using the provisions of previous legislation (Directive 2001/14) or a combination. NSAs have until 1 January 2011 before they are required to issue certificates and authorisations according to the Railway Safety Directive. A review of the NSA annual reports also shows that only three countries, Czech Republic, France and Norway, have issued part B certificates for a RU from another country, six certificates in total.

No		Have	Part A certificates		Part B certificates	
			Issued	Pending	Issued	Pending
19	NSAs	Used RSD 2004/49 to issue certificates	337	50	(*)	70
2	NSAs	Used RSD 2004/49 to issue certificates but did not notify the Agency	4	12	1	14
3	NSAs	Have applications for certificates but not issued any	0	45	0	56
Total			341	57	(*)	140

Table 3. Safety certificates issued and pending. *Source:* ERA database ERADIS and NSA Annual reports. Data as per 30 January 2010.

(*) The Agency has no reliable information in its database on the number of part B certificates issued. There is no requirement to notify the Agency when a part B certificate is issued.

The Agency has concerns that those Member States that have not yet issued certificates according to the Railway Safety Directive, Germany, Italy and Greece, will not be able to issue certificates on time. If this is not achieved by the end of 2010, the railway undertakings in these countries will not be able to provide any service.

Common safety targets

Common safety targets are quantitative tools intended to monitor that current safety levels of the railways in the Member States are at least maintained. In the long term, they are also intended to help in reducing the current differences in safety performance.

In 2009, a Commission Decision (2009/460/EC) entered into force and established a method for calculating common safety targets (CSTs) and national reference values (NRVs). During the year, the Agency completed the work with Eurostat to increase data quality and correct errors in the reporting.

The first set of CSTs and NRVs was calculated, based on Eurostat data, and was included in a recommendation delivered to the Commission in September 2009 and was published in the Official Journal on 22 July 2010 as Commission Decision 2010/409/EC.

In the first half of 2010, the Agency will carry out the first assessment of achievement of the first set of CSTs, based on four-year time series of Eurostat data on railway accidents, covering the period 2005–08.

Safety regulation

In several Member States, the safety regulatory framework is still undergoing significant development. The Agency has begun an evaluation of the national measures implementing the Railway Safety Directive in the Member States at the request of the Commission. The Agency also evaluates the notifications and registers the rules in the Agency's public database, which now contains the notified rules of most Member States.

The transparency and availability of the national safety rules that should be used by the railway undertakings operating on the railway network is important to the opening up of the market. The Directive requires Member States to notify the Commission of new and amended rules ([14]). The Commission monitors and reviews the introduction of new national rules. The long-term objective of the Railway Safety Directive is the gradual reduction of national rules in order to move to a more harmonised European approach.

During 2009, the Agency published a report on the evaluation of the way in which national safety rules are published and made available in the Member States ([15]). The conclusions drawn from the evaluation listed below.

- All notified national safety rules are published and made available, but are not necessarily easy to find.
- The Agency has concerns that the system of national safety rules is not yet comprehensive, as the measures to establish all the safety rules necessary for a safe railway operation have not yet been fully implemented.
- Particular attention should be paid to the infrastructure manager and railway undertaking rules in the development of the national safety regulatory framework as in many Member States there is restricted consultation on the draft rules, and the safety rules are not easily accessible for the stakeholders.
- A more systematic and common approach by the safety authorities is necessary to ensure accessibility to the safety rules for all stakeholders, particularly applicants for safety certification.

On the basis of these conclusions, the Agency has issued a recommendation addressed to the Commission ([16]).

Further studies on freight train derailments

In May 2009 the Agency recommended the Commission not to adopt, in Community laws, a new measure for dangerous goods wagons proposed by the RID Committee of Experts. The proposed device, giving a significant share of false alarms, would increase disturbances to freight services, and would also introduce new unsolved problems both in interoperability and safety. The balance between potential advantages and disadvantages was therefore likely to be negative for the overall railway system.



Following extensive discussions, and taking into account the case of rare but potentially catastrophic accidents, EU Member States adopted a Community position agreeing with the Agency's recommendation and considered it necessary to undertake an exhaustive analysis of potential new measures, leading to clear benefits for the railway system. The new scope of analysis covers all freight trains and will allow the Agency to study the best options for preventing derailments or reducing their consequences. The results of the study will be available in 2012.

Network of safety authorities

A series of peer reviews has taken place, with the purpose of learning and sharing information on the methods used by the safety authorities in assessments of applications for safety certificates. The peer reviews are meetings held with a limited number of authorities where the working methods and process are presented and discussed. The reviews are seen as a good way for creating trust, giving information on the working methods and learning from each other. The network of authorities decided in 2009 to widen the scope of peer reviews to authorisations for placing in service because of the useful results of peer review on safety certification.

([14]) Article 8(2) and (4), The Railway Safety Directive 2004/49/EC.

([15]) 'Evaluation of the way in which national safety rules are published and made available', ERA/REP/04-2009/SAF and ERA/INF/02-2009/SAF.

([16]) ERA/REC/04-2009/SAF.



Challenges and changes: the future of railway safety

Development of safety reporting

The Agency is developing during 2010 the reporting tools for the NSAs and the NIBs. In order to improve data quality and reduce workload for the NSAs and the Agency, an automatic data quality check of CSI data will be developed. Upon upload of CSI data, the NSA will be presented with a data quality report and given a possibility to check and correct their data before submission to the Agency.

Further, a new system for notifications and reporting of accidents will enable a more flexible and rational handling of data, provide added value and functionality for the NIBs and improve the possibilities of dissemination of information for the Agency. A first version of the system will be developed during 2010 and put in service during 2011.

Development of common safety targets

In 2010 the Agency starts working on the future developments of CSTs and NRVs and will evaluate the possibility of developing NRVs and CSTs also for parts of the railway system as well as for accident precursors. To this end, pilot projects at national level could be launched in this year.

The possibility of using EU funding resources to support the Member States to achieve, in the future, more demanding safety targets, will be evaluated with a view to preparing the ground for the second set of CSTs and NRVs.

Migration to a single safety certificate

The Agency is, during 2010, evaluating the development of safety certification by the NSAs. The evaluation will form the basis of a recommendation to the Commission on strategies for migration towards a single Community Safety certificate. The single common safety certificate will allow RUs to operate freely across borders using one certificate accepted by all NSAs.

From the information currently available ([17]), it is evident that not all Member States have developed and applied the necessary administrative procedures to ensure an effective application of the Railway Safety Directive. Without these procedures in place it is likely that it will take time for all Member States and NSAs to be on an equal footing. The adoption of the CSM on conformity assessment will help but it is likely that additional elements, like for example the CSM on risk assessment or the development of the certification of the entity in charge of maintenance, will need to be in place before the long-term objective of a fully open and competitive rail market will be achieved. This will come when we have a fully mature and safe railway system which has the SMS at the heart of its operation. The Agency will work together with the European railway actors to achieve this.

The future role of the Railway Agency

The Agency has played a crucial role in the development of railway safety in Europe following the implementation of the Railway Safety Directive into national legislations. In the beginning, the Agency had more of a regulatory role, producing recommendations to the European Commission. This role has been transformed to assisting the Member States in a number of areas, from establishing the safety authorities and investigation bodies, giving advice in the implementation process of the Railway Safety Directive into national legislation, through setting up networks and establishing reporting procedures and routines, to development of recommendations, guidance, safety targets and safety methods. The role has so far been more focused on helping and supporting the Member States rather than monitoring and controlling.

There is still work to be done and many Member States need help in establishing a safety regime according to the Railway Safety Directive. The Agency believes it to be important to continue the

([17]) Information received in the peer reviews and impact assessments of the CSM on conformity assessment.

current work and have a good working relationship between the Agency and the national bodies and authorities.

However, the role of the Agency will change in the future. With the first set of safety targets to become EU law during this year, and the development of a second, possibly more demanding set under way, the role will change to more of a monitoring role, and this is likely to affect the relationship between the national bodies and authorities and the Agency.

The Agency and the safety authorities have also established a reflection group that, in a series of meetings, will work on the future role of the Agency, of the safety authorities and of the cooperation between the NSAs and the Agency. The reflection group will look at the need for more structured auditing activities as a measure to ensure the correct application of the Railway Safety Directive by the safety authorities when assessing the safety management systems in the certification processes and by the investigation bodies when investigating serious accidents.

There are also requests for the Agency to take a more active role in certain areas, recently reinforced by the tragic events at Viareggio in Italy and Halle in Belgium. The Agency has provided support to the Italian and Belgian investigation bodies and also, after the Viareggio accident, developed special taskforces for freight wagon maintenance to give a European perspective to the problems.

It will be a challenge for the Agency to manage these partly conflicting requirements in the future. There will be a need for a discussion on the focus of the future role of the Agency and how it can help in the work for a safe and modern European railway.



Looking forward

The year 2010 promises to be a challenging year for the railway safety sector in Europe. The tragic events in Italy and recently in Belgium are a clear reminder that we cannot lean back and relax. The work for a safe modern and competitive railway sector will continue and accelerate.

In 2010 we will see results of the work in the freight wagon maintenance task force, with possible effects on the procedures and standards for inspection and maintenance of axles. 2010 is also the last year that railway undertakings can provide services under the provisions of previous legislations. From 1 January 2011 all railway undertakings must have a certificate issued under the Railway Safety Directive 2004/39/EC. It will be a challenge for certain Member States to get up to speed with the assessment of RUs applications and issuing certificates. The end goal is a better platform for a migration to a single European certificate and the work will start during this year.

The key issue will be the development of the safety management systems of the railway undertakings and the infrastructure managers and the NSAs ability to assess and supervise their application. A sound and systematic way of managing risks can be achieved through the establishment of safety management systems that comply with the requirements of the Railway Safety Directive. For many countries, there is a lot of work still to be done.

The revised Annex I to the Railway Safety Directive requires the Member States to comply with harmonised definitions when reporting accident and incident data. This will provide a better platform for understanding trends and patterns in safety performance and will, in the future, be a solid ground for evaluation of performance against the safety targets.

The national investigation bodies will face new challenges and new common methods and approaches will be developed. Training courses at a European level can help in guiding investigators in looking deeper into the underlying and root causes of accidents, and to analyse the safety management systems when investigating accidents. This will shed new light on the safety performance of the railways in the European Union.

Annexes

41 Annex 1 — Common safety indicators

41 List of tables

42 CSI data tables

52 Comments on CSI data tables

54 Annex 2 — Serious accidents with five or more fatalities since 1990

58 Annex 3 — List of national safety authorities and national investigation bodies

60 Key documents and references

Annex 1 – Common safety indicators

List of tables

Table number	Name
1	Fatalities by category of person
2	Serious injuries by category of person
3A	Fatalities by type of accident and person category – 2006
3B	Fatalities by type of accident and person category – 2007
3C	Fatalities by type of accident and person category – 2008
4A	Serious injuries by type of accident and person category – 2006
4B	Serious injuries by type of accident and person category – 2007
4C	Serious injuries by type of accident and person category – 2008
5	Total and relative number of suicides
6	Number of accidents by type of accidents
7	Number of precursors to accidents
8	Costs of all accidents
9	Hours lost due to accidents
10	Technical safety of infrastructure and its implementation
11	Management of safety – number of audits planned and conducted

CSI data tables

Figures with a green background have a comment in the list of comments on pages 52 and 53.

Table 1 — Fatalities by category of person

ID	Victim types – fatalities	Years	AT	BE	BG	CT	CZ	DE	DK	EE	EL	ES	FI	FR	HU	IE	IT	LT	LU	LV	NL	NO	PL	PT	RO	SE	SI	SK	UK	Total
PK00	Passengers	2006	0	4	1		4	18	0		3	9	1	12	4	0	5	0		0	1	1	9	0	8	0	0	4	0	84
		2007	1	9	2	0	0	3	0	0	0	13	0	9	14	0	5	0		0	0	0	9	1	0	0	0	1	3	70
		2008	2	2	12	0	13	1	0	0	1	5	0	10	10	0	4	0		0	1	0	8	3	15	0	0	2	0	89
SK00	Employees	2006	0	0	0		1	6	1		1	3	0	4	0	0	13	3		0	1	0	3	1	0	0	1	0	0	38
		2007	3	3	1	0	1	9	0	1	0	0	1	2	3	0	3	0		1	0	0	3	5	0	0	0	0	2	38
		2008	2	1	1	0	4	8	0	0	2	1	0	2	1	0	5	2		2	0	0	1	1	4	0	0	0	1	38
LK00	Level crossing users	2006	22	9	4		31	50	5		12	14	5	38	22	0	19	8		4	12	0	32	18	22	9	9	16	5	366
		2007	33	19	5	0	23	67	5	6	5	19	10	38	26	1	16	6		4	19	0	81	20	58	9	9	15	13	507
		2008	17	10	4	0	24	50	3	1	6	15	8	38	42	1	6	6		6	18	0	39	15	76	4	0	11	14	414
UK00	Unauthorised persons	2006	0	7	31		16	118	1		22	30	17	44	37	0	42	23		26	2	0	263	34	100	10	12	81	24	940
		2007	14	7	19	0	1	88	3	0	13	33	7	20	35	1	44	30		21	1	2	260	32	38	14	8	40	33	764
		2008	18	8	27	0	3	78	8	7	8	23	13	44	62	2	49	32		15	1	1	260	23	78	9	9	41	42	861
OK00	Other persons	2006	24	0	0		0	0	11		0	0	0	0	0	0	0	0		0	0	0	4	0	0	0	0	0	4	43
		2007	1	0	0	0	0	13	0	7	0	0	0	13	2	1	0	0		2	0	0	4	0	90	0	0	1	7	141
		2008	0	0	0	0	0	27	1	0	0	2	0	4	0	0	0	0		6	0	0	0	0	35	0	0	2	2	79
TK00	Total persons	2006	46	20	36		52	192	18		38	56	23	98	63	0	79	34		30	16	1	311	53	130	19	22	101	33	1 471
		2007	52	38	27	0	25	180	8	14	18	65	18	82	80	3	68	36		28	20	2	357	58	186	23	17	57	58	1 520
		2008	39	21	44	0	44	164	12	8	17	46	21	98	115	3	64	40		29	20	1	308	42	208	13	9	56	59	1 481
R01	Number of train km (million)	2006	152.19	104.937	36.09		158.999	1 013.5	80.541		19.071	210.757	50.9	508	106.787	18.242	377	13.827		17.122	133	47.392	221.737	39.264	94.9	132.295	18.98	50.978	535.757	4 142.266
		2007	155	103.587	36.03	6.533	152.89	1 048.7	78.7	12.056	19.905	216.873	52.577	529.54	114	16.832	370	14.992		18.578	140	47.392	223.031	40.98	96.262	134.345	19.16	51.003	538.104	4 237.070
		2008	158.4	92.9	35.075	5.54	174.961	1 043.5	82	7.234	21.164	214.349	53.259	541	109	16.494	366.863	15.817		19.525	139	46.841	224.359	41.76	96.145	138.194	20.098	49.332	548	4 260.809
R02	Number of passenger km (million)	2006	8 830	9 607	2 420		6 908.99	77 803	6 274		1 811	20 477.531	3 540	76 470	9 586	1 872.067	58 679	430		992	15 600	2 859.751	18 173	3 876	-	9 716	11 370	2 194	49 750	399 239.339
		2007	9 149	9 932	2 423	1.214	6 906.6	79 100	6 353	3.146	1 930	20 584	3 778	78 740	10 080	2 007.065	49 090	409		983.026	16 400	2 859.751	19 374	3 990	6 724.1	10 295.949	812	2 147.956	47 791	391 863.807
		2008	10 600	10 403	2 334	-	6 659	82 500	6 474	8 573	1 657	22 073.542	4 052	87 000	8 288	1 975.786	49 407.951	397		951	16 500	2 859.751	20 144	4 154	6 955.737	10 838	0.834	2 278.8	50 405	417 481.401

Table 2 — Serious injuries by category of person

ID	Victim types – serious injuries	Years	AT	BE	BG	CT	CZ	DE	DK	EE	EL	ES	FI	FR	HU	IE	IT	LT	LU	LV	NL	NO	PL	PT	RO	SE	SI	SK	UK	Total
PS00	Passengers	2006	12	63	29		12	65	4		14	22	1	17	26	0	39	0		0	8	1	63	8	28	1	0	6	1	420
		2007	8	41	6	0	18	20	2	0	5	11	0	10	37	0	10	0		1	2	1	67	5	6	1	1	4	13	269
		2008	6	36	8	1	40	30	3	0	9	3	0	14	28	0	5	0		2	0	1	44	6	26	3	11	5	1	282
SS00	Employees	2006	19	14	2		2	18	3		7	1	3	10	3	1	4	3		1	1	2	5	2	8	1	9	3	4	126
		2007	9	27	2	0	0	25	1	0	2	2	0	5	3	0	5	0		0	1	1	9	2	3	3	5	2	3	110
		2008	12	28	2	0	4	33	2	0	2	1	3	4	1	0	4	1		2	1	0	5	2	7	1	10	1	5	131
LS00	Level crossing users	2006	26	14	7		49	39	3		20	1	5	13	23	0	16	8		7	2	1	87	9	0	8	10	12	3	363
		2007	34	25	8	0	41	55	2	13	22	4	2	7	27	0	4	7		4	7	2	107	8	41	8	15	13	1	457
		2008	23	16	6	0	42	32	2	0	12	2	1	14	16	0	8	4		7	5	0	113	10	124	1	0	15	5	458
US00	Unauthorised persons	2006	0	6	23		25	27	1		10	11	4	60	22	0	16	14		25	2	0	75	12	144	4	4	13	14	512
		2007	5	4	17	0	42	34	6	0	7	9	1	12	25	1	21	6		10	0	1	93	18	41	2	8	17	7	387
		2008	12	2	22	0	52	38	2	5	6	13	2	6	15	0	21	8		15	0	0	111	20	45	1	20	15	6	437
OS00	Other persons	2006	19	9	0		1	0	1		0	0	0	0	1	0	0	0		0	0	0	0	2	0	2	0	0	3	38
		2007	4	1	0	0	0	23	0	6	0	0	0	12	0	1	0	0		2	0	0	0	1	94	0	0	0	7	151
		2008	0	1	0	0	1	23	0	0	0	0	0	2	0	1	0	0		5	0	0	4	1	31	0	0	2	4	75
TS00	Total persons	2006	76	106	61		89	149	12		51	35	13	100	75	1	75	25		33	13	4	230	33	180	16	23	34	25	1 459
		2007	60	98	33	0	101	157	11	19	36	26	3	46	92	2	40	13		17	10	5	276	34	185	14	29	36	31	1 374
		2008	53	83	38	1	139	156	9	5	29	19	6	76	60	1	38	13		31	6	1	277	39	233	6	41	38	21	1 419
R01	Number of train km (million)	2006	152.19	104.937	36.09		158.999	1 013.5	80.541		19.071	210.757	50.9	508	106.787	18.242	377	13.827		17.122	133	47.392	221.737	39.264	94.9	132.295	18.98	50.978	535.757	4 142.266
		2007	155	103.587	36.03	6.533	152.89	1 048.7	78.7	12.056	19.905	216.873	52.577	529.54	114	16.832	370	14.992		18.578	140	47.392	223.031	40.98	96.262	134.345	19.16	51.003	538.104	4 237.070
		2008	158.4	92.9	35.075	5.54	174.961	1 043.5	82	7.234	21.164	214.349	53.259	541	109	16.494	366.863	15.817		19.525	139	46.841	224.359	41.76	96.145	138.194	20.098	49.332	548	4 260.809
R02	Number of passenger km (million)	2006	8 830	9 607	2 420		6 908.99	77 803	6 274		1 811	20 477.531	3 540	76 470	9 586	1 872.067	58 679	430		992	15 600	2 859.751	18 173	3 876	-	9 716	11 370	2194	49 750	399 239.339
		2007	9 149	9 932	2 423	1.214	6 906.6	79 100	6 353	3.146	1 930	20 584	3 778	78 740	10 080	2 007.065	49 090	409		983.026	16 400	2 859.751	19 374	3 990	6 724.1	10 295.949	812	2 147.956	47 791	391 863.807
		2008	10 600	10 403	2 334	-	6 659	82 500	6 474	8 573	1 657	22 073.542	4 052	87 000	8 288	1 975.786	49 407.951	397		951	16 500	2 859.751	20 144	4 154	6 955.737	10 838	0.834	2 278.8	50 405	417 481.401

Table 3A — 2006 — Fatalities by type of accident and person category

ID	Accident types	Victim types – fatalities	AT	BE	BG	CT	CZ	DE	DK	EE	EL	ES	FI	FR	HU	IE	IT	LT	LU	LV	NL	NO	PL	PT	RO	SE	SI	SK	UK	Total
TK01	Collisions of trains	Total	0	0	0		0	0	0		4	0	0	9	0	0	3	0		0	0	0	1	0	0	0	1	0	1	19
PK01		Passengers	0	0	-		0	0	0		1	0	0	4	-	0	0	0		0	0	0	0	-	0	-	-	-	0	5
SK01		Employees	0	0	-		0	0	0		1	0	0	2	-	0	3	0		0	0	0	1	-	0	-	1	-	0	8
LK01		Level crossing users	0	0	-		0	0	0		-	0	0	-	-	0	0	0		0	0	0	0	-	0	-	-	-	0	0
UK01		Unauthorised persons	-	0	-		0	0	0		2	0	0	3	-	0	0	0		0	0	0	0	-	0	-	-	-	0	5
OK01		Other persons	0	0	-		0	0	0		0	0	0	-	-	0	0	0		0	0	0	0	-	0	-	-	-	1	1
TK02	Derailments of trains	Total	0	0	0		0	0	0		0	7	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	7
PK02		Passengers	0	0	-		0	0	0		0	7	0	-	-	0	0	0		0	0	0	0	-	0	-	-	-	0	7
SK02		Employees	0	0	-		0	0	0		0	0	0	-	-	0	0	0		0	0	0	0	-	0	-	-	-	0	0
LK02		Level crossing users	0	0	-		0	0	0		-	0	0	-	-	0	0	0		0	0	0	0	-	0	-	-	-	0	0
UK02		Unauthorised persons	-	0	-		0	0	0		0	0	0	-	-	0	0	0		0	0	0	0	-	0	-	-	-	0	0
OK02		Other persons	0	0	-		0	0	0		0	0	0	-	-	0	0	0		0	0	0	0	-	0	-	-	-	0	0
TK03	Level crossing accidents	Total	22	10	4		31	50	6		14	14	5	40	22	0	19	8		4	12	0	35	18	22	9	0	17	5	367
PK03		Passengers	0	1	-		0	0	0		2	0	0	-	-	0	0	0		0	0	0	1	-	0	-	-	1	0	5
SK03		Employees	0	0	-		0	0	0		0	0	0	2	-	0	0	0		0	0	0	2	-	0	-	-	-	0	4
LK03		Level crossing users	22	9	4		31	50	5		12	14	5	38	22	0	19	8		4	12	0	32	18	22	9	-	16	5	357
UK03		Unauthorised persons	-	0	-		0	0	0		-	0	0	-	-	0	0	0		0	0	0	0	-	0	-	-	-	0	0
OK03		Other persons	0	0	-		0	0	1		0	0	0	-	-	0	0	0		0	0	0	0	-	0	-	-	-	0	1
TK04	Accidents to persons caused by rolling stock in motion	Total	22	10	32		21	142	12		20	33	18	37	41	0	55	26		26	4	0	257	35	108	10	21	35	27	992
PK04		Passengers	0	3	1		4	18	0		0	2	1	8	4	0	5	0		0	1	0	0	-	8	-	-	3	0	58
SK04		Employees	0	0	-		1	6	1		0	1	0	-	-	0	8	3		0	1	0	0	1	0	-	-	-	0	22
LK04		Level crossing users	0	0	-		0	0	0		-	0	0	-	-	0	0	0		0	0	0	0	-	0	-	9	-	0	9
UK04		Unauthorised persons	-	7	31		16	118	1		20	30	17	29	37	0	42	23		26	2	0	253	34	100	10	12	32	24	864
OK04		Other persons	22	0	-		0	0	10		0	0	0	-	-	0	0	0		0	0	0	4	0	0	-	-	-	3	39
TK05	Fires in rolling stock	Total	0	0	0		0	0	0		0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0
PK05		Passengers	0	0	-		0	0	0		0	0	0	-	-	0	0	0		0	0	0	0	-	0	-	-	-	0	0
SK05		Employees	0	0	-		0	0	0		0	0	0	-	-	0	0	0		0	0	0	0	-	0	-	-	-	0	0
LK05		Level crossing users	0	0	-		0	0	0		-	0	0	-	-	0	0	0		0	0	0	0	-	0	-	-	-	0	0
UK05		Unauthorised persons	-	0	-		0	0	0		0	0	0	-	-	0	0	0		0	0	0	0	-	0	-	-	-	0	0
OK05		Other persons	0	0	-		0	0	0		0	0	0	-	-	0	0	0		0	0	0	0	-	0	-	-	-	0	0
TK06	Other accidents	Total	2	0	0		0	0	0		0	2	0	12	0	0	2	0		0	0	1	18	0	0	0	0	49	0	86
PK06		Passengers	0	0	-		0	0	0		0	0	0	-	-	0	0	0		0	0	1	8	-	0	-	-	-	0	9
SK06		Employees	0	0	-		0	0	0		0	2	0	-	-	0	2	0		0	0	0	0	-	0	-	-	-	0	4
LK06		Level crossing users	0	0	-		0	0	0		-	0	0	-	-	0	0	0		0	0	0	0	-	0	-	-	-	0	0
UK06		Unauthorised persons	-	0	-		0	0	0		0	0	0	12	-	0	0	0		0	0	0	10	-	0	-	-	49	0	71
OK06		Other persons	2	0	-		0	0	0		0	0	0	-	-	0	0	0		0	0	0	0	-	0	-	-	-	0	2

Table 3B — 2007 — Fatalities by type of accident and person category

ID	Accident types	Victim types – fatalities	AT	BE	BG	CT	CZ	DE	DK	EE	EL	ES	FI	FR	HU	IE	IT	LT	LU	LV	NL	NO	PL	PT	RO	SE	SI	SK	UK	Total
TK01	Collisions of trains	Total	0	0	0	0	1	1	0	0	2	0	0	2	2	0	1	0		0	0	0	1	0	0	0	0	0	0	10
PK01		Passengers	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0
SK01		Employees	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0		0	0	0	1	0	0	0	0	0	0	3
LK01		Level crossing users	0	0	0	0	0	1	0	0	-	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	1
UK01		Unauthorised persons	0	0	0	0	0	0	0	0	2	0	0	0	0	0	1	0		0	0	0	0	0	0	0	0	0	0	3
OK01		Other persons	0	0	0	0	0	0	0	0	0	0	0	2	1	0	0	0		0	0	0	0	0	0	0	0	0	0	3
TK02	Derailments of trains	Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	3	0	0	0	0	1	4
PK02		Passengers	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	1	0	0	0	0	1	2
SK02		Employees	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	2	0	0	0	0	0	2
LK02		Level crossing users	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0
UK02		Unauthorised persons	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0
OK02		Other persons	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0
TK03	Level crossing accidents	Total	33	20	5	0	23	66	5	6	5	19	10	39	63	1	16	6		4	19	0	84	20	65	9	9	15	13	555
PK03		Passengers	0	1	0	0	0	0	0	0	0	0	0	0	6	0	0	0		0	0	0	1	0	0	0	0	0	0	8
SK03		Employees	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0		0	0	0	2	0	0	0	0	0	0	3
LK03		Level crossing users	33	19	5	0	23	66	5	6	5	19	10	38	24	1	16	6		4	19	0	81	20	39	9	9	15	13	485
UK03		Unauthorised persons	0	0	0	0	0	0	0	0	-	0	0	0	32	0	0	0		0	0	0	0	0	10	0	0	0	0	42
OK03		Other persons	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0		0	0	0	0	0	16	0	0	0	0	17
TK04	Accidents to persons caused by rolling stock in motion	Total	16	18	22	0	1	111	2	8	11	46	8	38	9	1	51	30		24	1	2	264	35	121	14	8	42	44	927
PK04		Passengers	1	8	2	0	0	3	0	0	0	13	0	9	8	0	5	0		0	0	0	0	0	0	0	0	1	2	52
SK04		Employees	3	3	1	0	0	7	0	1	0	0	1	1	1	0	3	0		1	0	0	0	3	0	0	0	0	2	27
LK04		Level crossing users	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0		0	0	0	0	0	19	0	0	0	0	19
UK04		Unauthorised persons	12	7	19	0	1	88	2	0	11	33	7	20	0	1	43	30		21	1	2	260	32	28	14	8	40	33	713
OK04		Other persons	0	0	0	0	0	13	0	7	0	0	0	8	0	0	0	0		2	0	0	4	0	74	0	0	1	7	116
TK05	Fires in rolling stock	Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0
PK05		Passengers	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0
SK05		Employees	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0
LK05		Level crossing users	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0
UK05		Unauthorised persons	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0
OK05		Other persons	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0
TK06	Other accidents	Total	3	0	0	0	0	2	1	0	0	0	0	3	6	1	0	0		0	0	0	8	0	0	0	0	0	0	24
PK06		Passengers	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	8	0	0	0	0	0	0	8
SK06		Employees	0	0	0	0	0	2	0	0	0	0	0	0	1	0	0	0		0	0	0	0	0	0	0	0	0	0	3
LK06		Level crossing users	0	0	0	0	0	0	0	0	-	0	0	0	2	0	0	0		0	0	0	0	0	0	0	0	0	0	2
UK06		Unauthorised persons	2	0	0	0	0	0	1	0	0	0	0	0	3	0	0	0		0	0	0	0	0	0	0	0	0	0	6
OK06		Other persons	1	0	0	0	0	0	0	0	0	0	0	3	0	1	0	0		0	0	0	0	0	0	0	0	0	0	5

Table 3C — 2008 — Fatalities by type of accident and person category

ID	Accident types	Victim types – fatalities	AT	BE	BG	CT	CZ	DE	DK	EE	EL	ES	FI	FR	HU	IE	IT	LT	LU	LV	NL	NO	PL	PT	RO	SE	SI	SK	UK	Total
TK01	Collisions of trains	Total	1	0	0	0	10	1	0	0	0	3	0	0	4	0	1	0		2	0	0	0	0	0	0	0	0	0	22
PK01		Passengers	0	0	0	0	8	0	0	0	0	0	0	0	4	0	0	0		0	0	0	0	0	0	0	0	0	0	12
SK01		Employees	0	0	0	0	2	1	0	0	0	1	0	0	0	0	0	0		2	0	0	0	0	0	0	0	0	0	6
LK01		Level crossing users	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0		0	0	0	0	0	0	0	-	0	0	0
UK01		Unauthorised persons	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0		0	0	0	0	0	0	0	0	0	0	2
OK01		Other persons	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	2
TK02	Derailments of trains	Total	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0		0	0	0	0	1	1	0	0	0	0	3
PK02		Passengers	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	1	1	0	0	0	0	2
SK02		Employees	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	1
LK02		Level crossing users	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0		0	0	0	0	0	0	0	-	0	0	0
UK02		Unauthorised persons	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0
OK02		Other persons	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0
TK03	Level crossing accidents	Total	17	10	4	0	25	52	3	1	7	15	8	43	42	1	6	6		6	18	0	39	15	38	4	4	11	14	389
PK03		Passengers	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0
SK03		Employees	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	2
LK03		Level crossing users	17	10	4	0	24	50	3	1	6	15	8	38	42	1	6	6		6	18	0	39	15	27	4	-	11	14	365
UK03		Unauthorised persons	0	0	0	0	0	2	0	0	-	0	0	4	0	0	0	0		0	0	0	0	0	0	0	4	0	0	10
OK03		Other persons	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0		0	0	0	0	0	11	0	0	0	0	12
TK04	Accidents to persons caused by rolling stock in motion	Total	20	11	31	0	9	110	8	7	10	28	13	39	69	2	57	34		21	1	1	257	26	165	9	4	45	44	1021
PK04		Passengers	1	2	3	0	5	1	0	0	1	5	0	6	6	0	4	0		0	1	0	0	2	13	0	0	2	0	52
SK04		Employees	2	1	1	0	1	6	0	0	1	0	0	0	1	0	5	2		0	0	0	1	1	1	0	0	0	0	23
LK04		Level crossing users	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0		0	0	0	0	0	49	0	-	0	0	49
UK04		Unauthorised persons	17	8	27	0	3	76	7	7	8	23	13	31	62	2	48	32		15	0	1	256	23	78	9	4	41	42	833
OK04		Other persons	0	0	0	0	0	27	1	0	0	0	0	2	0	0	0	0		6	0	0	0	0	24	0	0	2	2	64
TK05	Fires in rolling stock	Total	0	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	9
PK05		Passengers	0	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	9
SK05		Employees	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0
LK05		Level crossing users	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0		0	0	0	0	0	0	0	-	0	0	0
UK05		Unauthorised persons	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0
OK05		Other persons	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0
TK06	Other accidents	Total	1	0	0	0	0	0	1	0	0	0	0	16	0	0	0	0		0	1	0	12	0	4	0	1	0	1	37
PK06		Passengers	1	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0		0	0	0	8	0	1	0	0	0	0	14
SK06		Employees	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0		0	0	0	0	0	3	0	0	0	1	6
LK06		Level crossing users	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0		0	0	0	0	0	0	0	-	0	0	0
UK06		Unauthorised persons	0	0	0	0	0	0	1	0	0	0	0	9	0	0	0	0		0	1	0	4	0	0	0	1	0	0	16
OK06		Other persons	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0		0	0	0	0	0	0	0	0	0	0	1

Table 4A — 2006 — Serious injuries by type of accident and person category

ID	Accident types	Victim types – fatalities	AT	BE	BG	CT	CZ	DE	DK	EE	EL	ES	FI	FR	HU	IE	IT	LT	LU	LV	NL	NO	PL	PT	RO	SE	SI	SK	UK	Total
TS01	Collisions of trains	Total	5	0	0		4	10	0		5	0	0	3	2	0	15	0		0	4	0	2	1	0	0	0	0	1	52
PS01		Passengers	1	0	-		1	2	0		2	0	0	2	2	0	15	0		0	4	0	0	-	0	-	-	-	0	29
SS01		Employees	4	0	-		2	8	0		3	0	0	-	-	0	0	0		0	0	0	2	1	0	-	-	-	1	21
LS01		Level crossing users	0	0	-		0	0	0		-	0	0	-	-	0	0	0		0	0	0	0	-	0	-	-	-	0	0
US01		Unauthorised persons	-	0	-		0	0	0		0	0	0	1	-	0	0	0		0	0	0	0	-	0	-	-	-	0	1
OS01		Other persons	0	0	-		1	0	0		0	0	0	-	-	0	0	0		0	0	0	0	-	0	-	-	-	0	1
TS02	Derailments of trains	Total	1	0	0		0	0	0		0	14	0	0	0	0	0	0		0	1	0	0	1	0	0	0	0	0	17
PS02		Passengers	0	0	-		0	0	0		0	14	0	-	-	0	0	0		0	1	0	0	-	0	-	-	-	0	15
SS02		Employees	1	0	-		0	0	0		0	0	0	-	-	0	0	0		0	0	0	0	1	0	-	-	-	0	2
LS02		Level crossing users	0	0	-		0	0	0		-	0	0	-	-	0	0	0		0	0	0	0	-	0	-	-	-	0	0
US02		Unauthorised persons	-	0	-		0	0	0		0	0	0	-	-	0	0	0		0	0	0	0	-	0	-	-	-	0	0
OS02		Other persons	0	0	-		0	0	0		0	0	0	-	-	0	0	0		0	0	0	0	-	0	-	-	-	0	0
TS03	Level crossing accidents	Total	26	19	7		49	45	2		32	1	6	13	25	0	17	8		7	2	1	97	9	0	8	10	14	3	401
PS03		Passengers	0	2	-		0	1	0		11	0	0	-	2	0	1	0		0	0	0	8	-	0	-	-	-	0	25
SS03		Employees	0	3	-		0	4	0		1	0	1	-	-	0	0	0		0	0	0	2	-	0	-	-	2	0	13
LS03		Level crossing users	26	14	7		49	39	2		20	1	5	13	23	0	16	8		7	2	1	87	9	0	8	10	12	3	362
US03		Unauthorised persons	-	0	-		0	1	0		-	0	0	-	-	0	0	0		0	0	0	0	-	0	-	-	-	0	1
OS03		Other persons	0	0	-		0	0	0		-	0	0	-	-	0	0	0		0	0	0	0	-	0	-	-	-	0	0
TS04	Accidents to persons caused by rolling stock in motion	Total	38	8	52		36	39	6		14	20	6	39	39	0	38	17		26	4	1	75	22	180	7	13	20	19	719
PS04		Passengers	10	2	29		11	14	4		1	8	1	12	17	0	20	0		0	2	1	0	8	28	1	-	6	1	176
SS04		Employees	14	0	-		0	5	1		3	1	1	5	1	0	2	3		1	0	0	0	-	8	-	9	1	1	56
LS04		Level crossing users	0	0	-		0	0	0		-	0	0	-	-	0	0	0		0	0	0	0	-	0	-	-	-	0	0
US04		Unauthorised persons	-	6	23		25	20	0		10	11	4	22	20	0	16	14		25	2	0	75	12	144	4	4	13	14	464
OS04		Other persons	14	0	-		0	0	1		0	0	0	-	1	0	0	0		0	0	0	0	2	0	2	-	-	3	23
TS05	Fires in rolling stock	Total	1	0	2		0	0	0		0	0	0	1	0	0	3	0		0	0	2	0	0	0	0	0	0	0	9
PS05		Passengers	0	0	-		0	0	0		0	0	0	-	-	0	3	0		0	0	0	0	-	0	-	-	-	0	3
SS05		Employees	0	0	2		0	0	0		0	0	0	1	-	0	0	0		0	0	2	0	-	0	-	-	-	0	5
LS05		Level crossing users	0	0	-		0	0	0		-	0	0	-	-	0	0	0		0	0	0	0	-	0	-	-	-	0	0
US05		Unauthorised persons	-	0	-		0	0	0		0	0	0	-	-	0	0	0		0	0	0	0	-	0	-	-	-	0	0
OS05		Other persons	1	0	-		0	0	0		0	0	0	-	-	0	0	0		0	0	0	0	-	0	-	-	-	0	1
TS06	Other accidents	Total	5	79	0		0	55	4		0	0	1	44	9	1	2	0		0	2	0	56	0	0	1	0	0	2	261
PS06		Passengers	1	59	-		0	48	0		0	0	0	3	5	0	0	0		0	1	0	55	-	0	-	-	-	0	172
SS06		Employees	0	11	-		0	1	2		0	0	1	4	2	1	2	0		0	1	0	1	-	0	1	-	-	2	29
LS06		Level crossing users	0	0	-		0	0	1		-	0	0	-	-	0	0	0		0	0	0	0	-	0	-	-	-	0	1
US06		Unauthorised persons	-	0	-		0	6	1		0	0	0	37	2	0	0	0		0	0	0	0	-	0	-	-	-	0	46
OS06		Other persons	4	9	-		0	0	0		0	0	0	-	-	0	0	0		0	0	0	0	-	0	-	-	-	0	13

Table 4B — 2007 — Serious injuries by type of accident and person category

ID	Accident types	Victim types – fatalities	AT	BE	BG	CT	CZ	DE	DK	EE	EL	ES	FI	FR	HU	IE	IT	LT	LU	LV	NL	NO	PL	PT	RO	SE	SI	SK	UK	Total
TS01	Collisions of trains	Total	4	3	4	0	1	8	0	0	2	0	0	2	4	0	1	0		0	1	0	1	0	0	0	0	0	0	31
PS01		Passengers	1	2	0	0	1	3	0	0	2	0	0	0	3	0	0	0		0	0	0	0	0	0	0	0	0	0	12
SS01		Employees	2	1	2	0	0	4	0	0	0	0	0	0	1	0	1	0		0	1	0	1	0	0	0	0	0	0	13
LS01		Level crossing users	0	0	0	0	0	1	0	0	-	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	1
US01		Unauthorised persons	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	2
OS01		Other persons	1	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0		0	0	0	0	0	0	0	0	0	0	3
TS02	Derailments of trains	Total	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0		0	0	0	1	2	0	0	0	0	12	16
PS02		Passengers	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0		0	0	0	0	2	0	0	0	0	11	14
SS02		Employees	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	1	0	0	0	0	0	1	2
LS02		Level crossing users	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0
US02		Unauthorised persons	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0
OS02		Other persons	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0
TS03	Level crossing accidents	Total	34	53	8	0	42	63	2	13	24	4	2	9	35	0	4	7		4	7	2	120	8	94	8	15	16	1	575
PS03		Passengers	0	25	0	0	1	4	0	0	1	0	0	1	8	0	0	0		0	0	0	11	0	0	0	0	2	0	53
SS03		Employees	0	4	0	0	0	5	0	0	1	0	0	1	0	0	0	0		0	0	0	2	0	1	0	0	1	0	15
LS03		Level crossing users	34	24	8	0	41	54	2	13	22	4	2	7	27	0	4	7		4	7	2	107	8	41	8	15	13	1	455
US03		Unauthorised persons	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0		0	0	0	0	0	24	0	0	0	0	24
OS03		Other persons	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0		0	0	0	0	0	28	0	0	0	0	28
TS04	Accidents to persons caused by rolling stock in motion	Total	15	20	21	0	58	83	8	6	9	20	1	28	52	1	34	6		13	2	0	95	23	90	6	9	20	18	638
PS04		Passengers	7	14	6	0	16	13	2	0	1	10	0	9	26	0	10	0		1	2	0	0	2	6	1	1	2	2	131
SS04		Employees	2	1	0	0	0	14	0	0	1	1	0	1	1	0	3	0		0	0	0	4	2	2	3	0	1	2	38
LS04		Level crossing users	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0
US04		Unauthorised persons	4	4	15	0	42	33	6	0	7	9	1	10	25	1	21	6		10	0	0	91	18	17	2	8	17	7	354
OS04		Other persons	2	1	0	0	0	23	0	6	0	0	0	8	0	0	0	0		2	0	0	0	1	65	0	0	0	7	115
TS05	Fires in rolling stock	Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0
PS05		Passengers	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0
SS05		Employees	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0
LS05		Level crossing users	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0
US05		Unauthorised persons	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0
OS05		Other persons	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0
TS06	Other accidents	Total	7	22	0	0	0	3	1	0	0	2	0	7	1	1	1	0		0	0	3	59	1	1	0	5	0	0	114
PS06		Passengers	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0		0	0	1	56	1	0	0	0	0	0	59
SS06		Employees	5	21	0	0	0	2	1	0	0	1	0	3	1	0	1	0		0	0	1	1	0	0	0	5	0	0	42
LS06		Level crossing users	0	1	0	0	0	0	0	0	-	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	1
US06		Unauthorised persons	1	0	0	0	0	1	0	0	0	0	0	2	0	0	0	0		0	0	1	2	0	0	0	0	0	0	7
OS06		Other persons	1	0	0	0	0	0	0	0	0	0	0	2	0	1	0	0		0	0	0	0	0	1	0	0	0	0	5

Table 4C — 2008 — Serious injuries by type of accident and person category

ID	Accident types	Victim types – fatalities	AT	BE	BG	CT	CZ	DE	DK	EE	EL	ES	FI	FR	HU	IE	IT	LT	LU	LV	NL	NO	PL	PT	RO	SE	SI	SK	UK	Total
TS01	Collisions of trains	Total	0	15	5	0	30	28	0	0	0	0	2	2	3	0	0	0		0	0	0	6	0	0	0	7	1	0	99
PS01		Passengers	0	10	0	0	28	21	0	0	0	0	0	0	3	0	0	0		0	0	0	3	0	0	0	4	0	0	69
SS01		Employees	0	4	0	0	1	5	0	0	0	0	2	2	0	0	0	0		0	0	0	3	0	0	0	3	0	0	20
LS01		Level crossing users	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0		0	0	0	0	0	0	0	-	0	0	0
US01		Unauthorised persons	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	1	0	6
OS01		Other persons	0	1	0	0	1	2	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	4
TS02	Derailments of trains	Total	0	0	0	0	0	1	0	0	4	1	0	0	1	0	0	0		0	0	0	0	4	4	0	0	0	0	15
PS02		Passengers	0	0	0	0	0	0	0	0	4	0	0	0	1	0	0	0		0	0	0	0	4	3	0	0	0	0	12
SS02		Employees	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0		0	0	0	0	0	1	0	0	0	0	3
LS02		Level crossing users	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0		0	0	0	0	0	0	0	-	0	0	0
US02		Unauthorised persons	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0
OS02		Other persons	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0
TS03	Level crossing accidents	Total	23	28	7	0	43	35	3	0	16	2	2	14	16	0	8	4		7	6	0	104	10	78	1	20	17	5	449
PS03		Passengers	0	14	0	0	0	0	0	0	2	0	0	1	0	0	0	0		0	0	0	2	0	0	0	4	0	0	23
SS03		Employees	0	0	1	0	1	3	1	0	2	0	1	0	0	0	0	0		0	1	0	0	0	0	0	2	1	0	13
LS03		Level crossing users	23	14	6	0	42	32	2	0	12	2	1	14	16	0	8	4		7	5	0	102	10	59	1	-	15	5	380
US03		Unauthorised persons	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0		0	0	0	0	0	4	0	14	0	0	18
OS03		Other persons	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0		0	0	0	0	0	15	0	0	1	0	16
TS04	Accidents to persons caused by rolling stock in motion	Total	15	15	21	1	66	86	5	5	9	16	2	18	40	1	30	9		24	0	1	105	23	145	4	10	20	15	686
PS04		Passengers	2	12	3	1	12	9	3	0	3	3	0	13	24	0	5	0		2	0	1	0	2	18	3	1	5	1	123
SS04		Employees	4	1	1	0	2	19	0	0	0	0	0	0	1	0	4	1		2	0	0	0	0	5	0	3	0	4	47
LS04		Level crossing users	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0		0	0	0	0	0	65	0	-	0	0	65
US04		Unauthorised persons	9	2	17	0	52	37	2	5	6	13	2	4	15	0	21	8		15	0	0	105	20	41	1	6	14	6	401
OS04		Other persons	0	0	0	0	0	21	0	0	0	0	0	1	0	1	0	0		5	0	0	0	1	16	0	0	1	4	50
TS05	Fires in rolling stock	Total	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	5
PS05		Passengers	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	5
SS05		Employees	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0
LS05		Level crossing users	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0		0	0	0	0	0	0	0	-	0	0	0
US05		Unauthorised persons	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0
OS05		Other persons	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0
TS06	Other accidents	Total	15	25	0	0	0	6	1	0	0	0	0	42	0	0	0	0		0	0	0	62	2	6	1	4	0	1	165
PS06		Passengers	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	39	0	5	0	2	0	0	50
SS06		Employees	8	23	0	0	0	5	1	0	0	0	0	2	0	0	0	0		0	0	0	2	2	1	1	2	0	1	48
LS06		Level crossing users	0	2	0	0	0	0	0	0	-	0	0	0	0	0	0	0		0	0	0	11	0	0	0	-	0	0	13
US06		Unauthorised persons	3	0	0	0	0	1	0	0	0	0	0	2	0	0	0	0		0	0	0	6	0	0	0	0	0	0	12
OS06		Other persons	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0		0	0	0	4	0	0	0	0	0	0	5

Table 5 — Total and relative number of suicides

ID	Category	Years	AT	BE	BG	CT	CZ	DE	DK	EE	EL	ES	FI	FR	HU	IE	IT	LT	LU	LV	NL	NO	PL	PT	RO	SE	SI	SK	UK	Total
N07	Total number of suicides	2006	78	97	32		174	-	21		1	189	42	351	128	7	126	0		6	190	11	25	40	16	69	6	49	227	1 885
		2007	113	94	39	0	150	706	32	0	4	188	54	344	111	5	138	0		10	193	8	28	52	24	78	14	48	197	2 630
		2008	93	-	27	0	160	714	24	1	1	174	52	289	111	7	137	0		9	164	7	29	50	29	71	20	58	203	2 430
N17	Relative to train km. number of suicides	2006	0.513	0.924	0.887		1.094	-	0.261		0.052	0.897	0.825	0.691	1.199	0.384	0.334	0		0.350	1.429	0.232	0.113	1.019	0.169	0.522	0.316	0.961	0.424	13.594
		2007	0.729	0.907	1.082	0	0.981	0.673	0.407	0	0.201	0.867	1.027	0.650	0.974	0.297	0.373	0		0.538	1.379	0.169	0.126	1.269	0.249	0.581	0.731	0.941	0.366	15.516
		2008	0.587	-	0.770	0	0.914	0.684	0.293	0.138	0.047	0.812	0.976	0.534	1.018	0.424	0.373	0		0.461	1.180	0.149	0.129	1.197	0.302	0.514	0.995	1.176	0.370	14.046
R01	Train km	2006	152.19	104.937	36.09		158.999	1 013.5	80.541		19.071	210.757	50.9	508	106.787	18.242	377	13.827		17.122	133	47.392	221.737	39.264	94.9	132.295	18.98	50.978	535.757	4 142.266
		2007	155	103.587	36.03	6.533	152.89	1 048.7	78.7	12.056	19.905	216.873	52.577	529.54	114	16.832	370	14.992		18.578	140	47.392	223.031	40.98	96.262	134.345	19.16	51.003	538.104	4 237.070
		2008	158.4	92.9	35.075	5.54	174.961	1 043.5	82	7.234	21.164	214.349	53.259	541	109	16.494	366.863	15.817		19.525	139	46.841	224.359	41.76	96.145	138.194	20.098	49.332	548	4 260.809

Table 6 — Number of accidents by type of accidents

ID	Accident types	Years	AT	BE	BG	CT	CZ	DE	DK	EE	EL	ES	FI	FR	HU	IE	IT	LT	LU	LV	NL	NO	PL	PT	RO	SE	SI	SK	UK	Total
N01	Collisions of trains	2006	2	84	44		13	422	1		4	0	0	48	4	1	5	1		0	4	5	13	3	5	3	-	7	4	673
		2007	4	77	3	0	3	15	1	0	3	0	0	85	5	0	4	6		0	4	4	6	3	65	1	2	14	12	317
		2008	3	94	3	0	5	13	0	0	1	4	0	97	1	0	2	1		1	2	6	8	0	35	4	1	12	7	300
N02	Derailments of trains	2006	1	7	139		10	52	0		4	9	0	42	16	0	11	7		1	2	3	126	9	22	5	3	8	22	499
		2007	3	17	1	0	3	6	1	1	8	12	0	68	7	0	10	27		0	0	0	132	3	20	11	5	11	20	366
		2008	7	21	0	0	2	12	0	2	2	15	1	97	1	1	10	1		0	1	3	105	3	15	14	0	6	14	333
N03	Level crossing accidents	2006	40	56	31		104	181	8		25	13	9	140	104	0	38	21		10	12	2	275	22	130	16	41	68	9	1 355
		2007	55	76	10	0	48	97	8	33	22	19	11	115	54	2	23	13		9	26	2	325	27	189	14	32	71	14	1 295
		2008	36	56	9	0	53	76	5	12	17	18	9	115	44	1	16	19		10	21	0	278	20	201	6	15	63	24	1 124
N04	Accidents to persons caused by rolling stock in motion	2006	55	22	72		104	216	18		35	51	23	74	244	0	88	37		52	9	2	423	55	295	17	23	53	49	2 017
		2007	27	30	42	0	59	184	10	14	20	63	9	77	92	2	85	36		37	3	2	418	56	211	20	19	63	61	1 640
		2008	35	25	52	1	72	193	13	12	19	43	14	57	79	3	83	42		45	1	2	397	49	310	13	14	78	58	1 710
N05	Fires in rolling stock	2006	1	18	23		0	98	1		2	0	17	62	1	0	5	0		0	1	3	5	-	8	3	1	8	0	257
		2007	1	17	0	0	1	3	0	1	0	0	1	37	3	0	5	1		0	0	1	7	0	15	4	0	22	3	122
		2008	0	24	1	1	1	6	0	0	1	0	0	24	0	0	2	5		0	0	3	9	0	17	3	0	8	0	105
N06	Other accidents	2006	7	0	1630		2	14	4		0	4	3	65	40	1	5	0		0	0	1	86	-	35	7	2	55	1	1 962
		2007	14	0	0	0	1	14	4	0	0	4	0	31	1	1	3	0		5	0	3	88	4	34	6	5	41	0	259
		2008	16	0	0	0	0	29	5	0	0	0	3	63	30	0	3	0		5	1	0	92	1	10	6	6	50	2	322
N00	Total number of accidents	2006	106	187	1939		233	983	32		70	77	52	431	409	2	152	66		63	28	16	928	89	495	51	70	199	85	6 763
		2007	104	217	56	0	115	319	24	49	53	98	21	413	162	5	130	83		51	33	12	976	93	534	56	63	222	110	3 999
		2008	97	220	65	2	133	329	23	26	40	80	27	453	155	5	116	68		61	26	14	889	73	588	46	36	217	105	3894
R01	Number of train km	2006	152.19	104.937	36.09		158.999	1 013.5	80.541		19.071	210.757	50.9	508	106.787	18.242	377	13.827		17.122	133	47.392	221.737	39.264	94.9	132.295	18.98	50.978	535.757	4 142.266
		2007	155	103.587	36.03	6.533	152.89	1 048.7	78.7	12.056	19.905	216.873	52.577	529.54	114	16.832	370	14.992		18.578	140	47.392	223.031	40.98	96.262	134.345	19.16	51.003	538.104	4 237.070
		2008	158.4	92.9	35.075	5.54	174.961	1 043.5	82	7.234	21.164	214.349	53.259	541	109	16.494	366.863	15.817		19.525	139	46.841	224.359	41.76	96.145	138.194	20.098	49.332	548	4 260.809

Table 7 — Number of precursors to accidents

ID	Precursors to accidents	Years	AT	BE	BG	CT	CZ	DE	DK	EE	EL	ES	FI	FR	HU	IE	IT	LT	LU	LV	NL	NO	PL	PT	RO	SE	SI	SK	UK	Total
I01	Broken rails	2006	171	115	7		0	124	0		-	74	65	11	768	8	361	1		1	34	51	3 054	45	349	256	76	1	232	5 804
		2007	-	98	92	13	21	407	32	7	269	54	21	323	654	1	430	62		5	31	10	2 484	39	319	187	57	5	192	5 813
		2008	-	281	67	8	4	536	14	7	223	70	19	309	716	3	84	1		4	31	36	2 396	33	380	218	79	10	170	5 699
I02	Track buckles	2006	-	1	-		1	72	1		-	186	10	171	3	5	6 743	2		1	143	96	80	95	0	80	26	1	86	7 803
		2007	-	0	25	0	0	68	6	0	-	171	7	177	4	1	3 113	40		1	13	14	17	40	3	102	11	2	5	3 820
		2008	-	0	10	0	0	40	8	0	110	218	3	194	8	0	41	0		3	8	17	19	37	0	87	16	0	16	835
I03	Wrong-side signalling failures	2006	-	1	-		0	0	544		0	6	-	290	-	4	4	4		3	-	0	-	-	2 335	8	-	4	617	3 820
		2007	7	1	10	0	0	0	193	0	0	5	-	277	0	1	0	245		0	-	0	0	0	2 456	6	0	6	550	3 757
		2008	3	1	13	0	0	0	119	0	0	6	2	277	8	2	2	39		0	18	1	52	0	2 557	12	163	2	901	4 178
I04	Signals passed at danger	2006	15	55	5		60	-	756		1	93	18	35	8	35	24	124		4	292	78	-	24	425	194	147	78	352	2 823
		2007	12	81	15	5	26	727	568	2	1	93	22	112	12	31	15	60		2	275	73	4 013	20	425	217	154	79	324	7 364
		2008	16	97	12	3	26	760	510	2	1	111	30	124	8	22	20	3		5	240	70	2 653	24	396	275	5	75	316	5 804
I05	Broken wheels	2006	-	0	-		0	2	19		-	1	14	-	1	0	1	0		5	0	52	137	1	1	8	-	-	0	242
		2007	2	1	17	0	0	6	22	0	1	0	-	2	0	0	0	0		9	0	39	66	0	2	2	0	1	0	170
		2008	0	1	13	0	0	1	7	0	1	0	0	0	0	0	0	1		2	0	6	57	0	0	1	0	0	0	90
I06	Broken axles	2006	-	0	-		0	9	23		-	0	0	-	3	0	0	22		2	0	0	3	3	2	10	1	-	0	78
		2007	3	0	29	0	0	4	8	0	0	0	-	0	1	0	1	28		1	0	0	22	1	2	3	0	0	0	103
		2008	3	0	7	0	0	9	9	0	0	0	0	1	0	1	1	0		0	1	2	67	0	2	1	0	0	0	104
R01	Number of train km	2006	152.19	104.937	36.09		158.999	1 013.5	80.541		19.071	210.757	50.9	508	106.787	18.242	377	13.827		17.122	133	47.392	221.737	39.264	94.9	132.295	18.98	50.978	535.757	4 142.266
		2007	155	103.587	36.03	6.533	152.89	1 048.7	78.7	12.056	19.905	216.873	52.577	529.54	114	16.832	370	14.992		18.578	140	47.392	223.031	40.98	96.262	134.345	19.16	51.003	538.104	4 237.070
		2008	158.4	92.9	35.075	5.54	174.961	1 043.5	82	7.234	21.164	214.349	53.259	541	109	16.494	366.863	15.817		19.525	139	46.841	224.359	41.76	96.145	138.194	20.098	49.332	548	4 260.809

Table 8 — Costs of all accidents

ID	Category	Years	AT	BE	BG	CT	CZ	DE	DK	EE	EL	ES	FI	FR	HU	IE	IT	LT	LU	LV	NL	NO	PL	PT	RO	SE	SI	SK	UK	Total
C00	Costs of all accidents	2006	0	0	1 091 619		3 015 487.38	0	0		0	0	45 366 103	0	1 873 308	750 000	0	12 442		43 424	0	34 625 211.041	4 483 573.48	52 113 923.37	638 670	67 145 296.238	1 944 225	1 160 000	120 266 703	334 529 985.779
		2007	0	0	674 623	0	3 844 692	0	13 740 712	0	2 119 403	0	35 316 435	0	16.668	110 000	0	60 001.68		339 308.7	0	6 375 000	5 370 073.01	60 250 000	580 503.66	79 530 122.366	0	1 990 000	189 681 101	399 981 992.084
		2008	0	0	686 371	130 000 000	10 079 369	0	23 601 892	179 747.35	2 193 186	0	42 242 859	0	0	800 000	0	118 131.9		3 545 660.46	91 900	6 975 000	2 855 166.23	47 696 000	1 541 907.91	55 705 795.050	301 987	2 806 375	129 256 683	460 678 030.900
C01	Costs of deaths	2006	-	-	-		945 110.87	-	-		-	-	42 270 504	-	33 654	-	-	0		0	-	0	-	47 240 000	112	35 775 161.290	-	750 000	80 643 600	207 658 142.160
		2007	-	-	0	0	12 623	-	12 017 760	0	-	-	34 569 918	-	-	-	-	0		1 329	-	0	156 295.74	54 960 000	2 125	43 306 774.194	0	0	129 925 800	274 952 624.894
		2008	-	-	16 352.65	0	522 252	-	21 814 744	0	-	-	40 734 897	-	-	-	-	0		11 186	40 200	0	14 957.65	40 540 000	1 081	31 201 397.849	-	0	114 448 875	249 345 943.629
C02	Costs of injuries	2006	-	-	-		474 372.95	-	-		-	-	3 095 599	-	559	-	-	0		951	-	31 657	-	3 934 062	0	8 724 086.022	-	387 000	5 600 250	22 248 537.232
		2007	-	-	2 523	0	6 208	-	1 722 952	0	-	-	746 517	-	-	-	-	0		0	-	275 000	24 639.24	4 310 000	-	7 412 473.118	0	0	6 944 310	21 444 622.358
		2008	-	-	0	0	99 249	-	1 787 148	0	-	-	1 507 962	-	-	-	-	0		740	3 100	275 000	63 193.06	5 030 000	-	2 675 483.871	-	0	4 073 604	15 515 479.821
C03	Costs of replacement or repair of damaged RS and railway installations	2006	-	-	1 091 619		1 596 003.56	-	-		-	-	-	-	1 838 231	750 000	-	12 442		40 037	-	16 389 474.041	4 483 573.48	-	629 858	21 078 726.56	1 944 225	20 000	16 071 468	65 945 657.551
		2007	-	-	572 084	0	3 724 791	-	-	0	1 933 255	-	-	-	16.668	110 000	-	60 001.68		335 235.13	-	3 000 000	5 095 911.57	-	317 137.22	24 775 842.796	0	1 890 000	44 406 218	86 220 493.064
		2008	-	-	634 360.86	60 000 000	9 410 339	-	-	146 101.85	618 441	-	-	-	-	800 000	-	118 131.9		3 340 838.84	24 300	3 600 000	26 71815	750 000	1 490 181.93	19 725 074.62	301 987	2 639 224	6 228 951	112 499 747
C04	Costs of delays etc.	2006	-	-	-		-	-	-		-	-	-	-	864	-	-	0		2436	-	18 204 080	-	939 861.37	8 700	1 567 322.366	-	3 000	17 951 385	38 677 648.836
		2007	-	-	100 016	0	101 070	-	-	0	186 148	-	-	-	-	-	-	0		2745	-	3 100 000	93 226.46	980 000	261 241.44	4 035 032.258	0	100 000	8 404 773	17 364 251.768
		2008	-	-	35 657.49	70 000 000	47 529	-	-	33 645.5	1 574 745	-	-	-	-	-	-	0		192 895.25	24 300	3 100 000	105 200.52	1 376 000	50 644.98	21 03 838.710	-	167 151	4 505 253	83 316 860.450
R01	Number of train km	2006	152.19	104.937	36.09		158.999	1 013.5	80.541		19.071	210.757	50.9	508	106.787	18.242	377	13.827		17	133	47.392	221.737	39.264	94.9	132.295	18.98	50.978	535.757	4 142.266
		2007	155	103.587	36.03	6.533	152.89	1 048.7	78.7	12.056	19.905	216.873	52.577	529.54	114	16.832	370	14.992		19	140	47.392	223.031	40.98	96.262	134.345	19.16	51.003	538.104	4 237.070
		2008	158.4	92.9	35.075	5.54	174.961	1 043.5	82	7.234	21.164	214.349	53.259	541	109	16.494	366.863	15.817		20	139	46.841	224.359	41.76	96.145	138.194	20.098	49.332	548	4 260.809

Table 9 — Hours lost due to accidents

ID	Category	Years	AT	BE	BG	CT	CZ	DE	DK	EE	EL	ES	FI	FR	HU	IE	IT	LT	LU	LV	NL	NO	PL	PT	RO	SE	SI	SK	UK	Total
W00	Total number of hours lost	2006	-	-	-		-	-	-		95 312	-	-	-	-	-	9 039	441.2		0	-	4 647.5	3 962	-	233	2 299	-	-	33 470	149 403.7
		2007	-	-	-	0	1 189	-	-	0	5 840	-	-	-	-	-	12 164.6	8 149.75		0	-	9 283	25 635.72	-	1 185	7 124	0	0	21 349	91 920.07
		2008	-	-	-	0	4 500	-	-	200	95 104	-	-	-	-	-	2 572.016	160.03		2 400	-	1 148	16 625	-	723	1 794	-	0	38 115	163 341.046
W10	Number of hours lost relative to total number of working hours	2006	-	-	-		-	-	-		0.006	-	-	-	-	-	0	0.000		0	-	0.000	-	-	-	0	-	-	0	0.006
		2007	-	-	-	0	0.000	-	-	-	0.000	-	-	-	-	-	0	0.000		0	-	0.001	0.000	-	0.000	0	0	-	0.000	0.002
		2008	-	-	-	0	0.000	-	-	-	0.007	-	-	-	-	-	0	0.000		0.000	-	0.000	0.000	-	0.000	0.000	-	-	0.000	0.007
R04	Total number of working hours	2006	-	-	-		102 000	-	-		16 027	-	-	-	837	-	145 790 322	18 689.348		24 181	-	119 890	-	16 239	-	15 163 144	16 857	-	18 4127 400	345 395 586.348
		2007	-	-	-	3 400.235	87 822.437	-	-	0	15 134	-	-	-	-	-	131 620 554	18 448		22 010	-	12 597.795	87 751.3	15 812	117 578.368	27 486 739	16 668	0	188 624	159 693 138.935
		2008	-	-	-	3 514.81	91 000	-	-	0	14 608	-	-	-	36 656	-	128 888 73127	18 828		20 947	-	13 215.047	94 464.212	16 006	175 839.829	36 070 744	16 788	0	235 796	165 697 138.168

Table 10 — Technical safety of infrastructure and its implementation

ID	Category	Years	AT	BE	BG	CT	CZ	DE	DK	EE	EL	ES	FI	FR	HU	IE	IT	LT	LU	LV	NL	NO	PL	PT	RO	SE	SI	SK	UK	Total
T01	Perc. of track with ATP in operation	2006	-	0.081	0.15		0.16	-	0.28		0	0.957	0.72	0.558	0.340	0.05	0.572	0.25		0.325	0.98	0.7	0	0.503	0.488	0.706	0.64	0.151	0.043	8.654
		2007	-	0.084	0.14	1	0.17	0.881	0.53	0.24	0	0.975	0.749	0.585	-	0.05	0.9	0.250		0.436	0.99	0.7	0	0.508	0.500	0.656	0.545	0.151	0.042	11.082
		2008	0.664	0.069	0.11	1	0.002	0.9	0.53	0.232	0	0.980	0.77	0.595	-	0.05	0.915	0.250		0.387	0.99	0.74	0	0.513	0.525	0.72	0.67	0.185	0.042	11.839
T02	Perc. of train km using operational ATP	2006	-	0.06	0.08		-	-	-		0	0.96	0.9	-	0.780	0.12	0.490	0.641		-	0.999	0.9	0	0.9	-	-	-	0.418	0.030	7.278
		2007	-	-	0.2	1	-	-	-	0.95	0	0.97	0.97	0.791	-	0.137	0.625	0.608		-	0.999	0.9	0	0.9	-	0.932	-	0	0.030	10.012
		2008	-	0.039	0.21	1	-	-	-	0.684	0	-	0.98	-	-	0.133	0.717	0.589		-	0.999	0.9	0	0.9	-	0.96	-	0	0.030	8.141
T03	Total number of level crossings	2006	6 977	2 037	820		8 576	20 317	1 548		1 270	2 885	4 430	16 804	5 981	1 171	8 383	436		657	2 724	4 300	17 011	1 297	5 534	10 541	965	2 322	7 211	134 197
		2007	6 776	2 180	820	0	8 628	19 011	1 449	328	1 265	2 811	4 334	14 651	5 972	1 126	7 350	531		660	2 720	3 761	14 219	1 266	5 625	10 572	944	2 307	7 456	126 762
		2008	6 713	2 110	821	0	8 551	18 051	1 563	329	1 265	2 699	4 218	14 640	5 910	1 095	7 643	523		641	2 700	3 987	14 255	1 229	5 784	11 352	959	2 265	6 680	125 983
T04	Tot number of level crossings per line km	2006	0.880	0.328	0.160		0.737	0.391	0.432		0.424	0.168	0.502	0.545	0.747	0.555	0.462	0.199		0.161	0.419	1.052	0.598	0.369	0.271	0.686	0.619	0.496	0.228	11.429
		2007	0.831	0.351	0.160	0	0.747	0.366	0.390	0.149	0.413	0.157	0.492	0.489	0.565	0.534	0.404	0.243		0.152	0.406	0.922	0.499	0.359	0.276	0.696	0.430	0.636	0.237	10.902
		2008	0.819	0.336	0.160	0	0.740	0.348	0.411	0.154	0.413	0.150	0.477	0.497	0.559	0.519	0.297	0.240		0.135	0.403	0.977	0.497	0.348	0.284	0.706	0.615	0.625	0.214	10.927
T05	Perc. of level crossings with automatic or manual protection	2006	0.29	0.792	0.42		0.412	0.54	-		0.61	0.350	0.19	0.74	0.615	0.17	0.753	0.764		0.64	0.677	1	0.39	0.393	0.303	0.344	0.34	0.470	0.234	11.437
		2007	0.283	0.808	0.42	-	0.247	0.57	0.57	0.47	0.656	0.353	0.194	-	0.59	0.193	0.822	0.744		0.64	0.675	1	0.337	0.382	0.305	0.329	0.35	0.470	0.241	11.650
		2008	0.286	0.81	0.57	-	0.247	0.59	0.55	0.49	0.72	0.353	0.201	0.727	0.59	0.2	0.835	0.75		0.6	0.763	1	0.337	0.373	0.294	0.31	0.33	0.487	0.246	12.658
R03	Number of track km	2006	7 924	6 212	5 119		11 641.5	51 959	3 586		2 997	17 159.9	8 830	30 860	8 007.49	2 110	18 154	2 187.4		4 091.4	6 500	4 087	28 445.8	3 512.7	20 384.809	15 360	1 559	4 678	31 594	296 959.999
		2007	8 154	6 215	5 119	159	11 553.8	51 959	3 720	2 200	3 060	17 885.3	8 816	29 973	10 577	2 110	18 194.72	2 180.9		4 352.55	6 700	4 080	28 499.22	3 527.7	20 384.809	15 198	2 193	3 629	31 473	301 913.999
		2008	8 197	6 282	5 116	159	11 553.8	51 851	3 800	2 133	3 062	17 960	8 848	29 473	10 577	2 110	25 719.52	2 179.6		4 730.9	6 700	4 080	28 672.9	3 527.724	20 347.529	16 075.491	1 559	3 623	31 240	309 577.464

Table 11 — Management of safety — number of audits planned and conducted

ID	Category	Years	AT	BE	BG	CT	CZ	DE	DK	EE	EL	ES	FI	FR	HU	IE	IT	LT	LU	LV	NL	NO	PL	PT	RO	SE	SI	SK	UK	Total
A01	Total number of accomplished audits	2006	-	0	2 719		159	-	33		-	731	44	1	-	21	1 278	21		131	-	55	0	2	-	319	-	6	720	6 240
		2007	-	0	3 215	25	290	-	36	249	-	755	43	44	21	13	2 157	27		1 853	20	66	0	6	-	188	-	0	189	9 197
		2008	109	0	3 196	24	263	-	32	83	0	777	33	50	-	21	2 158	29		265	20	72	0	1	-	156	4	1	47	7 341
A02	Accomplished audits as percentage of required/planned audits	2006	-	0	-		1	-	1.38		-	1.005	0.91	1	-	1.05	0.983	0.81		1.19	-	0.7	1	1	-	0.982	-	-	0.932	13.942
		2007	-	-	-	0.85	1.1	-	1.57	1	-	1.015	0.67	1	0.77	1	0.563	1		0.975	1	0.74	0	1	-	0.969	-	0	0.976	16.198
		2008	0.96	0	-	0.59	1	-	1.33	0.94	0	1.020	0.97	1	-	1.05	0.835	1		1.15	1	0.95	0	1	-	0.881	1	1	1.02	18.697

Comments on CSI data tables

ERA has reviewed the reported CSI data and all large fluctuations has been checked by the reporting NSA. In the table below are given comments for the data where for example fluctuations are due to changes in reporting procedures or where the national definition applied gives a value that deviates from European average

Table	Country	Year	Variable	Comment
Table 3C	CZ	2008	PK01	The high number of passengers seriously injured and killed in 2008 is due to one serious accident, a bridge collapse and subsequent high speed train collision (8 August 2008).
Table 4A	EL	2006	PS03	One significant level crossing accident in 2006 explaining the large number of passengers seriously injured.
Table 4B	BE	2007	PS03	The figure includes suicides. It has not been possible to correct the figure.
	BE	2007	SS06	The figure includes work accidents.
Table 4C	DE	2008	PS01	The large number of passenger seriously injured is mainly due to one big accident.
	CZ	2008	PS01	The high number of passengers seriously injured and killed in 2008 is due to one serious accident, a bridge collapse and subsequent high speed train collision (8 August 2008).
Table 6	BG	2006	N01-N06	The variable includes non-significant accidents.
	DE	2006	N01-N06	Data include non-significant accidents.
	FI	2006	N04-N05	Data include non-significant accidents.
	FR	2006	N01-N02	Does not include collisions/derailments on sidings.
	HU	2006-2008	N01-N06	The fluctuation in number of occurrences between 2006 and 2008 is due to a combination of change in reporting procedures and true change in number of events.
	RO	2006	N01	The variable does not include collisions with objects.
	RO	2006	N05	Does not include fires intentionally caused to sabotage.
	RO	2006-07	N02	The variable only considers derailments of trains, as trains with planned movements. Derailments with isolated locomotives are excluded.
Table 7	BG	2006	I01	Only includes broken rails that gave more than 30 min delay of traffic.
	DE	2006	I01	Only includes broken rails with a subsequent dangerous situation.
	DE	2008	I01	The large nr of broken rails was due to a severe winter.
	DK	2006	I03	National definition: All events when the signal changes unexpectantly, also to a more restrictive is registered.

Table	Country	Year	Variable	Comment
Table 7	DK	2006	I04	National definition: All events when a restrictive signal is passed is registered, also when there is no real danger and in many cases just by a few meters.
	FR	2006	I01	There was a change in reporting procedures between 2006 and 2007. Using 2007 reporting procedures, the figure would have been 346.
	FR	2006	I04	There was a change in reporting procedures between 2006 and 2007. Using 2007 reporting procedures, the figure would have been 110.
	IT	2008	I01	There has been a change in reporting procedures between 2007 and 2008.
	IT	2006-2008	I02	There has been a change in reporting procedures between 2006 and 2008.
	LT	2006–07	I01-I04	Fluctuation in reported nr of occurrences is the effect of a change in definition.
	NL	2006	I01	The large reported number of track buckles is confirmed. 2006 was a hot summer causing a lot of track buckles.
	NO	2006–07	I01-I02	Varying weather conditions caused large fluctuations in this variable between 2006 and 2007.
	NO	2008	I01, I05	The change in reported nr of events is due to an improved implementation of existing reporting procedures.
	PL	2006	I03, I04	The infrastructure manager did not collect information on incidents and near misses before 2007. The information is therefore incomplete. SPADs were not collected.
	PL	2006-2008	I03-I06	There has been a change in reporting procedures explaning the fluctuation in reported nr of events.
	RO	2006-2008	I03	The variable includes all signalling failures.
Table 8	LV	2008	C01-C04	The large numbers are explained by a small number of serious accidents and improved reporting and data collection procedures.
Table 9	RO	2008	R04	The change in reported nr of working hours is due to a change in definitions and reporting procedures.
	UK	2007	R04	The change in reported nr of working hours is due to a change in reporting procedures.
Table 10	BE	2006–07	R03	The figure is taken from Eurostat 2005 data.
	DE	2006	R03	The figure given is per 31 December 2007.
	IT	2008	R03	The increase in network length is due to a change in reporting from line km to track km.
	PL	2006–07	R03	The figure is excluding crossovers on main lines and is taken from Eurostat 2005 data.
Table 11	LV	2006	A01	The figure only includes audits conducted by State Railway Technical Inspectorate.
	LV	2007	A01	The figure includes audits conducted by IM, RU and State Railway Technical Inspectorate.
	UK	2008	A01	The change in reported nr of audits is due to a change in interpretation of the definition.

Annex 2 – Serious accidents with five or more fatalities since 1990

Date	Country	Place	Type	Fatalities	Injuries
1990-02-02	DE	Rüsselsheim station	Train collision	17	37
1990-03-22	DE	Gröbers, Halle	Train collision	5	0
1990-04-16	NO	Between Skoeyen and Lysaker	Train collision	5	0
1990-06-23	PL	Suburb of Wroclaw	Level crossing accident	7	0
1990-07-03	ES	Unknown	Train collision	6	2
1990-08-21	PL	Wlochy	Train collision	16	42
1990-08-25	CZ	Spálov, Between Železný Brod and Tanvald stations	Train collision	10	16
1991-01-27	CZ	Chlumchany	Accident to person caused by RS in motion	5	1
1991-03-31	SK	Jesenske-Rimavska Sobota	Level crossing accident	6	0
1991-06-29	EL	Corinth	Level crossing accident	8	0
1991-07-28	PT	Linha da Beira Alta – Monte Lobos/ Carregal do Sal	Level crossing accident	5	0
1991-10-12	DE	Cologne	Accident to person caused by RS in motion	6	1
1991-10-17	FR	Melun Station, near Paris	Train collision	16	50
1992-01-07	HU	Between Vámosgyörk and Hort	Level crossing accident	5	8
1992-01-27	IT	Ciampino, Near Rome	Train collision	6	0
1992-06-10	IT	Caluso, Near Turin	Train collision	6	33
1992-08-03	SK	Budkovce – Drahnov	Train collision	6	0
1992-08-17	BG	Kazichene station	Train collision	8	57
1992-08-19	AT	Puchberg	Train collision	5	30
1992-09-26	HU	Agárd, Gárdony	Level crossing accident	16	0
1992-10-01	BG	Harmanli	Train collision	5	1
1992-10-18	PL	Chelmce	Level crossing accident	6	0
1992-11-15	DE	Northeim	Train derailment	11	0
1992-11-30	NL	Hoofddorp	Train derailment	5	6
1992-12-10	DE	Bad Oldesloe station	Accident to person caused by RS in motion	7	1

Date	Country	Place	Type	Fatalities	Injuries
1993-02-12	HU	Between Bátaszék-Pörböly stations	Level crossing accident	10	12
1993-08-01	RO	Urleasca	Level crossing accident	12	0
1993-08-03	ES	Vega de Anzo, near Oviedo	Train collision	12	5
1993-08-14	HU	Between Makó and Makó-Újváros station	Level crossing accident	6	0
1993-10-03	NO	Nordstrand, near Oslo	Train collision	6	6
1994-02-17	PT	Linha do Sul – Level crossing at pk 274.94 (São Marcos da Serra)	Level crossing accident	6	2
1994-03-21	CH	Between Daeniken and Schoenenwerd	Train collision with an obstacle	9	14
1994-04-30	PT	Linha do Oeste – Level crossing at pk 101.71	Level crossing accident	5	1
1994-05-29	PT	Linha da Póvoa – Level crossing at pk 39.91	Level crossing accident	5	8
1994-09-11	EL	Tithoréa	Train derailment	5	0
1994-09-29	DE	Bad Bramstedt	Train collision	7	15
1994-10-15	UK	Cowden, Kent	Train collision	5	0
1994-11-17	ES	Santa Fe/Gador	Level crossing accident	7	0
1994-12-02	HU	Szajol station	Train derailment	31	54
1995-02-27	ES	San Sebastian	Train derailment	5	33
1995-06-24	CZ	Krouna, Between Policka and Chrudim	Train collision	19	4
1995-06-27	HU	Between Györszabadhegy and Nyúl stations	Level crossing accident	6	7
1995-09-11	HU	Sorkifalud	Level crossing accident	5	2
1995-09-22	FR	Agde	Level crossing accident	5	0
1996-01-26	RO	Nr Tirgusor	Level crossing accident	12	0
1996-02-26	HU	Kutas	Level crossing accident	13	10
1996-03-03	RO	Gavojdia	Level crossing accident	6	9
1996-10-07	BE	Berlaar	Level crossing accident	5	0
1997-01-12	IT	Piacenza	Train derailment	8	30
1997-03-31	ES	Uharte Arakil station, Pamplona, Navarra	Train derailment	18	40
1997-05-05	PL	Reptowo, Szczecin	Train derailment	12	40
1997-07-05	DE	Between Neustadt, Marburg and Stadtallendorf	Train collision with an obstacle	6	2

Date	Country	Place	Type	Fatalities	Injuries
1997-09-08	FR	Saint-Antoine-de-Breuilh, Port-Sainte-Foy	Level crossing accident	13	18
1997-09-19	UK	Southall, London	Train collision	7	30
1998-03-06	FI	Jyväskylä	Train derailment	10	8
1998-05-27	HU	Between Létavértes and Monostorpályi stations	Level crossing accident	5	0
1998-06-03	DE	Eschede	Train derailment	101	87
1998-09-19	NO	Gol station	Level crossing accident	5	0
1999-01-28	SK	Bratislava	Accident to person caused by RS in motion	6	0
1999-03-13	HU	Between Tiszakécske and Lakitelek	Level crossing accident	5	1
1999-06-22	SE	Veka	Level crossing accident	5	0
1999-07-27	PL	Owadow, Radom	Level crossing accident	5	1
1999-10-05	UK	Ladbroke Grove, Paddington, London	Train collision	31	227
2000-01-04	NO	Asta	Train collision	19	18
2000-02-06	DE	Brühl	Train derailment	9	52
2000-06-04	IT	Near Parma	Train collision	5	1
2000-06-16	NL	Voorst	Level crossing accident	5	0
2001-01-03	ES	Aguilas/Lorca Sutulena	Level crossing accident	12	2
2001-02-28	UK	Selby, Great Heck, North Yorkshire	Train collision with an obstacle	10	82
2001-03-27	BE	Pecrot	Train collision	8	7
2002-02-20	RO	Tecuci	Level crossing accident	7	8
2002-02-26	AT	Wampersdorf	Train collision	6	17
2002-04-04	PT	Ramal da Lousã – pk 29.9	Train collision	5	4
2002-05-10	UK	Potters Bar	Train derailment	7	32
2002-07-20	IT	Messina, Sicily	Train derailment	8	2
2002-10-02	PT	Linha de Cascais – pk 0.69 (Lisboa)	Level crossing accident	6	0
2002-11-06	FR	Nancy	Fire in rolling stock	12	0
2002-12-02	PL	Malkinia	Level crossing accident	5	4
2003-02-02	FR	Hesdin	Level crossing accident	5	0

Date	Country	Place	Type	Fatalities	Injuries
2003-05-08	HU	Balatonszabadi-Sóstó, Siófok, Lake Balaton	Level crossing accident	33	7
2003-06-03	ES	Chinchilla/Navajuelos	Train collision	19	6
2003-06-11	DE	Between Schrozberg and Niederstetten, Baden-Württemberg	Train collision	6	25
2003-06-24	RO	Stroiesti	Level crossing accident	5	4
2004-05-07	ES	Hellin	Level crossing accident	5	0
2004-11-06	UK	Ufton Nervet	Level crossing accident	7	8
2004-12-09	CZ	Vrahovice	Level crossing accident	5	3
2005-01-07	IT	Bolognina di'Crevalcore	Train collision	17	15
2005-02-12	BE	Diepenbeek	Level crossing accident	5	0
2006-05-26	SK	Between Drienovska Nova Ves and Licartovce	Level crossing accident	5	0
2006-08-21	ES	Between León and Palencia.	Train derailment	7	6
2006-10-11	FR	Zoufftgen, between Bettembourg station and Thionville	Train collision	6	2
2007-07-22	RO	Tirgovista	Level crossing accident	8	0
2008-02-28	BG	Between the railway stations Kunino – Cherven Briyag	Fire in rolling stock	9	10
2008-06-02	FR	Between Perrignier and Thonon Les Bains	Level crossing accident	7	3
2008-08-08	CZ	Studenka station	Train collision with an obstacle	7	22
2008-08-14	HU	Between Vamosgyork and Gyongyos stations	Level crossing accident	5	0
2009-02-21	SK	Polomka	Level crossing accident	12	20
2009-06-29	IT	Viareggio	Train derailment	32	27
2009-08-14	RO	Iasi	Level crossing accident	13	3
2009-09-01	PT	Baião	Level crossing accident	5	2
2010-02-15	BE	Buizingen station	Train collision	18	83 (*)

Table 3. Railway accidents in Europe with five or more fatalities 1990–2010.

(*) The number of fatalities and injuries in the Halle accident as per 23 February 2010. Figures can change.

Annex 3 — List of national safety authorities and national investigation bodies

Country	National safety authority	National investigation body
Austria	**Bundesministerium für Verkehr, Innovation und Technologie** Oberste Eisenbahnbehörde http://www.bmvit.gv.at	**Bundesanstalt für Verkehr (VERSA)** Unfalluntersuchungstelle des Bundes, Fachbereich Schiene http://versa.bmvit.gv.at
Belgium	**Federale Overheidsdienst Mobiliteit en Vervoer** Directoraat-generaal vervoer te Land **Service Public fédéral Mobilité et Transports** Direction générale Transport terrestre http://www.mobilit.fgov.be	**Federale Overheidsdienst Mobiliteit en Vervoer** Onderzoeksorgaan voor Ongevallen en Incidenten op het Spoor **Service Public fédéral Mobilité et Transports** Organisme d'enquête sur les Accidents et les Incidents ferroviaires http://www.mobilit.fgov.be
Bulgaria	**Ministry of Transport — Railway Administration Executive Agency** http://www.iaja.government.bg	**Ministry of Transport – Railway Accident Investigation Unit** http://www.mtitc.government.bg/
Czech Republic	**Drazni Urad — Rail Authority** http://www.du-praha.cz http://www.ducr.cz	**Drážní inspekce — Rail Safety Inspection office** http://www.dicr.cz
Germany	**Eisenbahn — Bundesamt (EBA)** http://www.eba.bund.de	**Bundesministerium für Verkehr, Bau und Stadtentwicklung** Eisenbahn-Unfalluntersuchungsstelle http://www.bmvbs.de
Denmark	**Trafikstyrelsen** http://www.trafikstyrelsen.dk	**Havarikommissonen for Civil Luftfart og Jernbane** http://www.havarikommissionen.dk
Estonia	**Estonian Technical Surveillance Authority** http://www.tja.ee/?lang=en	**Ministry of Economic Affairs and Communications** Emergency Management Department http://www.mkm.ee
Greece	**Hellenic Ministry of Transport and Communications** Safety Authority for Rail Transport http://www.yme.gr	**Hellenic Ministry of Transport and Communications** Committee for Accident Investigation http://www.yme.gr
Spain	**Agencia de Seguridad del Transporte Terrestre** http://www.fomento.es	**Ministerio de Fomento** Comision de Investigación de Accidentes ferroviarios http://www.fomento.es
Finland	**Finnish Transport Safety Agency TraFi** http://www.trafi.fi (See also: www.rautatievirasto.fi)	**Accident Investigation Board of Finland** http://www.onnettomuustutkinta.fi
France	**Établissement Public de Sécurité Ferroviaire (EPSF)** http://www.securite-ferroviaire.fr	**Bureau d'Enquêtes sur les Accidents de Transport Terrestre** http://www.bea-tt.equipement.gouv.fr
Hungary	**National Transport Authority** http://www.nkh.gov.hu	**Transportation Safety Bureau** http://www.kbsz.hu

Country	National safety authority	National investigation body
Ireland	Railway Safety Commission http://www.rsc.ie	Railway Accident Investigation Unit http://www.raiu.ie
Italy	Agenzia Nazionale per la Sicurezza delle Ferrovie http://www.mit.gov.it	Ministero delle Infrastrutture e dei Trasporti Railway Safety Commission http://www.infrastrutturetrasporti.it
Lithuania	Valstybinė geležinkelio inspekcija State Railway Inspectorate http://www.vgi.lt	Katastrofų tyrimu vadovas National Investigation Body http://www.transp.lt
Luxembourg	Ministère du Développement durable et des Infrastructures http://www.gouvernement.lu	Administration des Enquêtes Techniques http://www.mt.public.lu/transports/AET/
Latvia	State Railway Technical Inspectorate (SRTI) http://www.vdzti.gov.lv	Transport Accident and Incident Investigation Bureau (TAIIB) http://www.taiib.gov.lv
Netherlands	Inspectie Verkeer en Waterstaat http://www.ivw.nl	The Dutch Safety Board http://www.safetyboard.nl
Norway	Norwegian Railway Inspectorate http://www.sjt.no	Accident Investigation Board Norway http://www.aibn.no
Poland	Urzad Transportu Kolejowego http://www.utk.gov.pl	Panstwowa Komisja Badania Wypadków Kolejowych (NIB) http://www.mi.gov.pl
Portugal	Instituto da Mobilidade e dos Transportes Terrestres http://www.imtt.pt	Gabinete de Investigação de Segurança e de Acidentes Ferroviários (GISAF) http://www.directorio.moptc.pt/index.asp?detalhe=58&topcao=1
Romania	Autoritatea Feroviara Romana (AFER) Romanian Railway Safety Authority http://www.afer.ro	Autoritatea Feroviara Romana (AFER) Romanian Railway Investigating Body http://www.afer.ro
Sweden	Transportstyrelsen http://www.transportstyrelsen.se	Statens haverikommission http://www.havcom.se
Slovenia	Public Agency of the Republic of Slovenia for Railway Transport http://www.azp.si	Ministry of Transport Railway Accident and Incident Investigation Division http://www.mzp.gov.si
Slovakia	Railway Regulatory Authority (URZD) http://www.urzd.sk	Ministry of Transport Posts and Telecommunication http://www.telecom.gov.sk
United Kingdom	Office of Rail Regulation (ORR) http://www.rail-reg.gov.uk	Rail Accident Investigation Branch http://www.raib.gov.uk
Channel Tunnel	Channel Tunnel Safety Authority ctsa@orr.gsi.gov.uk Secrétariat général au Tunnel sous la Manche (SGTM) tunnelmanche@equipement.gouv.fr	See the relevant authority or body in France or the United Kingdom for the respective part of the Channel Tunnel

Key documents and references

Regulation (EC) No 881/2004 of the European Parliament and Council of 29 April 2004 establishing a European railway agency amended by Regulation (EC) No 1335/2008 of the European Parliament and of the Council of 16 December 2008.

Directive 2004/49/EC of the European Parliament and of the Council of 29 April 2004 on safety on the Community's railways and amending Council Directive 95/18/EC on the licensing of railway undertakings and Directive 2001/14/EC on the allocation of railway infrastructure capacity and the levying of charges for the use of railway infrastructure and safety certification.
amended by
— Directive 2008/57/EC of the European Parliament and of the Council of 17 June 2008
— Directive 2008/110/EC of the European Parliament and of the Council of 16 December 2008
— Commission Directive 2009/149/EC of 27 November 2009 as regards Common Safety Indicators and common methods to calculate accident costs.

Regulation (EC) No 91/2003 of the European Parliament and of the Council on rail transport statistics
amended by
— Commission Regulation (EC) No 1192/2003 of 3 July 2003
— Commission Regulation (EC) No 1304/2007 of 7 November 2007
— Regulation (EC) No 219/2009 of the European Parliament and of the Council of 11 March 2009

The annual reports of all Member States' NIBs and NSAs submitted to the Agency.

All documents can be obtained through our web pages (http://www.era.europa.eu).

Design: GELLIS Communication

The Railway Safety Performance in the European Union
A report from the European Railway Agency
60 pages, 21 × 29.7 cm

Luxembourg: Publications Office of the European Union, 2010

ISBN 978-92-9205-013-9
ISSN 1831-1512
doi:10.2821/12170

© European Railway Agency, 2010. Reproduction is authorised provided the source is acknowledged.

European Railway Agency
120, Rue Marc Lefrancq
BP 20392
59307 Valenciennes Cedex
FRANCE
Tel. +33 327096500
Fax: +33 327334065
www.era.europa.eu

Printed on recycled paper that has been awarded the EU eco-label for graphic paper (http://ec.europa.eu/environment/ecolabel).
Printed in Belgium

TR-AB-10-001-EN-1



European Railway Agency

Headquarters in Valenciennes

120, Rue Marc Lefrancq
59300 Valenciennes
FRANCE

Tel. +33 327096-500

Conference centre in Lille

Espace International
299, Boulevard de Leeds
59777 Lille
FRANCE

www.era.europa.eu

Publications Office

ISBN 978-92-9205-013-9