

# Belgian Safety Authority

## ANNUAL REPORT

# 2014

Department for Railway Safety and Interoperability

(FPS MOBILITY AND TRANSPORT)

Rue du Progrès 56

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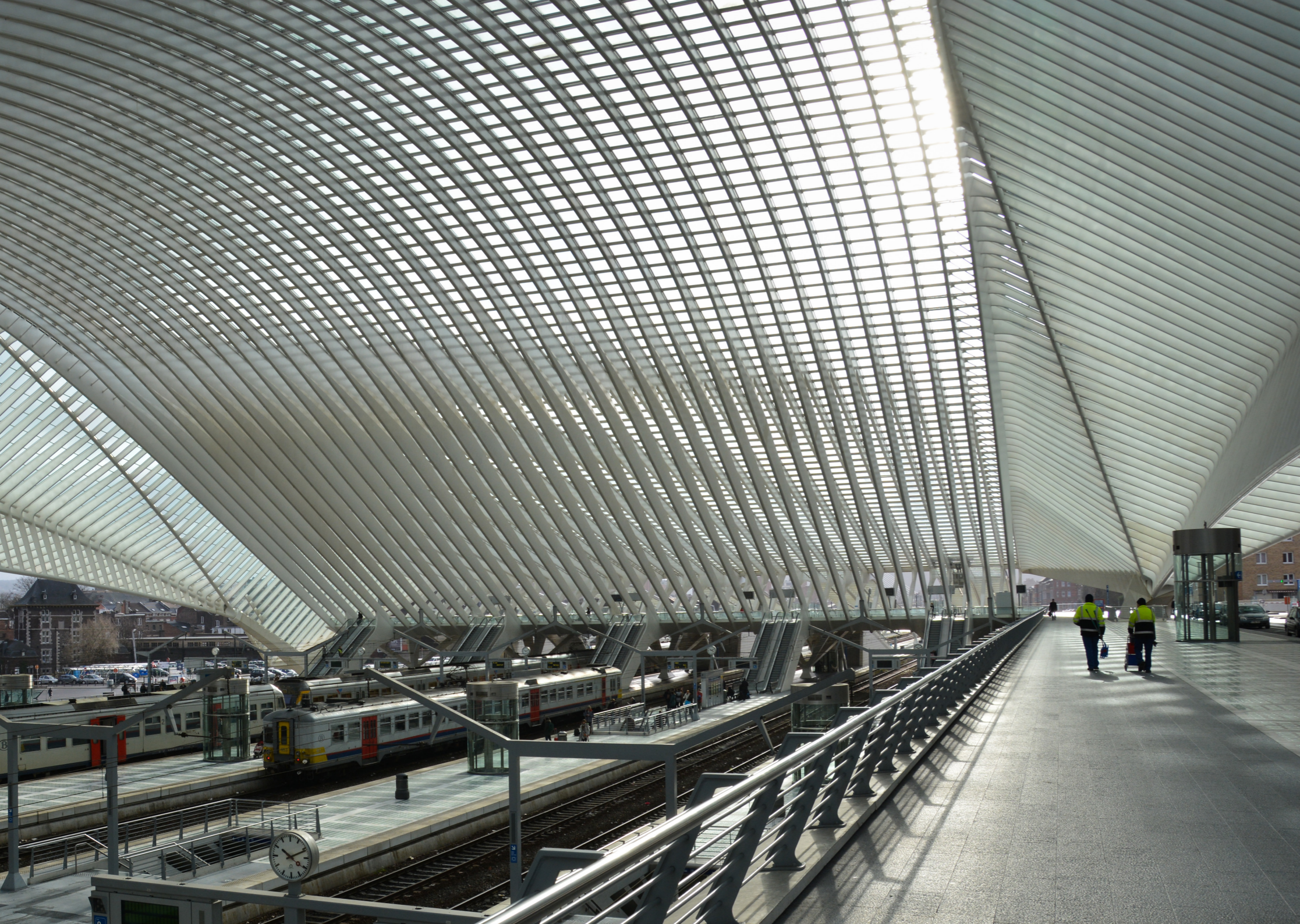


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### Abbreviations

<b>ACF</b>	Administration des Chemins de Fer (NSA LU)	<b>MS</b>	Member-State
<b>DB Netz</b>	German IM	<b>NoBo</b>	Notified Body
<b>DeBo</b>	Designated Body	<b>NRV</b>	National Reference Value
<b>DRSI</b>	Department for Railway Safety and Interoperability (NSA BE)	<b>NSA</b>	National Safety Authority
<b>FPS MT</b>	Federal Public Service Mobility and Transport	<b>NSR</b>	National Safety Rule
<b>EBA</b>	Eisenbahn-Bundesamt (NSA DU)	<b>NVR</b>	Nationaal Vehicle Register
<b>ECM</b>	Entities in charge of maintenance	<b>NIB</b>	National Investigation Body
<b>ERAIL</b>	European Railway Accident Information Links	<b>ORR</b>	Office of Rail Regulation (NSA UK)
<b>EPSF</b>	Etablissement Public de Sécurité Ferroviaire (NSA FR)	<b>SPAD</b>	Signal Passed At Danger
<b>ERA</b>	European Railway Agency	<b>RU</b>	Railway Undertaking
<b>ERTMS</b>	European Railway Traffic Management System	<b>TSR</b>	Temporary Speed Restriction
<b>ETCS</b>	European Train Control System		
<b>CSI</b>	Common Safety Indicator		
<b>CSM</b>	Common Safety Method		
<b>CST</b>	Common Safety Target		
<b>IM</b>	Infrastructure Manager		
<b>IL&amp;T</b>	Inspectie Leefomgeving en Transport (NVI NL)		
<b>MoU</b>	Memorandum of Understanding		



## INTRODUCTION

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The present report, which fulfils the requirement in Article 18 of the Directive 2004/49/EC on safety on the Community's railways, gives information on the development of railway safety in Belgium. This report is based on the common safety indicators, on the amendments made to European and Belgian legislation and regulations on railway safety, on developments in certificates and safety authorisations, on experience in inspection of the infrastructure manager and the railway undertakings as well as the remarks made by the DRSI in its certification, authorisation and supervision activities.

This report is also sent to:

- the Minister for the middle classes who has authority over the DRSI;
- the President of the Federal Public Service Mobility and Transport;
- the investigation body as well as the whole Belgian railway sector;
- the Minister for Mobility who has, amongst others, competence for the SNCB/NMBS and Infrabel.

This report is also presented, at its request, to the Special Commission of the Chamber of Representatives of Belgium responsible for looking into railway safety conditions in Belgium.

The present report is also available, along with its French and Dutch versions, on the website of the DRSI (<http://www.mobilit.belgium.be/fr/traficferroviaire/ssicf/>).

Apart from the change in authority which took place in 2014 following the establishment of the new government, no other organisational change has taken place within the DRSI.

More information on the organisation of the DRSI is available on its website.



## OVERALL SAFETY PERFORMANCE AND STRATEGY

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## ① 1. Main conclusions on the reporting year

## ② 2. National safety strategy, programmes and initiatives

Following the tragic accident in Buizingen on 15 February 2010, Infrabel and the SNCB/NMBS have presented their master plan to the Parliament in view of improving railway safety in Belgium. This plan foresees rapid deployment of TBL1+ which, at the end of 2014, was to cover just over 62 % of the main points on the network. This deployment should be completed in 2015. Alongside this deployment of the TBL1+, Infrabel has launched an ambitious programme of ETCS deployment aimed at covering the whole network by 2022. From 2025 onwards, ETCS should be the only CCS system in operation. By the end of 2015, the Belgian section Antwerp-Athus of corridor 2 North sea-Mediterranean, which links the ports of Antwerp and Rotterdam with Marseille - via Lyon - and with Basel, will be entirely equipped with ETCS L1 2.3.0D.

Since the end of 2013, the entire SNCB/NMBS fleet used for national services has been equipped with TBL1+. At the end of 2014, 20% of the SNCB/NMBS fleet was also equipped with ETCS.

As explained in the 2013 report, the Royal Decree of 9 July 2013, published in the Belgian Official Journal of 25 July 2013, requires that from 1 January 2016, the Mémor-Crocodile system be definitively put out of service on the lines where ETCS level 1, version 2.3.0d is in service. The information on TBL1+, included in the data package 44 of the ERTMS message, will be maintained, allowing use of TBL1+ on these ERTMS lines. For operation on other conventional lines on the network, Mémor remains sufficient.

Currently, most railway companies have decided to equip all or part of their fleet of traction units with ERTMS. For a number of traction units this solution is not economically or technically feasible and have opted to install the TBL1 + system.

The recast of the consultation meetings organised by the DRSI with the Belgian railway sector has allowed 5 themes to be identified at a strategic axis level that all participants are committed to prioritising. These themes are:

- handling of events preceding a SPAD - leadership SNCB/NMBS Logistics
- content of emergency plans - DRSI leadership
- sharing and transfer of information between RUs - DRSI leadership
- harmonisation of annual reports issued to the DRSI - DRSI leadership
- transmission of CSIs to the DRSI - DRSI leadership

For every theme, a working group made up of willing organisations has been put in place. The first results of these working groups were presented to the consultation meeting participants during the first meeting at the start of 2015. The final result of these working groups, together with possible recommendations to the sector, will be presented to the consultation meeting which is planned late 2015.

Coinciding with these consultation meetings, Infrabel also organises meetings (desks) during which the operational aspects of the interface between the IM and the RUs are discussed and where the analysis of major incidents such as SPADs are made from a safety point of view in order to jointly identify the necessary responses. The DRSI also takes part in these meetings.

## ③ 3. Review of the previous year

The certification and supervision activities have confirmed the difficulty that railway undertakings still encounter today in implementing safety management systems which, as well as providing all the procedures used to ensure safe operations, allowing them to understand, evaluate and continuously improve their activities and the processes supporting them. The supervision activities have also highlighted problems with the interfaces between undertakings.

In the context of an application for safety certificates where the applicant starts an application with the DRSI for the Belgian Part A and Part B as well as with the EPSF for the French Part B, the EPSF and the DRSI have decided to jointly handle these

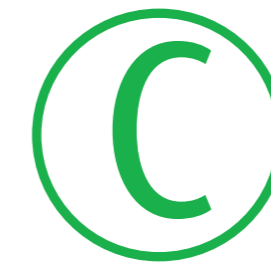
applications by regularly organising progress meetings on the handling of these requests with the applicant. This approach has allowed redundant requests from the NSAs to the applicant to be avoided but has also allowed the two authorities to identify and better understand the differences in their respective approaches to certification. Such initiatives will certainly allow these differences to be reduced in the future and to improve mutual recognition between NSAs.

Armed with this experience, the EPSF, the ACF and the DRSI have decided to organise coordination meetings for supervision activities carried out on common RUs. An MoU was signed by these 3 authorities. These 3 authorities share their different supervision plans. For some supervision activities initiated by one of the 3 authorities, it was decided that colleagues from other authorities would participate as observers. Ultimately, it is envisaged that this collaboration will be reinforced and joint supervision activities will be carried out. Contact has also been made with the ORR to coordinate supervision activities. This coordination will be limited as Eurostar is the only common RU.

## ④ 4. Focus-areas for the next year

For the year 2015, the DRSI would like to continue with the sector, via consultation meetings, identifying and developing priority themes for the development of safety in Belgium.

The DRSI will also continue its coordination with the EPSF, the ACF and the ORR in supervision activities. This coordination will also be extended to the Netherlands by establishing contacts with IL&T.



## DEVELOPMENTS IN SAFETY PERFORMANCE

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## **C** 1. Detailed analysis of the latest recorded trends

The figures relating to the common safety indicators have developed in a very positive way over the last four years: three consecutive declines and an increase for 2014 versus 2013. The increase is mainly to consider in the categories of level crossing accidents and collisions of persons in the tracks, which are caused by external factors that can be difficultly influenced by the railway undertakings and the infrastructure manager, and which are particularly volatile. In the registration of the precursors to accidents there has been a decrease over the last four years. These trends, however, must be somewhat nuanced as figures regarding the SPADs increased slightly in 2014 after three years of decline. There has also been a decrease in train-km over the last four years from 101 to 97 million train-km, representing a decrease of approximately 4% (or 1% per year).

The following figures relate to four years instead of five years. This is why the figures for 2010 were strongly influenced by a single major accident, ie Buizingen, so that every trend would be greatly influenced.

### **1. Number of deaths/serious injuries (total and in relation to number of train-km).**

The total number of fatalities in the last four years has decreased from 27 in 2011, to 18 in 2012; 15 in 2013 to arrive at 22 in 2014. This is a drop of respectively 33% in 2012, 45% in 2013 and 8% in 2014, in relation to 2011.

The total number of serious injuries in the last four years only decreased from 22 in 2011 to 14 in 2012 and to 11 in 2013, before rising to 27 in 2014. This is a drop of respectively 37% in 2012 and 50% in 2013 and an increase of 22% in 2014, in relation to 2011.

The increase in the number of victims in 2014, both the fatalities and the seriously injured, is due to the large increase in the number of victims in the categories of «level crossing users» and «unauthorized persons on the tracks».

Despite the efforts of the infrastructure manager, with awareness campaigns on the dangers of being on and in the vicinity of tracks in operation, the technical adjustments with anti-trespass panels that make it difficult to reach critical points on the tracks and concerted investments every year to replace level crossings with bridges or tunnels (the number of level crossings has gone from 1,902 to 1,818 in five years), it appears impossible, for inexplicable reasons, to reduce the number of these accidents.

### **2. Number of serious accidents (total and in relation to number of train-km).**

The total number of serious accidents in the last four years has decreased from 51 in 2011, to 36 in 2012 and 32 in 2013, to then go up again to 47 in 2014. This is a respective decrease of 29% in 2012, 37% in 2013 and 8% compared to 2011.

37 of these 47 accidents were collisions of persons and vehicles at level crossings (21) and people walking on the tracks (16). As described in section 1 above, these accidents, which have an external cause and relatively little risk to passengers and staff of the RU and the IB, are difficult to prevent. Nevertheless, the infrastructure manager continues to invest in the means to avoid these accidents.

The number of collisions has increased from 1 in 2013 to 3 in 2014 and the number of derailments decreased from 4 in 2013 to 0 in 2014. In these two categories, there was fortunately only one seriously injured and no fatalities. There was one fire in rolling stock in 2014 compared with 0 in 2013. Here two employees of an RU were seriously injured, but no passenger casualties.

### **3. Precursors to accidents.**

After three years of increases in the number of broken rails in 2014 there was a decrease to 57 compared to 76 in 2013. This corresponds to a drop of 25%. This reduction could, firstly, have been influenced by a milder winter and by the new equipment and preventive measures that the infrastructure manager has taken in recent years.

During the last four years the number of buckled rails increased from 21 in 2011 to 26 in 2012, to 29 in 2013 and finally spectacularly dropped to 6 in 2014. This is a parameter which contains all the deformations of the track which lead to operational restrictions. This parameter, which is also partly influenced by the weather and the type of subsoil, has been greatly reduced by the infrastructure manager by taking additional measures after the execution of works.

The number of signal failures has dropped over the last three years from 12 in 2012 to 4 in 2013 and 3 in 2014.

The number of SPADs has decreased in the past five years from 104 in 2010 to 91 in 2011, to 75 in 2012 and 56 in 2013. In 2014, the number rose again slightly to 66 despite all the technical support given to drivers by the installation of TBL 1++ and ETCS.

At the end of 2014, not all traction vehicles were equipped with this technical support, but the legal obligations in force in Belgium require such equipment to be installed no later than 01/01/16 on most of the network.

### **4. Costs of serious accidents.**

The costs of accidents which are listed in the tables of this annual report, covering the years 2013 and 2014 (figures for previous years are estimates) are varied. An analysis or trend based on two figures is not a good method. From 2015 there will be figures for three years which can be analysed.

### **5. Technical safety of infrastructure and its application, safety management:**

At the end of 2014, 62% (or 4043km/line) of the rail network was equipped with the system TBL1+, in comparison with 51.2% (or 3314km/line) a year earlier.

At the end of 2014, 14.7% (or 957km/line) of the rail network was equipped with a cab signalling system (ETCS, TBL2 or TVM 430) in comparison with 12.6% (or 818km/line) a year earlier.

Altogether, at the end of 2014, 64.6% (or 4211km/line) of the rail network was equipped with the systems: ETCS, TVM430, TBL2 and TBL1+ and this compared to 54% (or 3483km/line) a year earlier.

The IM reduces the number of active level crossings each year by building bridges and tunnels. In 2014 there were still 1595, 1590 in 2012, 1581 in 2013 and 1554 at the end of 2014.

## **C** 2. Results of safety recommendations

During the year 2014, the Investigation body informed the DRSI that it had opened four investigations as a result of accidents or incidents; Ottignies 28/7, Level crossing 14/8, Schaerbeek 10/10 and Linkebeek 3/11.

The DRSI received three accident reports during 2014 from the Investigation body; Hever 19/2/13 Schellebelle 4/5/13 and Remersdaal 1/10/13.

16 new recommendations were formulated. Concerning the report published in May (Hever), the follow-up of the recommendations started in 2014, and for the reports published at the end of December (Schaerbeek and Linkebeek), the follow-up to recommendations will be started in 2015.

During the year 2014 the DRSI has not received any investigation reports from the investigation bodies in other countries.

Safety recommendation	Safety measure	Status of implementation
Hever R1 (accident 02.19.2013, publication of report by NIB in May 2014)	Ensure that the ECMs have a comprehensive system of registration and traceability of maintenance.	Problem has already been addressed by the implementation of the Regulation 445/2011. The DRSI has planned an inspection in 2015.
Hever R2	Ensure the correct application of procedures for determining the capacity of wagons in order to prevent overloading.	The DRSI has not received the analysis and the plan of approach from the undertaking concerned in 2014.
Hever R3	Ensuring that the private operators and the infrastructure manager prevent interferences on the GSM-R network.	The infrastructure manager is negotiating with the authority concerned, the telecom regulator. An analysis of the problem is underway.
Remersdaal (3) (accident 01.10.2013, publication of report by NIB in December 2014)		The RUs and the IB are analysing the recommendations and will propose measures in spring 2015.  Follow-up in 2015
		The RUs and the IB are analysing the recommendations and will propose measures in spring 2015.  Follow-up in 2015
Wetteren (10) (accident 04.05.2013, publication of report by NIB in December 2014)		The RUs and the IB are analysing the recommendations and will propose measures in spring 2015.  Follow-up in 2015.

Table – Implementation of safety measures triggered by safety recommendations

### ③ 3. Measures implemented not in relation to safety recommendations

None.



# D

## SUPERVISION

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## ① 1. Strategy and plan(s)

The supervision activities of the DRSI are divided between the different operational units. Every year in September, based on, amongst others, the analysis of annual reports which are sent by the RUs and the IM, on the monitoring of safety indicators, on the IB's recommendations and on the monitoring and recording of events affecting safety, the DRSI identifies the themes which will be focussed on during the following year, themes which are also communicated to the sector. These themes are translated afterwards by each unit into their own supervision plan.

For 2014, the main themes under consideration were:

- From a «system» audit perspective
  - Audit on risk management of interfaces between RU and IM
  - Audit on processes and procedures implemented by the IM in the context of its maintenance activities
  - Audit of implementation processes of the TSR in the context of ETCS projects
- From a «certification» inspection perspective
  - Inspection of certification of feedback management following accident and incident
  - Inspection of certification of training and medical centres
- From a «regulation» inspection perspective
  - Inspection of regulation of compliance with requirements of the TSI OPE in terms of documentation for the driver aspects
  - Inspection of regulation of compliance with their obligations by consignors and packers in the context of RID transport
- From a «conformity verification» perspective
  - Conformity inspection of the composition of trains
  - Conformity inspection of the implementation of Merlin for RID wagon parking in sidings
  - Conformity inspection of data recording on board trains
  - Conformity inspection of driver registers
  - Conformity inspection of safety functions other than that linked to drivers and conductors
  - Conformity inspection of internal IM rules in particular for the correct application of TSR implementation procedures and with regard to shunting devices and the implementation of signals

## ② 2. Human resources

In 2014, more or less 8.7 FTEs (Full Time Equivalents) have been dedicated to supervision activities, which represents more or less 25% of the operational personnel of the DRSI.

## ③ 3. Competence

The system put in place by the DRSI to manage the competences required is based on 2 cornerstones.

The first cornerstone involves the mentoring of newly arrived personnel by qualified personnel with on-the-job training on the ground in the handling of dossiers which are submitted to the DRSI.

The second cornerstone put in place by the DRSI involves offering training sessions to personnel where they take part in training sessions relating, for example, on auditing and or risk analysis.

## ④ 4. Decision-making

The decision-making criteria are based on the principles of the Regulations 1158/2010, 1169/2010 and 1077/2012 as well as on the internal procedures that result from this.

Every major stage of a supervision activity, identified in the internal procedures, is subject to a reporting procedure to the unit management who, prior to formal validation, checks that regulations and procedures are being followed, as well as

the coherence in the classification of non-conformities, which is prior to formal validation.

A draft report including non-conformities recorded during supervision activities is sent to the undertaking under supervision in order to give them the opportunity to react. If necessary, a meeting is organised to finalise the supervision activity.

Following this, the DRSI regularly monitors the implementation of various measures put in place by the undertaking to be able to put an end to the non-conformities recorded.

In 2014, the DRSI has not been subject to any complaints by RUs or the IM in relation to its supervision activities.

## ⑤ 5. Coordination and cooperation

As explained in B3, the DRSI has signed a cooperation agreement with the EPSF and the ACF. The main objective is a better understanding of how other NSAs work. This better understanding should subsequently allow joint supervision activities. The DRSI, the EPSF and the ORR have also decided to work together for supervision activities linked to Eurostar.

## ⑥ 6. Findings from measures taken

The situation has changed very little since last year and companies are still limiting themselves to measures that focus on the non compliance recorded. The indicator or warning role that this non compliance could have in relation to points which have not been subject to a check by the NSA is still being underused by companies.

This observation is reinforced by the fact that implementation of Regulation 1078/2012 on monitoring is far from achieved within undertakings. In this context, one of the themes retained in our supervision plan for 2015 is dedicated to this subject.



## CERTIFICATION AND AUTHORISATION

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## E 1. Guidance

In 2014, 4 Part A and 3 Part B certificates have been issued or renewed. 16 RUs are authorised to operate in Belgium (7 with Part A and B and 9 with only Part B issued by the DRSI). A quantitative change is expected soon.

As in 2013, the fact that the maturity of the SMS differs greatly from one RU to another, means that the ratio between supporting the RU in its steps for certification and the formal assessment of the dossier can vary greatly.

Our guide to obtaining a safety certificate, envisaged in 2013, has been partially developed in 2014 and should be available in 2015.

In 2014 there were 18 authorisations for rolling stock issued or renewed following an amendment. In 7 other cases, the CSM method was applied to assess the amendment :

- in 3 cases, it was decided that no renewal of the authorisation was necessary.
- For the other four cases, the authorisation was renewed.

Annex C is an overview of the new and modified vehicles.

For the structural subsystems of the fixed installations (ENE, CCS and INF), an authorisation for placing into service was issued by the DRSI in 2014 for the Line 10 project (Liefkenshoek rail link) and for the TSR function of the ETCS system on the conventional network. These authorisations are accompanied by the CSM report for the safe integration of subsystems in the network. The infrastructure manager has also taken on 3 ETCS sub-projects in corridor C where no authorisation was necessary.

## E 2. Contacts with other NSAs

When it comes to certification activities, the DRSI has collaborated with the EPSF in the context of the THI Factory case. This undertaking has submitted an application for Part A and B certificates to the DRSI and a Part B in France to the EPSF. The EPSF and the DRSI now have, with the agreement of THI Factory, decided to investigate the dossier in close collaboration so as to ensure a common approach and to avoid redundant questions to THI Factory. This approach is considered to be positive by the three parties. At this stage we do not envisage implementing cooperation agreements between NSAs at a certification level, but we will favour regular contact according to the certification application file which is submitted to us.

At the level of acceptance for new rolling stock, a working group was created for the project Velaro e320 from Siemens with the aim of harmonising the authorisation procedure in the different countries where the vehicle will be operated. The working group is composed of representatives of EPSF, CTSA, ORR, DVIS, ERA, Siemens and Eurostar. This experience has been very positive and will be used again in the future for similar projects.

In the context of cross-border ETCS, projects were collaborated on in 2014 with ACF and EPSF for the harmonisation of national values for ETCS brake curves in particular.

## E 3. Procedural issues

As mentioned in E.1, assistance of the DRSI to RUs necessary prior to the issuing of a safety certificate. As in 2013, problems with interpretation remain with some criteria in European regulations 1158/2010/EC and 1169/2010/EC. We are expecting a lot of the working group set up by the ERA on this subject, a group that we are a part of.

## E 3. Feedback

Currently, there are no formal mechanisms intended for undertakings or demanders and the DRSI has not yet noted the need as the study of a certification or authorisation file is done on the basis of a constructive exchange allowing the undertaking or demander as well as the NSA to express themselves openly on difficult points. This approach requires frequent contact with the undertaking or demander as well as a clear and precise argument and justification from the NSA, but with the advantage of bringing the parties concerned to recognise the unnecessary improvements in the certification or authorisation file.

This exchange also allows the NSA to improve its communication and to regularly question itself.

If the RU or demander considers that our decision is not appropriate, they are invited to start a lawsuit.



## CHANGES IN LEGISLATION

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### 1. Railway Safety Directive /1/

1. legislation in force transposing this Directive

Law of 30 August 2013 on the Railway Code, *BOJ*, 20 December 2013.

2. The status of the transposition of the amendments to the RSD /1/ at the end of the reporting year (table 1 of annex B).

There has been no transposition of the amendments to the RSD in 2014.

### 2. Changes in legislation and regulations

(Table 2 of Annex B)



## APPLICATION OF THE CSM ON RISK EVALUATION AND ASSESSMENT

### 1. NSA experience

Concerning the application of the CSM (see, E1, 2nd and 3rd §), there are for the year 2014, no significant developments to report.

### 2. Feedback from stakeholders

Beyond discussions on the assessments that the DRSI carries out in its certification and supervision activities, the DRSI has not put in place any processes allowing the RUs or the IM to share their experiences with the EC regulations on risk evaluation and assessment.

To date, no specific comment has been made on this subject.

### 3. Revision of NSRs to take into account the EC regulation on CSM on risk evaluations and assessment

There is no RSN in Belgium that covers the area of CSM on risk assessment.

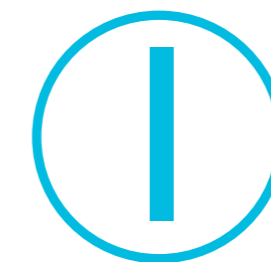


## DEROGATIONS REGARDING ECM CERTIFICATION SCHEME

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Not applicable for the DRSI.

In Belgium, the certification of ECMs is entrusted to accredited bodies (by Belac) for product certification (according to the standard EN ISO/CEI 17065). To date, Belgo-rail is the only Belgian body with approval to certify ECMs. In 2013, there have been no exceptions to the certification scheme.



## ANNEXES

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### **ANNEX A: COMMON SAFETY INDICATORS**

1. Common safety indicators  
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2. Absolute CSI-DATA  
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### **ANNEX B: CHANGES TO LEGISLATION**

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### **ANNEX C: AUTHORISATIONS FOR ENTRY INTO SERVICE FOR NEW OR MODIFIED ROLLING STOCK**

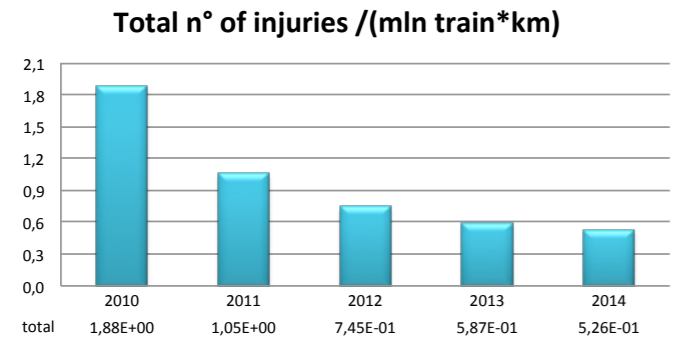
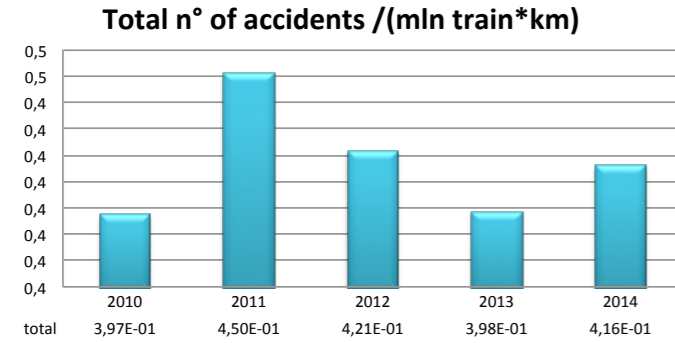
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### **ANNEX D: NUMBER OF ACTIVE RAILWAY VEHICLES IN THE BELGIAN NATIONAL VEHICLE REGISTER (NVR)**

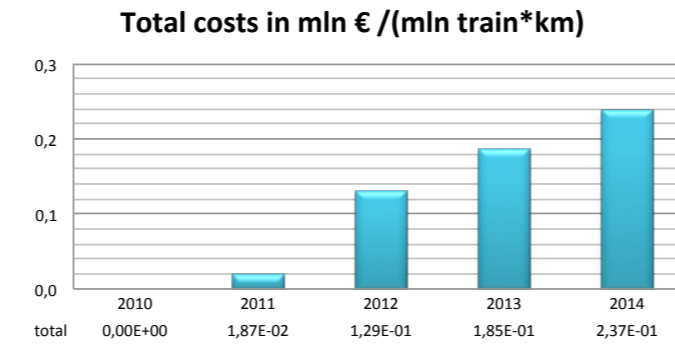
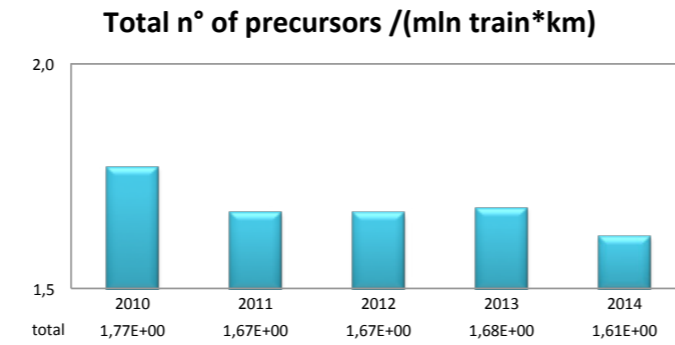
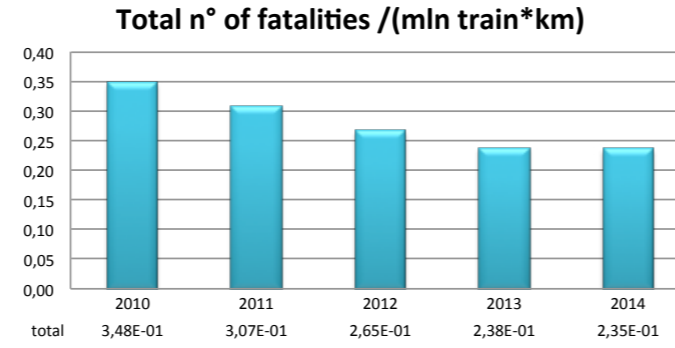
[p50](#)

# 1. COMMON SAFETY INDICATORS

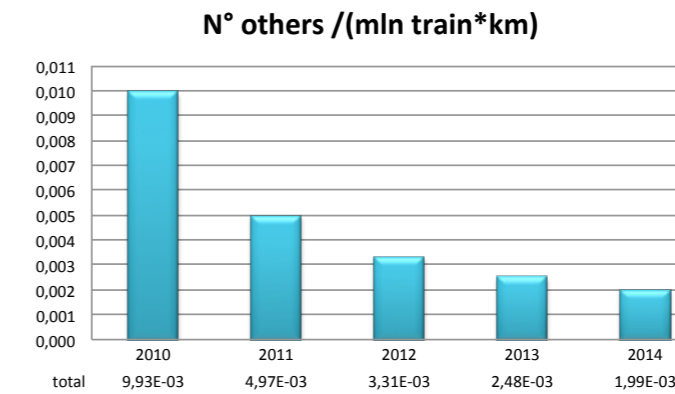
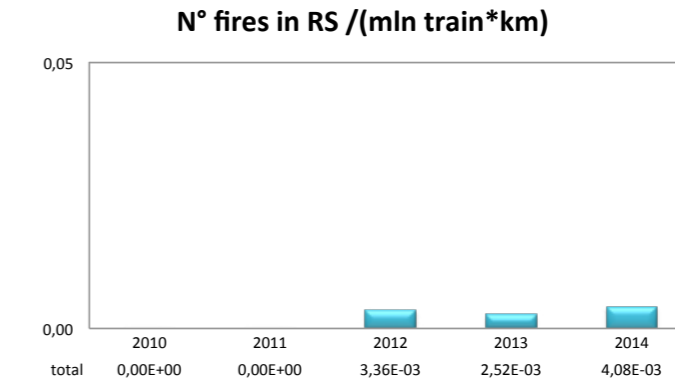
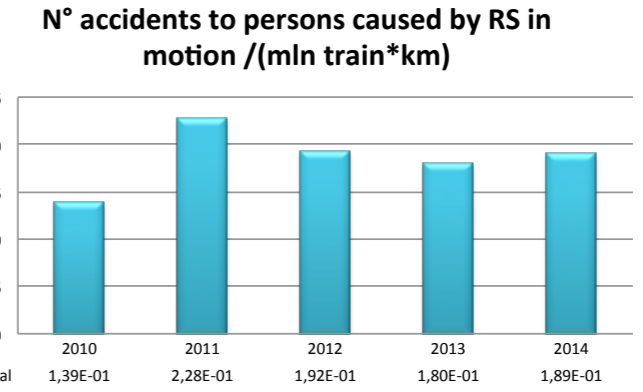
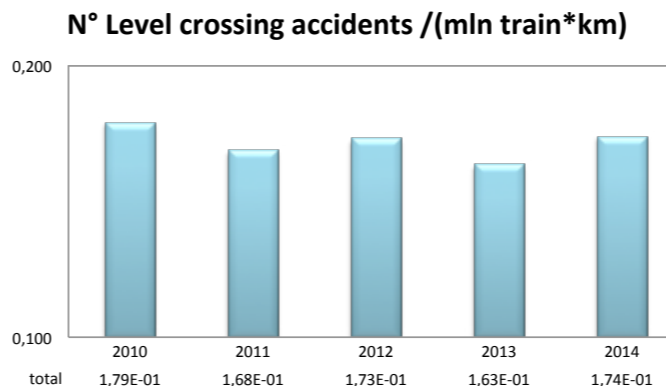
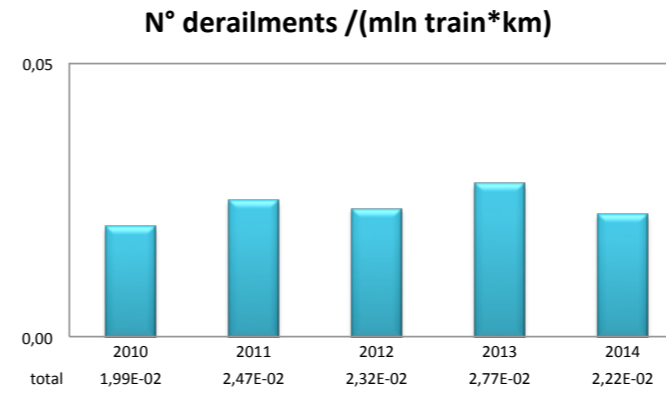
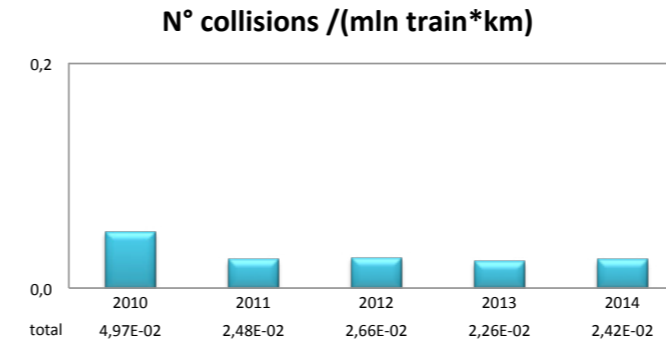
## 1) View of all indicators



2010 : values for 2010  
 2011 : average values for 2010 and 2011  
 2012 : average values for 2010, 2011 and 2012  
 2013 : average values for 2010, 2011, 2012 and 2013  
 2014 : average values for 2010, 2011, 2012, 2013 and 2014

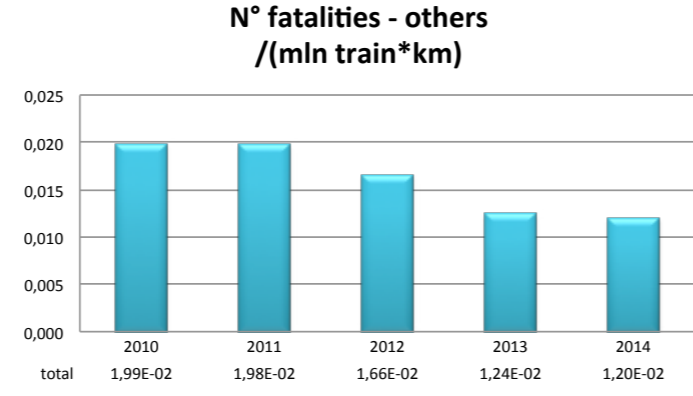
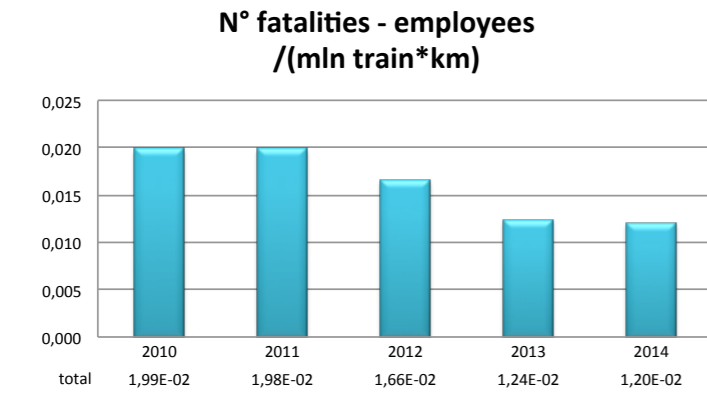
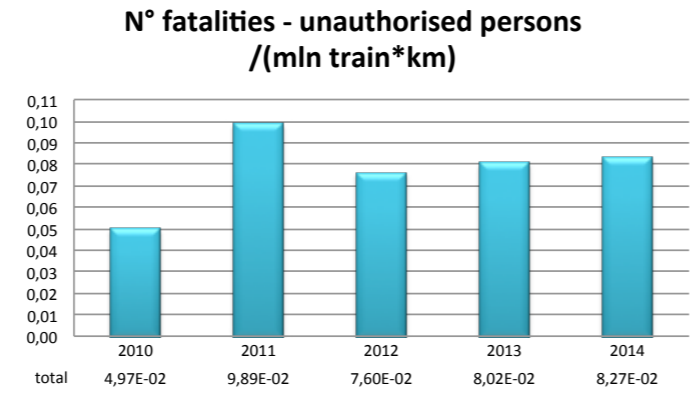
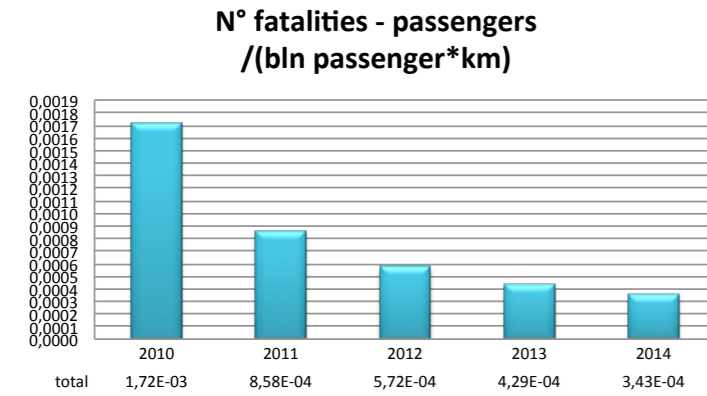
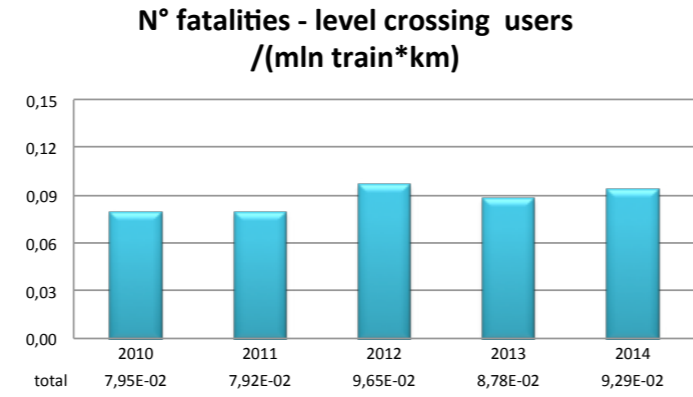
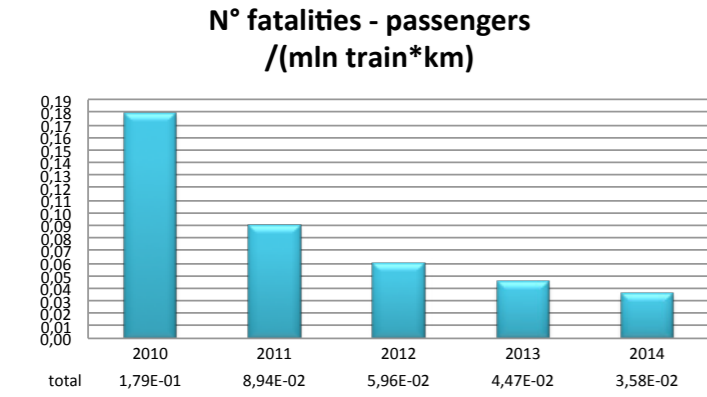


## 2) Accidents by type



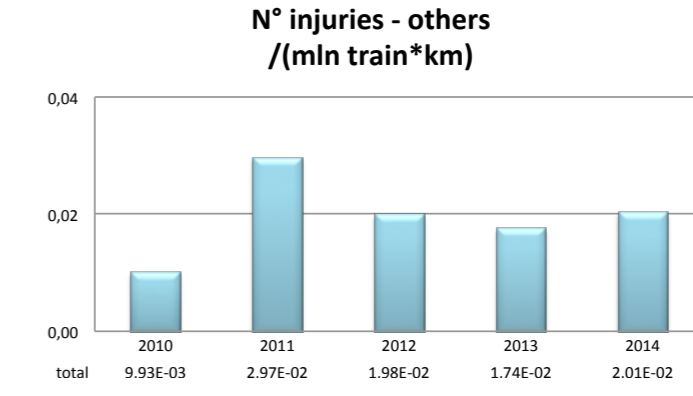
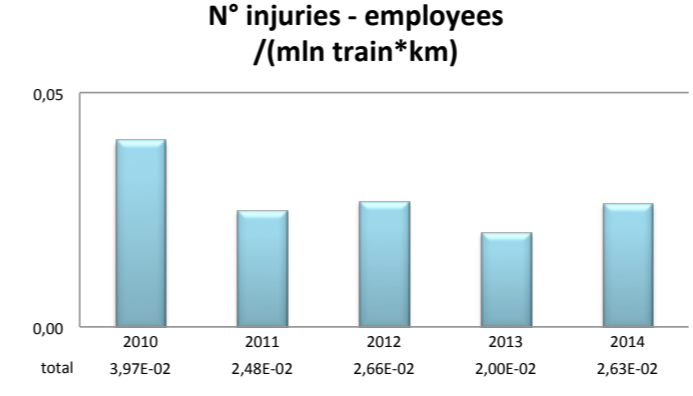
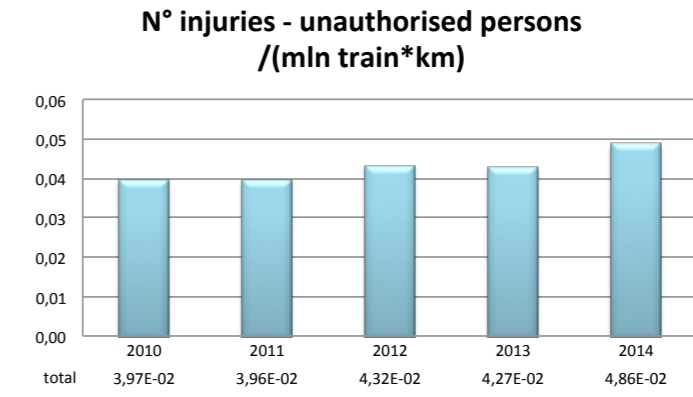
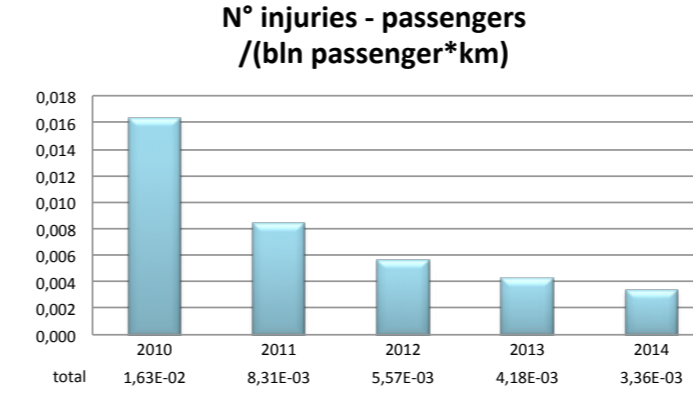
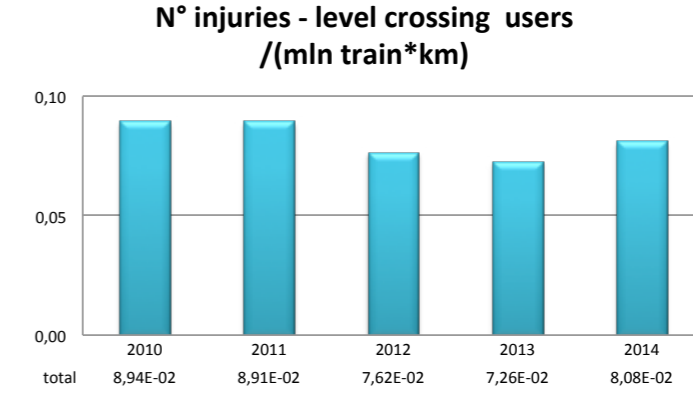
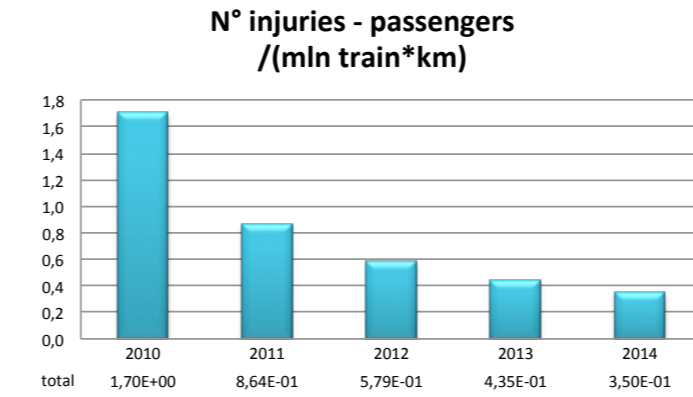
2010 : values for 2010  
 2011 : average values for 2010 and 2011  
 2012 : average values for 2010, 2011 and 2012  
 2013 : average values for 2010, 2011, 2012 and 2013  
 2014 : average values for 2010, 2011, 2012, 2013 and 2014

### 3) Deaths per category of person



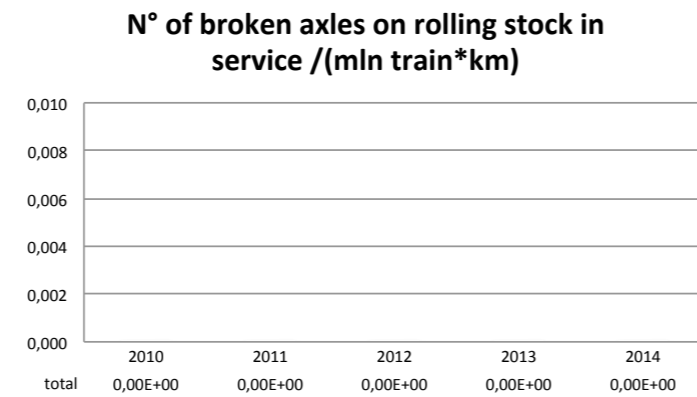
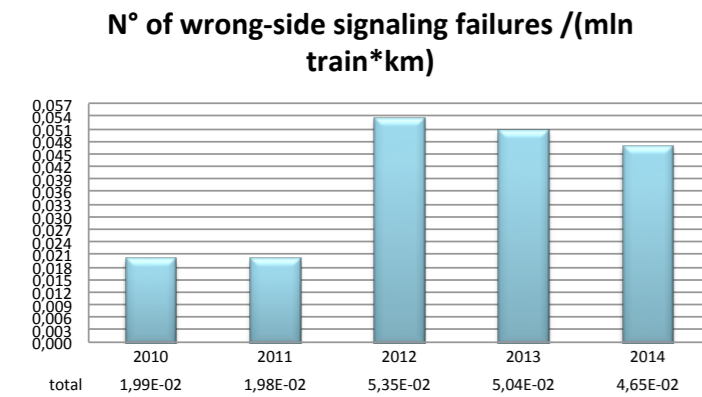
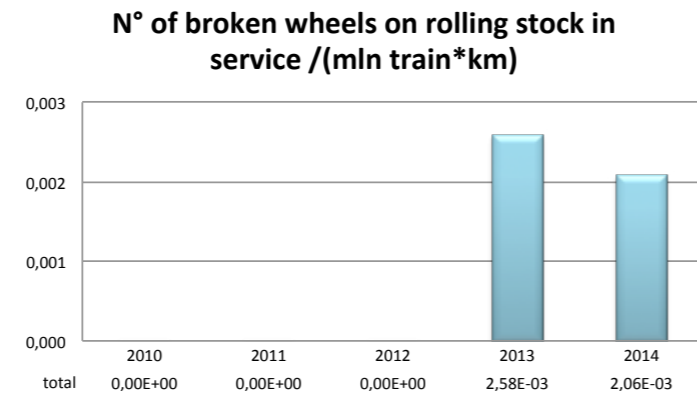
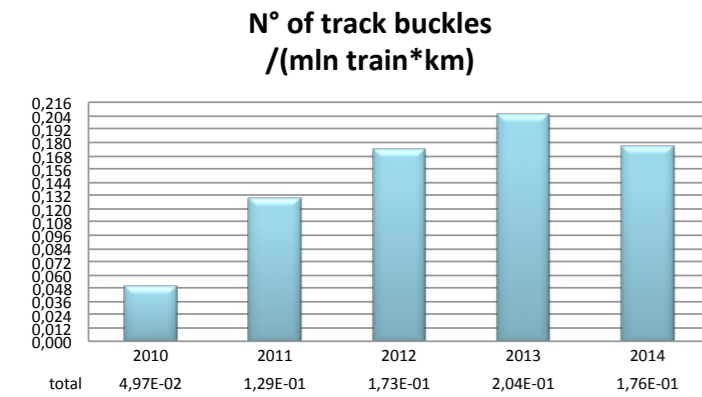
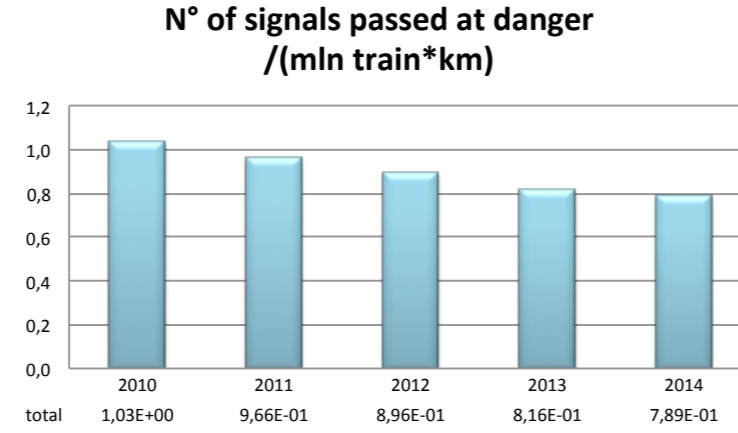
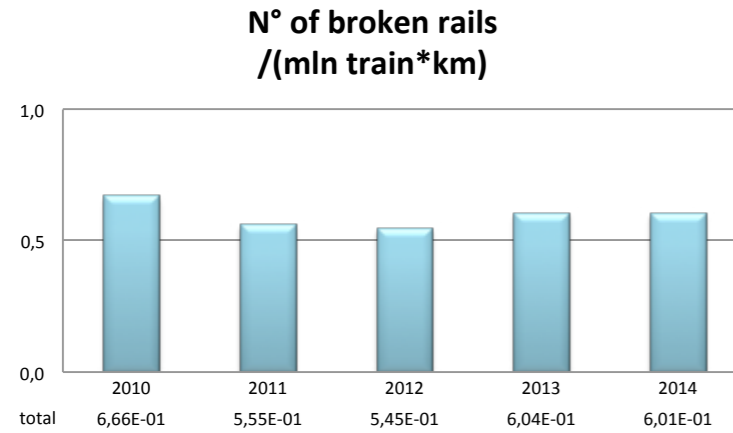
2010 : values for 2010  
 2011 : average values for 2010 and 2011  
 2012 : average values for 2010, 2011 and 2012  
 2013 : average values for 2010, 2011, 2012 and 2013  
 2014 : average values for 2010, 2011, 2012, 2013 and 2014

### 4) Injuries by category of person



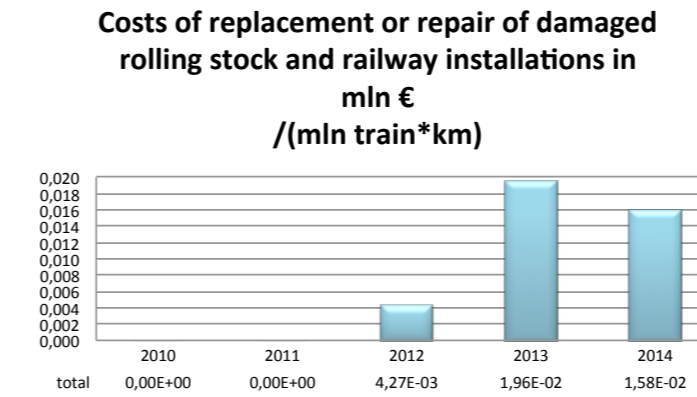
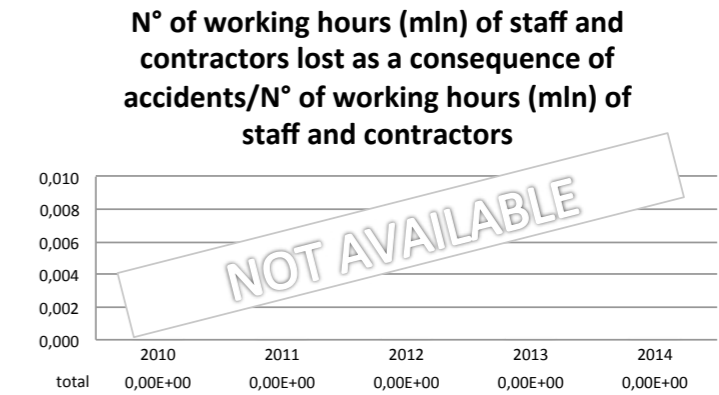
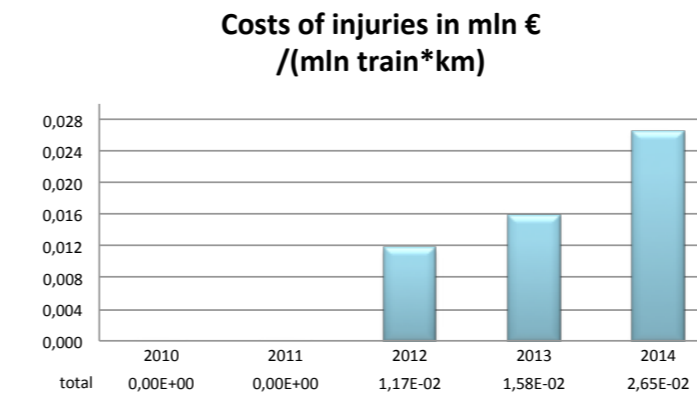
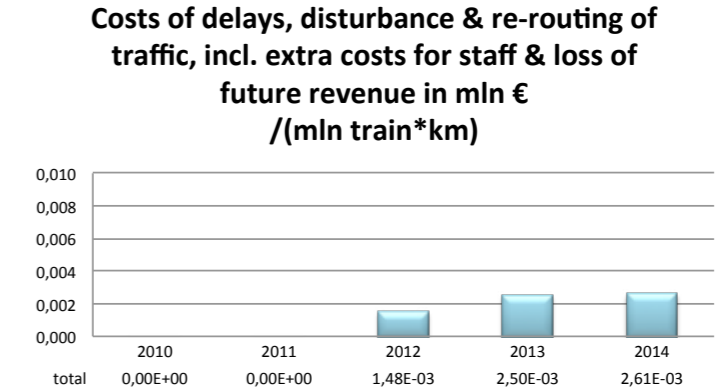
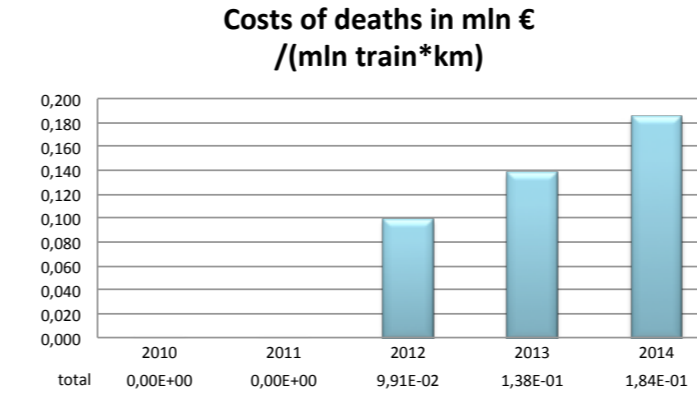
2010 : values for 2010  
 2011 : average values for 2010 and 2011  
 2012 : average values for 2010, 2011 and 2012  
 2013 : average values for 2010, 2011, 2012 and 2013  
 2014 : average values for 2010, 2011, 2012, 2013 and 2014

### 5) Precursors of accidents



2010 : values for 2010  
 2011 : average values for 2010 and 2011  
 2012 : average values for 2010, 2011 and 2012  
 2013 : average values for 2010, 2011, 2012 and 2013  
 2014 : average values for 2010, 2011, 2012, 2013 and 2014

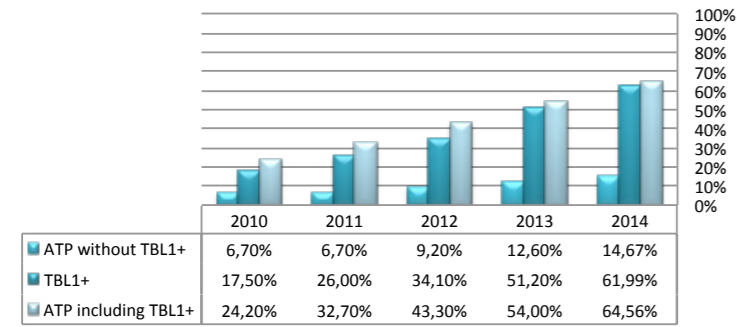
### 6) Costs of all accidents, number of hours of work lost by the workforce and contractors due to accidents



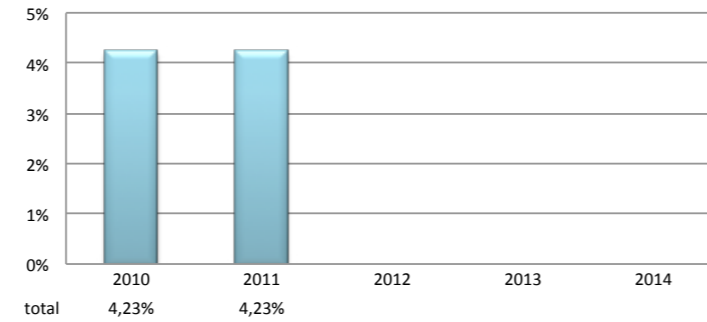
2010 : values for 2010  
 2011 : average values for 2010 and 2011  
 2012 : average values for 2010, 2011 and 2012  
 2013 : average values for 2010, 2011, 2012 and 2013  
 2014 : average values for 2010, 2011, 2012, 2013 and 2014

7) Technical infrastructure safety and its implementation, safety management

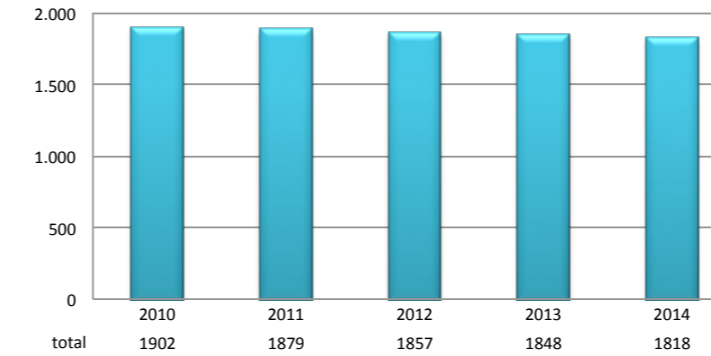
Percentage of tracks with Automatic Train Protection (ATP) in operation



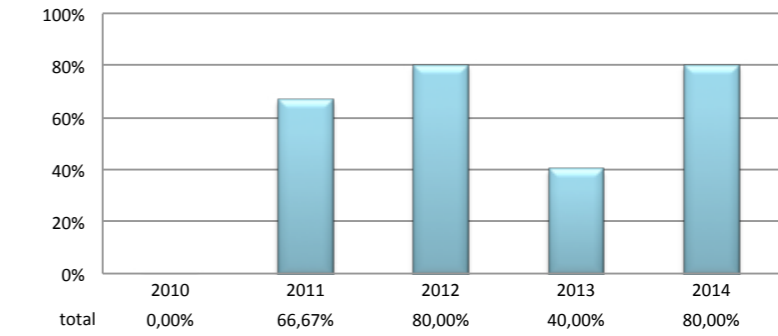
Percentage of Train\*Km using operational ATP systems



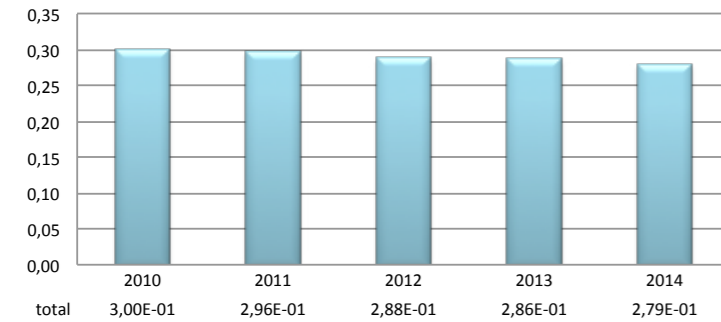
Total number of level crossings



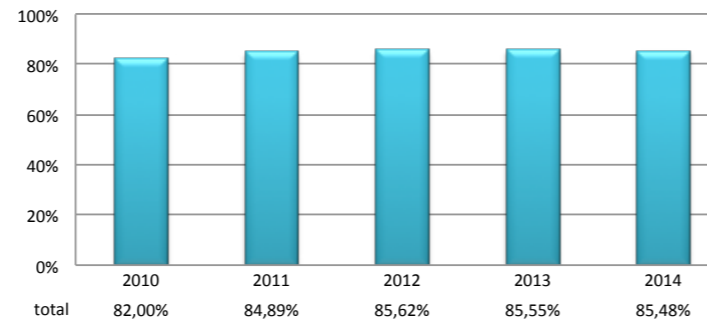
N° of audits accomplished / N° of audits required (and/or planned)



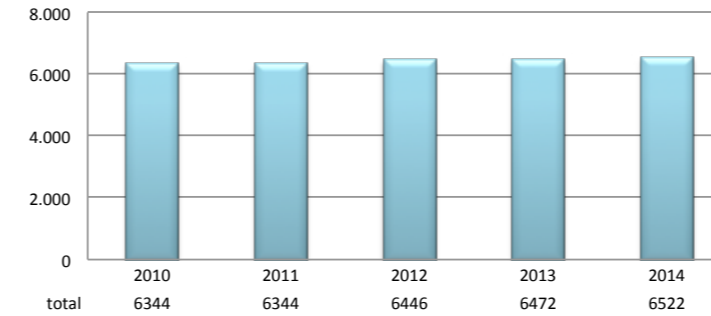
Total number of level crossings per track Km



Percentage of level crossings with automatic or manual protection



Number of track Km (double track lines are to be counted twice)



## 2. ABSOLUTE CSI-DATA

Number of accidents and Train*Km								
Type of accidents								
Year	Passagers	Derailments	level crossing accidents	Accidents to persons caused by RS in motion	Fires in RS	Others	Total	Train* Km (Mio)
2006	84	7	56	22	18	0	187	93
2007	77	17	76	30	17	1	218	94
2008	94	21	56	25	24	0	220	93
2009	34	41	31	34	6	0	146	98
2010	5	2	18	14	0	1	40	101
2011	0	3	16	32	0	0	51	101
2012	3	2	18	12	1	0	36	99
2013	1	4	13	14	0	0	32	97
2014	3	0	21	22	1	0	47	97

N° of injures, Train*Km and Passenger*Km								
Category of persons								
Year	Passengers	Employees	Level crossing users	Unauthorised persons	Others	Total	Passenger Km (BLN)	Train* Km (MLN)
2006	63	14	14	6	9	106	9607	93
2007	96	27	25	4	1	153	9932	94
2008	36	28	16	2	1	83	10403	93
2009	10	1	6	1	0	18	10493	98
2010	171	4	9	4	1	189	10491	101
2011	3	1	9	4	5	22	9494	101
2012	1	3	5	5	0	14	9493	99
2013	0	0	6	4	1	11	10886	97
2014	1	5	11	7	3	27	10973	97

N° of fatalities, Train*Km and Passenger*Km								
Category of persons								
Year	Passengers	Employees	Level crossing users	Unauthorised persons	Others	Total	Passenger Km (BLN)	Train* Km (MLN)
2006	4	0	9	7	0	20	9607	93
2007	9	3	19	7	1	39	9932	94
2008	2	1	10	8	0	21	10403	93
2009	2	1	8	5	0	16	10493	98
2010	18	2	8	5	2	35	10491	101
2011	0	2	8	15	2	27	9494	101
2012	0	1	13	3	1	18	9493	99
2013	0	0	6	9	0	15	10886	97
2014	0	1	11	9	1	22	10973	97

N° of precursors and Train*Km								
Year	Number of broken rails	Number of track buckles	Number of wrong-side signalling failures	Number of signals passed at danger	Number of broken wheels on rolling stock in service	Number of broken axles on rolling stock in service	Total	Train* Km (MLN)
2006	115	1	1	55	0	0	172	93
2007	98	0	1	81	1	0	181	94
2008	281	0	1	97	1	0	380	93
2009	30	0	2	75	0	0	107	98
2010	67	5	2	104	0	0	178	101
2011	45	21	2	91	0	0	159	101
2012	52	26	12	75	0	0	165	99
2013	76	29	4	56	1	0	166	97
2014	57	6	3	66	0	0	132	97

Cost of all accidents, safety hours

Year	Costs of deaths in MLN €	Costs of injuries in MLN €	Costs of replacement or repair of damaged rolling stock and railway installations in MLN €	Costs of delays, disturbances and rerouting of traffic, including extra costs for staff and loss of future revenue in MLN €	Total costs in MLN €	Total number of working hours of staff and contractors lost as a consequence of accidents	Total number of working hours	Train* Km (MLN)
2006								93
2007								94
2008								93
2009								98
2010								101
2011					3,785			101
2012	29,502	3,486	1,271	0,441	34,700			99
2013	24,585	2,739	6,352	0,538	34,214	NA	NA	97
2014	36,058	6,723	0,07	0,296	43,147	NA	NA	97

Technical safety of infrastructure and its implementation, management of safety

Year	Percentage of tracks with Automatic Train Protection (ATP) in operation	Percentage of Train*Km using operational ATP systems	Total number of level crossings	Number of track Km (double track lines are to be counted twice)	Total number of level crossings per track Km	Percentage of level crossings with automatic or manual protection	N° of audits accomplished/N° of audits required (and/or planned)	Level crossings with protection
2006		3,87%	2037	6212	3,28E-01	79,19%	0,00%	
2007		3,87%	1957	6212	3,15E-01	80,79%	0,00%	
2008		3,87%	1929	6282	3,07E-01	81,00%	0,00%	
2009		4,23%	1913	6426	2,98E-01	82,00%	0,00%	
2010		4,23%	1902	6344	3,00E-01	82,00%	0,00%	
2011	see CSI in graphic	4,23%	1879	6344	2,96E-01	84,89%	66,67%	1595
2012			1857	6446	2,88E-01	85,62%	80,00%	1590
2013			1848	6472	2,86E-01	85,55%	40,00%	1581
2014			1818	6522	2,79E-01	85,48%	80,00%	1554

## ANNEX B : CHANGES TO LEGISLATION

Table 1

AMENDMENTS TO RSD	Transposed (Y/N)	Legal reference	Date of entry into force
Directive 2014/88/UE	N	/	/

Table 2

LEGISLATION AND REGULATIONS	Legal reference	Date of entry into force	Description of change	Reasons for the change
Concerning the NSA	/	/	/	/
Concerning NoBos, DeBos, ABs, third party entities for registration, examination, etc.	/	/	/	/
Concerning RUs/IMs/ECMs	Law of 26 March 2014 on the operational safety of museum railway lines, BOJ, 3 June 2014	13 June 2014	This Law regulates all requirements on the operational safety of museum railway lines. A museum railway line is a « <i>railway line put out of service, but where the railway infrastructure is not dismantled, and where the owner or holder of a real right on this railway line accepts that it be used for tourist, heritage or museum purposes</i> ».	It was necessary to regulate safety on these railway lines.
	Royal Decree of 8 May 2014 laying down the safety provisions on infrastructure for museum railway lines, BOJ, 3 June 2014	13 June 2014	This Royal Decree carries out the Law of 26 March 2014 concerning the infrastructure of museum railway lines.	Implementing Rules of the Law of 26 March 2014.
	Royal Decree of 8 May 2014 laying down the safety provisions for stock on museum railway lines, BOJ, 3 June 2014	13 June 2014	This Royal Decree carries out the Law of 26 March 2014 concerning the stock on museum railway lines.	Implementing Rule of the Law of 26 March 2014.

	Royal Decree of 8 May 2014 laying down the safety provisions for safety personnel on museum railway lines, BOJ, 3 June 2014	13 June 2014	This Royal Decree carries out the Law of 26 March 2014 on safety personnel on museum railway lines.	Implementing Rule of the Law of 26 March 2014.
	Royal Decree of 8 May 2014 determining the requirements for the circulation of vehicles reserved for a strictly heritage, historic or tourist usage on the national railway network, BOJ, 3 June 2014	13 June 2014	This Royal Decree carries out, with regard to railway safety, Article 68(2), paragraph 5, of the Railway Code that stipulates « <i>The King determines the requirements for the circulation of vehicles of a heritage nature on the network</i> .» It repeals the Ministerial Decree of 26 July 2007 on adoption of specifications for tourist traffic with historic stock on the railway infrastructure.	It was necessary to update the requirements with regard to the legislative developments and in particular the adoption of the Law of 26 March 2014 on the operational safety of museum railway lines.
	Royal Decree of 1 July 2014 adopting the requirements applicable to rolling stock for the use of train paths, BOJ, 12 August 2014.	22 August 2014	The requirements applicable to rolling stock for the use of train paths have been adopted as a national technical rule. This Royal Decree repeals the Ministerial Decree of 30 July 2010 on the adoption of requirements applicable to rolling stock for the use of train paths.	It was necessary to update the requirements.
Implementation of other EU requirements (if concerning railway safety)	/	/	/	/

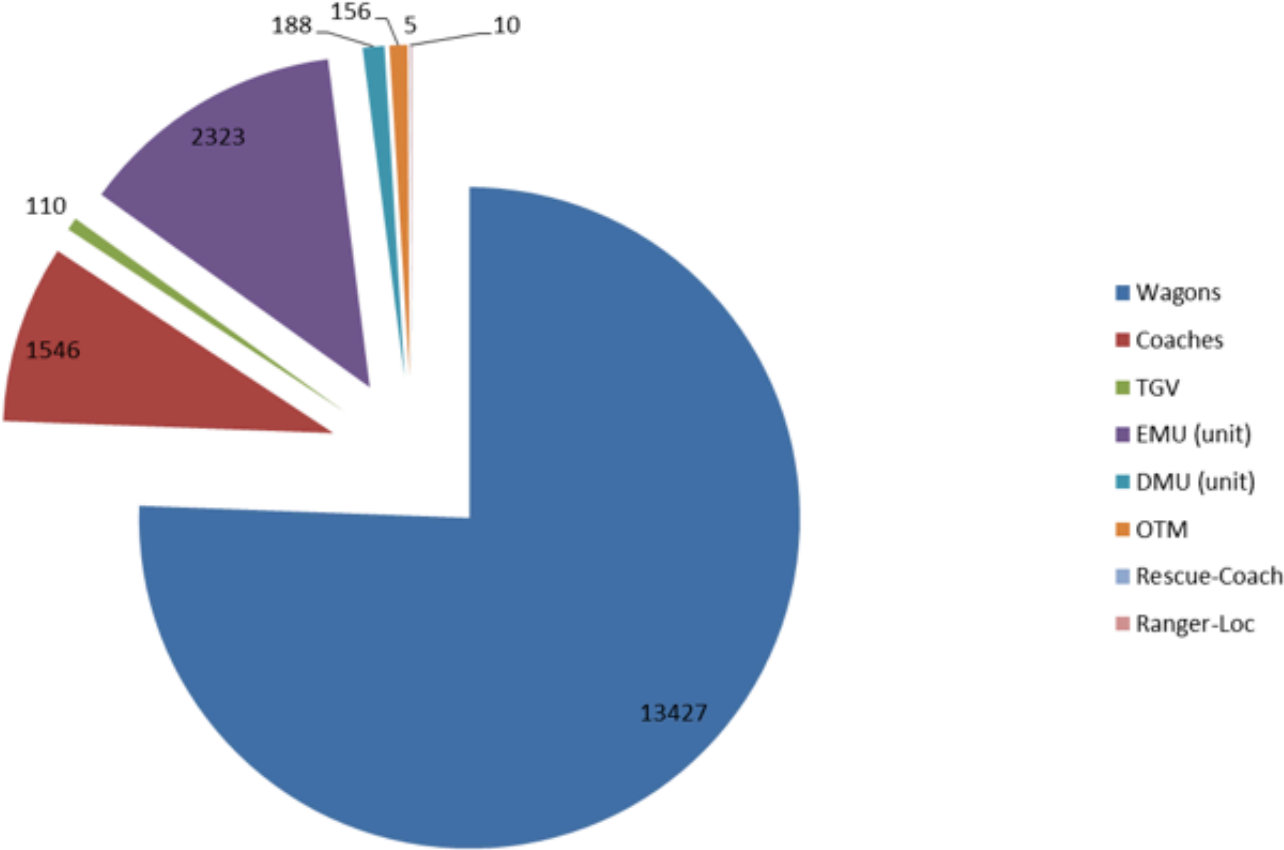
### ANNEX C : AUTHORISATIONS FOR PLACING INTO SERVICE OF FOR NEW OR MODIFIED ROLLING STOCK

XA = Cross Acceptance; CSM = Common Safety Methods; NA = Not Applicable; APIS = Authorisation to Place In Service

Name of vehicle type	Vehicle category	Authorisation n°	Authorisation category	Use of XA	Use of CSM	Description modification(s)
TRAXX F140MS, variant KF (D-A-B-NL)	Locomotive	BE 51 2008 0004	Upgrade	No	Yes	New SW, version VR7B, VR7B*
TRAXX F140MS, variant KL (D-B-F)	Locomotive	BE 51 2009 0005	Upgrade	No	Yes	New SW, version VR7B
Double-deck coaches DBpza (A15) and DABpza (A16)	Coach	BE 52 2014 0001	Upgrade	No	No	Installation of NBÜ 2004 (passenger alarm system)
Double-deck driving coach DABpbdzfa (A14)	Driving coach	BE 52 2014 0002	Upgrade	No	No	Installation of NBÜ 2004 (passenger alarm system)
Electric locomotive series 4000 (BR 185.1)	Locomotive	BE 51 2014 0002	Upgrade	No	No	Installation of NBÜ 2004 (passenger alarm system)
ES64U4-H/H1 (HLE18/19 SNCB)	Locomotive	APIS not required	Upgrade	No	No	Correction of call from train driver to conductor
ES64U4-H/H1 (HLE18/19 SNCB)	Locomotive	APIS not required	Upgrade	No	No	Protective frame for the euroantenna
ES64U4-H/H1 (HLE18/19 SNCB)	Locomotive	APIS not required	Renewal	No	No	Replacement of train line contactor
TRAXX F140 DE, variant E (D-B-NL)	Locomotive	BE 51 2013 0002	Upgrade	No	Yes	New SW, version VR07.1
TRAXX F140 DE, variant F (F-B-NL)	Locomotive	BE 51 2013 0003	Upgrade	No	Yes	New SW, version VR07.1
Diesel-electric locomotive GE PH37ACai	Locomotive	BE 51 2014 0002	First	No	No	Fully TSI conform: TSI Loc & Pas, TSI Noise, TSI SRT, TSI CCS
Diesel-electric locomotive DE 6400/6500	Locomotive	BE 51 2014 0001	Upgrade	No	No	Upgrade of GSM-R and data recorder
Diesel-electric locomotive DE 6400/6500	Locomotive	APIS not required	Renewal	No	No	Replacement of Memor "old type" by Memor redundant

Diesel-electric locomotive DE 6400/6500	Locomotive	APIS not required	Upgrade	No	No	Change of switching voltage of Memor "old type"
Thalys, variant PBA and PBKA	Trainset	APIS not required	Upgrade	No	Yes	Inhibition of the emergency-opening of passenger access doors based on the speed of the train
Thalys, variant PBKA	Trainset	BE 51 2011 0017	Upgrade	No	No	New SW for the Bi-Standard ERTMS/ TVM , version V7.2.5.1
Thalys, variant PBKA	Trainset	BE 51 2011 0017	Upgrade	No	No	Circulation in ETCS on lines 25 and 27 (section Mortsel-Duffel)
Thalys, variant PBA	Trainset	BE 51 2011 0016	Upgrade	No	No	New SW for the Bi-Standard ERTMS/ TVM , version V7.2.5.1 Circulation in ETCS on lines 25 and 27 (section Mortsel-Duffel)
AM08, variant single voltage 3kV and variant dual voltage 3kV/25kV	Trainset	APIS not required	Upgrade	No	Yes	New SW, version 1.2.10 Change of mass and brake weight inscriptions
AM08, variant single voltage 3kV and variant dual voltage 3kV/25kV	Trainset	APIS not required	Upgrade	No	Yes	New SW, version 1.2.11
Recorder TOM-P	On-board subsystem	APIS not required	Renewal	No	No	Installation of new recorders (TOM-P) in different types of SNCB rolling stock
Eco Driver Advisory System (EDAS)	On-board subsystem	APIS not required	Upgrade	No	No	EDAS trial on 1 locomotive TRAXX
DB Niesky Waggonbau	Wagon	BE 53 2014 0001	Additional	No	No	TSI Conform except for gauge
Greenbrier L03A	Wagon	BE 53 2014 0002	First	No	No	Full TSI compliant
H02A	Wagon	BE 53 2014 0003	Additional	No	No	TSI Conform except for gauge
Wagon with concrete plant	Special vehicles	BE 54 2014 0001	First	No	No	Modified wagon
Cable wagon	Special vehicles	BE 54 2014 0002	First	No	No	Modified wagon
Matissa B66UC	Special vehicles	BE 54 2014 0003	First	No	No	New vehicle

ANNEX D: NUMBER OF ACTIVE RAILWAY VEHICLES IN THE BELGIAN NATIONAL VEHICLE REGISTER (NVR)





Kingdom of Belgium  
National Safety Authority

*Department for Rail Safety and Interoperability*

**Department for Railway Safety and Interoperability**

(FPS MOBILITY AND TRANSPORT)

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1210 BRUSSELS

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