RFI
RETE FERROVIARIA ITALIANA
GRUPPO FERROVIE DELLO STATO

ANNUAL REPORT ON TRAIN OPERATIONS AND RAILWAY SAFETY

2006

PART A – GENERAL INFORMATION

A.1 Scope of the report

This report sets out the state of train operations and railway safety on the national rail infrastructure during 2006, based on the findings of supervisory activities, tests, monitoring and audits carried out by the Technical Department of RFI (Rete Ferroviaria Italiana – the Italian Railway Network) on the Infrastructure Manager (IM) and Railway Undertakings (RUs) regarding:

- the status of implementation and improvement of the Train Operations and Railway Safety Management System,
- accident statistics and key events,
- safety inspections,
- the progress of activities forming part of safety plans.

As a result of this work, priority areas of intervention have been identified and targets set in order to maintain and enhance safety performances. The document has been drawn up in line with the guidelines given in Regulation No 13/2001 by the Infrastructure Manager and Directive 2004/49/EC.

PART B - INTRODUCTION

B.1 Introduction to the report

This report concerns the Italian railway system, comprising the national railway infrastructure, management of which was delegated to Rete Ferroviaria Italiana S.p.A. (RFI) by the Ministry of Transport in Ministerial Decree 138-T of 31/10/2000 (deed of concession), and the railway services provided on the network by Railway Undertakings (RUs) in possession of safety certificates.
The contents of the report are laid out as indicated by Article 18 of Directive No 2004/49/EC, following the guidelines given in the documents 'Template on the structure and content of the NSA Annual Report' (Version 10) and 'Guidelines for the use of the template - structure and content of the NSA Annual Report' (Version 5), both issued by ERA.

B.1.1 Correlated documentation

- 'Template on the structure and content of the NSA Annual Report' (Version 10), ERA.
- 'Guidelines for the use of the template - structure and content of the NSA Annual Report' (Version 5), ERA
- Safety targets and critical situations identified by the Infrastructure Manager for the purpose of selecting the projects and activities to be included in train operations and railway safety plans for 2006 (note: RFI-AD\A0011\P\2005\0000775).

- Regulation 13/2001 issued by the Infrastructure Manager and the subsequent amendments and additions introduced by Infrastructure Manager Regulations Nos 33/2002, 56/2003, 15/2004, 9/2005, 21/2005 and Ordinance 2479/2006.
- 'Monthly accident report' extracted from the 2006 Railway Safety Database.
- Final reports of audits carried out in 2006 by the Technical Department on the Departmental Operations Divisions, Departmental Infrastructure Divisions and Railway Undertakings.
- Licensing and safety certificates situation at 31 December 2006 - Cesifer
- RFI (Rete Ferroviaria Italiana) 2006 Annual Report on Train Operations and Railway Safety.
- 'Cesifer 2006 Monitoring Report', which contains a breakdown of the results from the monitoring system for safety services provided by RUs, scheduled for official publication by Cesifer soon.

B.1.2 Definitions

Term	Source	Definition
significant accident	*Regulation (EC) No 1192/2003*	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.
serious injury accident	*Regulation (EC) No 1192/2003*	any accident involving at least one rail vehicle in motion, resulting in at least one killed or seriously injured person. Accidents in workshops, warehouses or depots are excluded.
person killed	*Regulation (EC) No 1192/2003*	any person killed immediately or dying within 30 days as a result of an accident, excluding suicides.
person seriously injured	*Regulation (EC) No 1192/2003*	any person injured who was hospitalised for more than 24 hours as a result of an accident, excluding attempted suicides.
accident involving the transport of dangerous goods	*Regulation (EC) No 1192/2003*	any accident or incident that is subject to reporting in accordance with RID/ADR, section 1.8.5
suicide	*Regulation (EC) No 1192/2003*	an act to deliberately injure oneself resulting in death, as recorded and classified by the competent national authority
attempted suicide	*Regulation (EC) No 1192/2003*	an act to deliberately injure oneself resulting in serious injury, but not in death, as recorded and classified by the competent national authority
Inspections	*RFI Technical Directorate*	direct field inspection to check correct implementation of operations involving train operations and railway safety. This results in the immediate removal of anything noted as non-compliant and the adoption of targeted restrictive measures (for persons, vehicles or installations)
Audit	*RFI Technical Directorate*	checking the compliance and efficacy of processes and procedures concerning train operations and railway safety. This results in the reviewing of non-compliant processes and procedures and the possible withdrawal of the safety

		certificate (or in the future the safety authorisation)
UIC (International Union of Railways) accident	*UIC*	accidents are classified as UIC, because they are included in the statistics produced by the said organisation, if they have the following consequences: 1. fatalities (any person killed immediately or dying within 30 days as a result of an accident) or serious injuries (any person who was hospitalised for more than 24 hours) excluding suicides or attempted suicides; criminal or natural deaths are also excluded; 2. significant damage to rolling stock, infrastructure or to installations (damage equivalent to EUR 150 000 or more), or extensive disruptions to traffic (main line blocked for more than six hours, deviation or transhipment of passengers). UIC accidents do not include accidents occurring on branches of line blocked to rail traffic.
typical accidents	*UIC*	the following are classified as typical UIC accidents: - collisions between rolling stock or between rolling stock and an obstacle, excluding accidents at level crossings; - derailments (of trains, during shunting, of isolated locomotives); - level crossing accidents involving collisions between a rail vehicle and a road vehicle; - fires on rolling stock during use.
atypical accidents	*UIC*	'atypical' accidents are defined are accidents to persons caused by rolling stock in motion. They include accidents that occur to persons when: - taking part in shunting or coupling of vehicles; - standing or walking beside the railway; - hit by an obstacle or vehicle while being transported by a railway vehicle; - falling from a moving train; - they are knocked down at a level crossing.
serious accident	*Directive 2004/49/ EC*	any train collision or derailment of trains, resulting in the death of at least one person or serious injuries to five or more persons or extensive damage to rolling stock, the infrastructure or the environment, and any other similar accident with an obvious impact on railway safety regulation or the management of safety; 'extensive damage' means damage that can immediately be assessed by the investigating body to cost at least EUR 2 million in total.
incident	*Directive 2004/49/ EC*	any occurrence, other than accident or serious accident, associated with the operation of trains and affecting the safety of operation.
insignificant accident	*SDB*	accident of the 'Typical' type whose consequences are below the threshold indicated in the 'Guidelines for compiling Table 'A 91' of the statistics published by UIC.'
monitoring	*RFI Technical Directorate*	constant checking of safety performances using appropriate indicators from different sources (SDB, inspections, audit, etc.). This leads to identification of critical situations and

		planning the actions needed to eliminate or reduce them.
anomalous situation (AS)	*SDB*	hazardous operating condition that may evolve and give rise to an accident.
critical situation	*RFI Technical Directorate*	an element of the national railway system that presents or might present risks for traffic safety. This is identified by monitoring the railway system.
macro-target	*RFI Technical Directorate*	one to be pursued in order to improve the safety performance of the system.
target	*RFI Technical Directorate*	the target refers to applying macro-targets in detail in a specific area of intervention (critical situation or areas of intervention identified by the individual organisation). It may be formulated qualitatively or quantitatively at various levels of detail.
projects	*RFI Technical Directorate*	planned activities intended to attain set targets.

B.2 Railway structure information

B.2.1 Network map

The national railway infrastructure map, given in Annex A.1, is also available on the website www.rfi.it (in the 'Territorio e progetti: La rete oggi'(territory and projects: the network today) section.

B.2.2 Infrastructure Manager

The national railway infrastructure is managed under licensed by Rete Ferroviaria Italiana S.p.A. – Piazza della Croce Rossa 1, 00161 Rome – Italy. Key data on the Infrastructure Manager can be found in Annex A.2.
The various types of headway control system used on the Italian railway infrastructure at 31/12/2006 are given in the following table.

	ERTMS	BAB/cc	BAB/cf	BA/cc	BA/cf	Bca	BcaB	BEM	BT	others
Km	302.6	4050.9	129.1	854.5	523.4	8471.4	409.6	843	112.7	598

The average total workforce of RFI S.p.A. during the period from January to December 2006 was 34 400, of whom 17 750 belonged to Maintenance Division and 14 300 to the Operations Division.

B.2.3 List of Railway Undertakings

The list of certified RUs at 31/12/2006 using the national railway infrastructure and the information relating thereto are set out in the table in Annex A.2. The table gives details of the safety certificates issued in accordance with Directive 2001/14/EC. Given that no safety certificates (parts A and B) were issued pursuant to Directive 2004/49/EC, which has not yet been ratified in Italy, the relevant column was omitted from the table. It is worth noting that only Trenitalia S.p.A. has registered rolling stock.

In all, 2006 saw an increase of some 3% in overall traffic compared to 2005, due partly to the increased volume of traffic by RUs other than Trenitalia S.p.A. and partly to increases in traffic volume by Trenitalia S.p.A. It is worth noting that the services of Metronapoli S.p.A., which closed its commercial operations, were absorbed by Trenitalia S.p.A.
The figures for 2006 continue to highlight Trenitalia S.p.A's leading position as a user of infrastructure capacity: over the year it was responsible for 98.22% of all traffic, compared to 98.06% in 2005. It should be noted that these volumes also include train-kilometres for other RUs who undertake service activities for Trenitalia S.p.A. (Azienda Consorziale Trasporti, Gruppo Torinese Trasporti, Trasporto Ferroviario Toscano, Ferrovie Centrali Umbre, Sistemi Territoriali, Ferrovia Adriatico Sangritana, Ferrovie Emilia Romagna).
Following Trenitalia are Rail Traction Company (with 0.51% of the total, up from 2005), Nord Cargo (0.28% of the total, down from 2005), SBB Cargo Italia (0.23% of the total, up from 2005), Railion Italia (0.17% of the total, a rise compared to 2005), Le Nord (0.14% of the total, a fall compared to 2005) and Del Fungo Giera (0.12% of the total, down from 2005).

The volume of traffic generated by certified RUs on the national railway network using their own routes (expressed in train-kilometres) is illustrated in the following table, which also shows the comparative difference between 2005 and 2006.

		2005			2006			Diff. % 2005-2006	
		Train-km Passengers	Train-km freight	% of total	Train-km passengers	Train-km freight	% of total		
Trenitalia S.p.A.	N/I Pass. Div.	86 264 965.41		98.06	85 594 269.73		98.22	+	3.10
	Local Pass. Div.	186 498 853.75			195 598 572.92				
	Logistics Div.		58 309 420.81			60 337 155.66			
METRONAPOLI		1 437 604.05		0.43	0.00		0	-	- 0.43
Le Nord		523 118.57	0.00	0.15	470 097.10	0.00	0.14	-	0.32
Rail Traction Company S.p.A.			1 362 929.84	0.40		1 776 330.02	0.51	+	
Del Fungo Giera Servizi Ferroviari S.p.A.			532 897.18	0.16		434 026.11	0.12	-	
Gruppo Torinese Trasporti S.p.A.		0.00		0	5 889.74		0	+	
SERFER – Servizi Ferroviari s.r.l.		15 473.04	153 509.65	0.05	23 135.30	346 761.33	0.11	+	
Hupac S.p.A.			22 788.70	0.01		24 642.89	0.01	+	
Ferrovie Emilia-Romagna s.r.l.			82 028.25	0.02		83 259.86	0.02	+	
Trasporto Ferroviario Toscano S.p.A.		0.00	262.55	0	0.00	0.00	0		
Nord Cargo s.r.l.			1 078 688.80	0.32		960 733.48	0.28	-	
Ferrovie Adriatico Sangritana s.r.l.		20.57	26 113.78	0.01	141 070.59	25 668.96	0.05	+	
Sistemi Territoriali S.p.A.		0.00	0.00	0	0.00	0.00	0	=	

2005	2006	Diff. %

	Train-km passengers	Train-km freight	% of total	Train-km passengers	Train-km freight	% of total	2005-2006	
Railion Italia s.r.l.		334 781.20	0.10		598 055.36	0.17	+	
SBB Cargo Italia s.r.l.		546 014.58	0.16		783 644.11	0.23	+	
Azienda Consorziale Trasporti A.C.T.		0.00	0		0.00	0	=	
MetroCampania Nord Est s.r.l.	438 781.20		0.13	392 372.29		0.11	-	
Ferrovie Centrali Umbre s.r.l.	0.00		0	0.00		0	=	
Rail One S.p.A.		0.00	0		10 577.85	0	+	
ATCM S.p.A.	0.00		0	0.00		0	=	
ATC	0.00		0	0.00		0	=	
SNCF Fret Italia s.r.l.		0.00	0		102 024.93	0.03	+	
SAD – Trasporto Locale S.p.A.	---	---	---	18 519.34		0.01	+	
	275 178 816.59	62 449 435.34	100	282 243 927.01	65 482 880.56	100		
	337 628 251.93			347 726 807.57				+2.99

The following table gives the number of staff employed by each RU on safety activities and the total rolling stock at 31/12/2006.
With regard to the staff engaged in safety activities, the columns Drivers, Inspection, Train formation/Train crews give the number of persons holding the said qualifications, while the number in the total column shows the total number of persons involved in safety activities and not the total number of staff qualified to carry out the various activities, in view of the fact that a single individual may be qualified to perform more than one safety task.

The figures in the table are provided directly by the RUs and input via an online file that can be consulted at Cesifer. The sole exception to this is the 2006 data for Trenitalia S.p.A. where, owing to organisational changes made during the year that have particularly affected staff responsible for inspecting rolling stock, the figure reported in the online file is not the true number of qualified staff. An approximate figure has been calculated and included in the table and therefore no detailed appraisals can be made regarding the qualifications of staff at Trenitalia S.p.A.

For RUs other than Trenitalia S.p.A., a comparison of data on qualifications required for safety duties (drivers, inspection, train formation/train crews) between 2005 and 2006 shows the following:
– 195 new driver qualifications;
– 80 new qualifications to inspect rolling stock;
– 1055 new qualifications in train formation and for train crews;
The only new RU certified in 2006 (SAD) introduced the use of 41 staff members with safety duties into the railway system, issuing 40 new driver qualifications and one qualification for train formation and train crews.
In terms of vehicles, a comparison of the figures for 2005 and 2006 shows that:

– 229 vehicles were registered in 2006, of which 190 were for Trenitalia S.p.A. and 39 for other RUs;
– the total number of vehicles rented fell by 109 units.

Railway Undertaking	Staff engaged in safety activities								Vehicles			
	Drivers		Inspection		Train formation/ Train crews		Total		Registered		Rented	
	2005	2006	2005	2006	2005	2006	2005	2006	2005	2006	2005	2006
Trenitalia S.pA.	20754	19756	1852	1780 ca	15205	15966	32140	34193	6633	6823	0	6
Le Nord s.r.l.	324	380	2	2	337	372	650	726	117	116	0	0
Rail Traction Company S.p.A.	68	107	13	17	54	54	89	129	21	26	0	0
Del Fungo Giera Servizi Ferroviari S.p.A.	46	58	35	40	50	57	78	84	12	16	26	0
Gruppo Torinese Trasporti S.p.A.	61	61	0	0	40	41	101	102	27	31	0	0
SERFER – Servizi Ferroviari s.r.l.	106	133	41	57	240	298	286	333	2	4	16	17
Hupac S.p.A.	24	32	5	9	45	61	59	77	4	1	0	0
Ferrovie Emilia-Romagna s.r.l.	150	157	7	23	207	267	312	341	65	65	5	0
Trasporto Ferroviario Toscano S.p.A.	38	38	2	2	24	37	56	68	10	10	2	1
Nord Cargo s.r.l.	120	124	34	7	131	148	199	222	0	0	40	29
Ferrovie Adriatico Sangritana s.r.l.	35	35	6	6	61	73	71	73	13	21	15	8
Sistemi Territoriali S.p.A.	36	42	1	1	43	49	67	76	14	14	0	0
Railion Italia s.r.l.	53	71	48	64	48	73	69	88	10	12	2	0
SBB Cargo Italia s.r.l.	122	145	58	70	74	126	181	199	33	36	0	0
Azienda Consorziale Trasporti A.C.T.	58	61	2	2	3	15	60	66	7	7	0	0
MetroCampania Nord Est s.r.l.	44	44	0	0	46	48	87	92	24	24	24	0
Ferrovie Centrali Umbre s.r.l.	44	47	0	0	35	35	70	75	8	11	0	0
Rail One S.p.A.	7	13	1	5	6	20	10	23	0	2	1	0
ATCM S.p.A.	14	14	1	1	33	34	43	43	2	2	0	0
ATC	4	4	0	0	1	1	4	4	4	4	0	0
SNCF Fret Italia s.r.l.	20	56	12	42	20	57	24	60	8	8	0	0
SAD	---	40	---	0	---	1	---	41	---	10	---	0

B.3 Summary and analysis of the general trend in rail safety

As reported in the previous paragraph, the volume of rail traffic on the national railway infrastructure increased during 2006.
The following points emerge from monitoring the Italian railway system:

- in 2006 considerable efforts were made to implement programmes to equip the network and rolling stock with automatic train protection systems; these efforts also continued in 2007 with the aim of rapidly completing the programmes by the dates requested by the Ministry of Transport (December 2007 for the network and June 2008 for RUs). Monitoring activities to evaluate project progress, carried out by both RUs and the infrastructure manager, were also focused on achieving this goal; for further details see paragraph B.4.3;
- in some cases, the activities required to install automatic train protection systems diverted resources from work on other projects that had been identified to resolve a number of critical issues; however, attention is still focused on these aspects in order to remove existing problems;
- accident indicators show a drop in the severity of their consequences, a further benefit of technologies currently being implemented. In fact, the introduction of ATPS has led to a reduction in damages following accidents, particularly in the case of serious accidents of the type that occurred in 2005;
- the number of some types of accidents rose in 2006 compared to 2005, but measures have been identified to remove the underlying causes, as is discussed in further detail in Chapter D; by introducing specific regulations in this respect and training personnel, the enquiries carried out after accidents are proving increasingly precise, focussing on clearly identifying the causes and suitable measures to prevent them;
- special attention was also paid in 2006 to training staff engaged in safety activities, both by issuing specific regulations and by defining systems to update expertise.

B.4 Directive 2004/49/EC

B.4.1 Progress with regard to Directive 2004/49/EC

Directive 2004/49/EC of 29 April 2004 on rail safety is currently being transposed into law.

B.4.2 Applicable national legislation

Pending transposition of Directive 2004/49/EC, the key national laws regulating the safety of the Italian railway system are:

- Presidential Decree No 753 of 11 July 1980: 'New rules on the policing, safety and regularity of railway operations and other transport services';
- Legislative Decree No 188 of 8 July 2003: 'Implementation of Directives 2001/12/EC, 2001/13/EC; 2001/14/EC on railways'.
- Measure No 247/VIG3 issued by the Ministry of Transport and Navigation on 22 May 2000;
- Ministerial Decree No 138-T (Deed of concession) of 31 October 2000;

- Legislative Decree No 299 of 24 May 2001: 'Implementation of Directive 96/48/EC on the interoperability of the trans-European high-speed rail system';
- Legislative Decree No 268 of 30 September 2004: 'Implementation of Directive 2001/16/EC on the interoperability of the trans-European conventional rail system'.

B.4.3 Adoption of optional measures

During the course of 2006, Directive No 13/2006/DIV.5 was issued on 9.3.2006 by the Ministry of Infrastructure and Transport on the fitting of SCMT/SSC (ATPS train control/driver support) systems, and Directive No 0044725 was issued on 20.10.2006 by the Ministry of Transport on the use of the vigilance device pending completion of the programme to fit SCMT (ATPS) systems.
Directive No 13/2006/DIV.5 of 9.3.2006 requires the Infrastructure Manager to notify the Ministry of Infrastructure and Transport of programmes to equip the national infrastructure and the rolling stock running on the network; the Directive also specifies that the programme to equip the network shall be completed by 31/12/2007, and the programme to install on-board SCMT and SSC subsystems by 30/06/2008.

By 31/12/2006, approximately 8 200 km of track had been equipped with SCMT, approximately 54% of the entire network, compared with the total of 11 470 km planned by the project. This is an increase of about 2 600 km compared to the end of 2005. Installation is broadly in line with the schedule and is expected to be completed by 31/12/2007.
Moreover, by 31/12/2006 302.6 km had been equipped with the ERTMS system.
At the same time, equipping the lines with SSC (a system involving a driver vigilance device) has started where SCMT has not been installed; some 377 km of track will be equipped with both technologies. In 2006, lines totalling some 1 200 km in the departmental areas of Sicily and Sardinia were equipped, equal to about 7% of the entire network. The project is due to be completed in 2007.
The following table outlines the situation regarding on-board SCMT subsystems installed at 31/12/2006 by each railway undertaking.

Railway Undertaking	**Vehicles equipped with SCMT**	**Total No of vehicles**	**% of vehicles equipped**
Trenitalia S.pA.	1925	4008	48
Le Nord s.r.l.	0	130	0
Rail Traction Company S.p.A.	0	24	0
Del Fungo Giera Servizi Ferroviari	0	15	0

Railway Undertaking	Vehicles equipped with SCMT	Total No of vehicles	% of vehicles equipped
S.p.A.			
Gruppo Torinese Trasporti S.p.A.	16	17	94
SERFER – Servizi Ferroviari s.r.l.	0	2	0
Hupac S.p.A.	0	2	0
Ferrovie Emilia-Romagna s.r.l.	3	3	100
Trasporto Ferroviario Toscano S.p.A.	8	11	73
Nord Cargo s.r.l.	0	15	0
Ferrovie Adriatico Sangritana s.r.l.	8	14	57
Sistemi Territoriali S.p.A.	0	5	0
Railion Italia s.r.l.	0	11	0
SBB Cargo Italia s.r.l.	0	33	0
Azienda Consorziale Trasporti A.C.T.	0	7	0
MetroCampania Nord Est s.r.l.	0	10	0
Ferrovie Centrali Umbre s.r.l.	0	11	0
Rail One S.p.A.	0	2	0
ATCM S.p.A.	0	2	0
ATC	0	4	0
SNCF Fret Italia s.r.l.	0	8	0
SAD – Trasporto Locale S.p.A.	0	12	0
Total	**1960**	**4346**	**45**

RUs inform the Infrastructure Manager on a monthly basis of progress on the on-board subsystem installation programmes. At present, only Trenitalia has railway vehicles fitted with SCMT running on lines consistently equipped for on-board equipment; it is notable that there is virtually no protected traffic on lines equipped by other RUs.

Judging from an analysis of the equipment plans forwarded by the RUs to the Infrastructure Manager, it may well be that the deadline of 30 June 2008 set by the said Directive of the Ministry of Infrastructure and Transport will not be met; the RUs must implement appropriate organisational measures between the compliance deadline and the date on which fitting out the vehicles is completed to prevent vehicles that are not fitted with SCMT from running on the national railway infrastructure.

PART C – ORGANISATION OF THE NSA

Pending transposition of Directive 2004/49/EC of 29 April 2004, the current safety structure of the Italian railway system can be summarised as follows:

- the Ministry of Transport is the body that defines standards and safety regulations, following proposals made by the Infrastructure Manager, and controls their application by the Infrastructure Manager. It grants the licences to those RUs which apply for them, provided they meet the necessary requirements. It monitors the entire railway system. It holds enquiries into particularly serious accidents.
- The Infrastructure Manager, which is responsible for the construction, start-up, management and maintenance of the national railway infrastructure, as well as management of the control and safety systems connected to train services, is the body that tables amendments to standards and safety regulations before the Ministry and issues ordinances and regulations to implement rail traffic safety.
  It undertakes certification and homologation work for rolling stock and other components required by the national infrastructure for safety and traffic purposes. It also issues safety certificates to RUs that meet the necessary requirements, regularly checks their compliance therewith, and has the power to revoke the certificate fully or in part. In addition, it also holds enquiries after accidents and incidents. The Infrastructure Manager is also responsible for checking that the RUs comply with safety standards and regulations, and with ordinances and regulations.
- RUs holding railway licences issued by the Ministry and safety certificates issued by the Infrastructure Manager provide transport on the national rail system; in order to obtain a safety certificate RUs must demonstrate that staff have the necessary training and knowledge to comply with safety and traffic regulations and that rolling stock has been duly certified and registered. The RUs must apply the safety standards and regulations defined by the Ministry, as well as all the regulations and ordinances on safety issued by the Infrastructure Manager.

The way in which the parties involved in the safety of the rail system interconnect are shown in the chart provided in Annex B.

PART D – DEVELOPMENT OF RAIL SAFETY

D.1 Initiatives to maintain and improve safety performance

This section describes the most important measures identified and taken after the enquiries held into the accidents that happened in 2006.
The following table lists the main causes of the derailments in 2005 and 2006 and the measures taken to stop them reoccuring.

Main cause	Number of derailments			Measures taken
	2005	2006	Total	
Wheel arrangement defects (bushings, wheel, etc.)	1	3	4	Attention of RUs drawn to staff training on aspects concerning heating of bushings. The following were inspected during the Technical Directorate audit: - correct application of technical specifications for bushing maintenance; - compliance with timeframes specified for maintenance work on rolling stock.
Defects of mechanical components on rolling stock, excl. wheel arrangements (engine)	1	0	1	Application to ALN 668 and 663 locomotives of: - underframe metal cable; - ballistic plate; - anti-high rev protection device; - flywheel protection device; - transmission control device. Insertion of non-destructive check of clutch disc surface every 150 000 km. Replacement obligatory every 300 000 km.
Permanent way defects (line, points)	0	3	3	Extraordinary check on maintenance status of points on straight line track. Check compliance with timeframes specified for infrastructure maintenance activities during Technical Directorate Audit.
Failure to comply with ordinances (check itinerary)	1	1	2	Increased staff training for drivers and train crews on important safety activities carried out at less frequent intervals (operations requiring stop signal).
Hydrogeological instability	1	1	2	Reconnoitre sites potentially subject to these phenomena to step up checks and possibly setting up specific agreements with local communities.
Loose expanders + peculiarities of the line	1	1	2	Intensification of activities to check correct tightening of expanders by RUs and concomitant tests by Infrastructure Manager to classify the peculiarities of the line that might cause derailment.
Failure to remove brackets	0	1	1	Issue of specific regulations.
Exceeding maximum speed limit	1	0	1	Equipping with trackside and on-board ATPS.
SPAD	0	1	1	Equipping with trackside and on-board ATPS.
Total	**6**	**11**	**17**	

As regards accidents occurring at level crossings, which have risen in number, it should be noted that the project to remove level crossings continues: in 2006 a total of

133 level crossings were removed, reducing the total from 6 865 in 2005 to 6 732 in 2006. Moreover, with regard to the accidents on the Susa–Bussoleno line on 16 January and at Mirto Crosia on 10 February, both of which occurred at level crossings, targeted measures have been identified, as described in paragraph D.2.4.
With regard to the increased frequency of injuries to staff employed by the Infrastructure Manager, the RUs or the subcontractors in accidents classified as 'Other' in the table 'Indicators relating to Accidents', Annex C.2, the most critical issue is the management of the worksite on stretches blocked to rail traffic (on this point, see details in paragraph D.2.4 on the accident on the Poggiorsini–Spinazzola stretch on 13 November and the relative measures taken).

D.2 Safety indicators for railway system

D.2.1 Indicators specified by Directive 2004/49/EC

The table shown in Annex C.2 contains information on the main Common Safety Indicators (CSI) specified by Directive 2004/49/EC, for the years 2005 and 2006.
All data are taken from the Safety database, unless a different source is clearly stated, using the definitions given in Annex C.1 for calculations.
Some indicators, such as the cost of accidents, for example, the number of working hours lost after accidents, etc., are not given in the tables because they have not yet been calculated or cannot be calculated using the information available from existing data banks. In order to calculate the data required by Directive 2004/49/EC, RFI and the RUs will have to adopt an appropriate system of indicators.

The following traffic data were used to calculate the indicators in Annex C.2:

Indicator	**2005**	**2006**
Train-km	**338 510 739**	**345 889 271**
Millions of passenger-km	**46 143 900**	**46 438 600**
Extension of network (km)	**16 225.1**	**16 295.2**

- Data extracted from the safety database refer to accidents involving at least one moving railway vehicle, not caused by voluntary acts (suicide, malicious actions, etc.), and including at least one of the events listed below[1]:
- 1 death,
- 1 serious injury (requiring hospitalisation for at least 24 hours),
- damages worth over EUR 150 000,
- line blocked for at least 6 hours.

For the purposes of drawing up comparisons between 2005 and 2006, the data for 2005 (where an injury was classified as serious if given a prognosis of 14 days) were deemed homogeneous with 2006 data (which classify a serious injury as requiring hospitalisation for at least 24 hours).

The following findings emerge from an analysis of the indicators:

[1] The accident that occurred on 13/11/2006 (while the line was blocked) on the Poggiorsini – Spinazzola line (causing the death of one worker and injuring two others) has been added, although it is classified as an Anomalous Situation in the Safety database.

- an increased number of derailments, which does not however equate to a rise in injuries to persons;
- an increased number of accidents at level crossings, and a consequent rise in injuries;
- a rise in the number of injuries to staff employed by the Infrastructure Manager, RUs or subcontractors in those incidents classified as 'Others'.

D.2.2 UIC typical accident reports

Annex C.3 contains tables showing the multiannual trend of accident indicators compiled by UIC and comparisons with other European networks (all data supplied by UIC, except for data marked with an * which are taken from the SDB).

An analysis of these data shows that the Italian rail system continues to post excellent safety levels compared to the data available for other European networks.

D.2.3 Safety performance indicators

The safety performance indicators compiled by the Maintenance Division and Operations Division refer to documents adopted by these divisions, namely RFI DMA SIGS P 05 0, RFI DMO SIGS MS 01 1 and RFI DMO/DCM SIGS MS 01 3.
Details of the status of safety performance indicators monitored by the Infrastructure Manager in the context of management operations (Maintenance Division and Operations Division) at 31/12/2006 are given in Annex F.3.

An analysis of the annual trend of Maintenance Division indicators shows a positive trend as regards accidents, which do not reach the warning threshold or alert threshold; a similarly positive trend can be seen for Anomalous Situations (AS) extracted from the SDB and for breakdowns for which the Maintenance Division is responsible, except for the following:

- SA 16 – irregularity of track geometry (lifting/kinks/broken rails) or bed: entire network placed at warning threshold after registering deterioration for two consecutive quarters;
- Faults linked to level crossings (excluding trailing the points), entire network placed at alert threshold after registering deterioration over three consecutive quarters.

Moreover, nil values are again registered for SA 74 – obstacles interfering with the profile – and for SA 77 – TE piling, IS posts/gantries interfering with the profile.

The analysis of the Operations Division indicators at 31/12/2006 shows a general improvement in performance; compared to the previous year, in particular, there is an improvement for:

- Typical accidents
- Typical accidents under the responsibility of the Operations Division
- Typical accidents – train collisions
- Typical accidents: derailment of trains under the responsibility of RFI
- Collisions between trains – Directive 2004/49/EC
- SPAD – Directive 2004/49/EC

Substantial stability of performance with regard to the following indicators:

- Typical UIC accidents under the responsibility of RFI

- Typical accidents under the responsibility of RFI
- Accidents to persons caused by rolling stock in motion – Directive 2004/49/EC
- Typical accidents – collisions of trains subject to responsibility of RFI

confirmation that there were no:

- Collisions of trains under the responsibility of Operations Division
- Fires in rolling stock forming part of trains – Directive 2004/49/EC

there were no:

- Typical accidents – Derailment of trains under the responsibility of Operations Division
- Derailment of trains – Directive 2004/49/EC

slight increases for the indicators:

- Typical UIC accidents
- Total number of anomalous situations under the responsibility of RFI
- Anomalous situations under the responsibility of RFI
- Anomalous situations under the responsibility of Operations Division
- Level-crossing accidents – Directive 2004/49/EC

lastly, increases in:

- Typical accidents – derailments
- Suicides – Directive 2004/49/EC.

The status at 31/12/2006 of safety performance indicators adopted by RUs under the Safety Management System forms the subject of the '2006 Cesifer Monitoring Report'. The report, which can be found in Annex F.4, contains a breakdown of the results of the RU performance monitoring system developed by Cesifer. Inspection work by Cesifer's territorial agencies concentrated more on those RUs that provided significant levels of services on their own lines during 2006, while a full analysis of services and abnormalities was conducted on all certified RUs that provide services on the national railway infrastructure.

2006 saw an increase in transport activities carried out by certified RUs and, at the same time, an overall deterioration in the safety performances of RUs. The most important critical aspects that emerged during the analysis of reported data can be summarised as follows:

- Re: shunting and train formation activities: train acceptance conditions, correspondence between real train data and data indicated in accompanying documents, and above all operations required to station trains in yards; in this context numerous non-conformities were detected involving train formation personnel, regarding both qualifications and behaviour;
- for driving activities: the correct use of safety devices and behaviour during shunting;
- Re: maintenance activities: braking systems, suspensions and wheel arrangements; this confirms the need to update maintenance plans for the freight wagon stock, an activity that was already underway with the active participation of Trenitalia S.p.A., the only company that currently has wagons registered for the national railway infrastructure;
- Re: inspecting and checking wagon loads: compliance with load insurance conditions; here, non-compliance is frequently found in relation to behaviour of inspectors, above all in regard to RUs other than Trenitalia S.p.A.

Special attention is also focused on non-compliances found on freight rolling stock used for the carriage of dangerous goods.
One aspect worth noting is that RUs are increasingly often making use of each other's services, particularly for activities such as shunting and train formation, which leads to a rise in the number of critical situations, particularly in installations used by several RUs. Regulation RFI-DTC\A0010\P\2006\0001528 of 06.06.2006 'Provision of services among RUs' was issued in 2006 to address this specific issue; it obliges the RUs to regulate service relations using appropriate procedures under the Safety Management System.
The analysis of data collected from monitoring the RUs led, during the course of 2006, to a series of measures being taken with regard to transport companies, involving both regulations and meetings between RFI representatives and RUs on key themes. In particular, a careful analysis was made in conjunction with Trenitalia S.p.A. of the abnormalities found and measures then were identified for Trenitalia to adopt to resolve these critical situations. The efficacy of the measures taken in 2006 will be assessed through monitoring in 2007.

D.2.4 Investigations
A total of 1 767 accidents occurred in 2006.
In accordance with current legislation, investigations were held for 389 accidents, an accident report was compiled for 211 accidents, and in 73 cases the investigation was delegated to the RU involved.
In 42 cases the reports have not yet been completed or the evaluation process by the Departmental Operations Division has not yet been finished (data at 20/7/2007).
Among the accidents that occurred in 2006, 37 were classified as UIC typical accidents; of these, 36 were subject to investigation (only one investigation has not yet been completed), while no investigation was deemed necessary for the arson attack that completely destroyed a railcar near Poggioreale on 2/6/2006.
Training courses began in 2006 (and will be completed in 2007) for new entrants to the Inquiry Board Register; these courses were also attended by personnel already on the Register in order to ensure that Regulations 55/03 and 42/05 are applied uniformly.
Details of UIC classified accidents (location of event, date, description, consequences for persons involved and associated anomalies) can be found in Annex C.4 (source SDB).

The following were the most serious accidents that occurred in 2006:

Date	**Place**	**Description of event**	**Investigation status**
16 January	Susa – Bussoleno (Turin)	Collision of train 10051 with a car driving over an open level crossing	Completed
10 February	Mirto Crosia (Reggio Calabria)	Collision of train 58574 with a car driving over an open level crossing	Completed
11 May	Bardonecchia (Turin)	Runaway and derailment of train belonging to a subcontractor	Completed
13 November	Poggiorsini –	Derailment of bogie on	Completed

	Spinazzola (Bari)	stretch blocked to rail traffic	
13 December	Ala – Avio (Verona)	Crash between trains 44157 and 43131	Completed

A brief description of these accidents follows:

Susa – Bussoleno, 16/01/06. Collision of train 10051 with a car

Train 10051, which departed inappropriately from Susa station when the signal was in stop position, collided into a car driving across the automatic level crossing at km 50+085. The line is operated using a shuttle system with the terminal station at Susa. The length of the train was such that the locomotive overshot the departure signal. Given that the drivers could not check the correct position of the departure signal, they left the station in accordance with instructions given by the train conductor. The train conductor had allowed the train to leave without having given orders to close the level crossings; consequently, the departure signal did not show all-clear.

The accident caused one fatality and one serious injury, both to persons in the car.

The cause of the accident was identified as the inappropriate behaviour of the train conductor and partly as the failure of the driving cab personnel to check the position of the signal.

At the time of the accident, neither the line nor the locomotive were equipped with ATPS.

The line will be equipped with ATPS during the course of 2007. Moreover, preparatory works have started to move the departure signal in order to ensure better visibility. Lastly, in order to raise the awareness of the train drivers and accompanying personnel about inappropriately passing departure signals at danger, Trenitalia has arranged for training courses, in mixed classes, given by driving and train crew instructors and psychologists.

Mirto Crosia, 10/02/06. Collision between train 58574 and a car at level crossing km 160+265.

Train 58574 had been directed with signals duly positioned to all clear onto the third platform (precedence) at Mirto Station. As the train approached the level crossing at km 160+265, the barriers wrongly opened allowing a car to cross the railway track; it collided with the train and was dragged along for about 28 metres.

The accident resulted in one injury (the driver of the car).

It was not possible to determine with certainty whether the driver of the car had started to cross the track before the barriers were fully open. Instead, it was confirmed that the level crossing barriers had reached an angle of aperture that was sufficient to allow the car to cross.

The incorrect lifting of the level-crossing barriers was caused by oxidation of the running surface of the rails on the track onto which the train had been directed.

A Departmental Circular had been issued on the problem of oxidation of the track circuits which envisaged programming the passage of trains on track circuits subject to oxidation at a particular frequency level and with a concomitant step up in maintenance work; however, train programming was not updated after the timetable changed and no further instructions were ever given to the personnel carrying out the maintenance work.

After this accident a nationwide campaign was launched checking the phenomenon of oxidation of the track circuits and the mitigation procedures to be adopted; thse included a greater than specified frequency for checking shunt value or running suitable rolling stock at an appropriate frequency level.

Bardonecchia, 11/05/06. Runaway and subsequent derailment of train and two carriages belonging to subcontractor

A group of three items of rolling stock supplied to the company ran away on the odd-numbered track in the direction of Turin, while they were performing a shunting operation in Bardonecchia station, and derailed in Chiomonte station after travelling 26 km.

Bardonecchia station has planometric and altimetric features with gradient peaks of 26‰. The speed reached by the train during shunting operations was approximately 35 km/h, whereas it should not have exceeded 10 km/h. It is not certain whether a brake test was performed on the train, nor whether the vehicles were correctly coupled, but it was found that, unlike the locomotive, the two wagons were not equipped with brakes.

The driver was killed during the accident when he jumped out of the runaway train.

The causes of the accident were identified as the inadequate braking capacity of the train and the high speed at which shunting was performed.

In addition to the direct causes of the accident, it was found that when the work to be carried out was planned, the related risks were not assessed properly.

As regards verifying the expertise of the workers involved in maintenance procedures on the infrastructure, a system of skill acquisition and maintenance is now being adopted. Moreover, training is being arranged for operations and infrastructure personnel involved in compiling reports of agreements for the execution of works.

Poggiorsini – Spinazzola, 13/11/06. Derailment of a bogie on a stretch blocked to rail traffic

During the return phase from the blocked stretch a light bogie (platform), pushed by a loader and used by three maintenance workers, derailed.

One of the three workers was killed during the accident and the other two were seriously injured.

The cause of the accident can be attributed to the incorrect use of the platform truck which was not suitable for passenger transport; moreover:

- although loose material could not be loaded onto the truck, because of the lack of sides or containers, it was loaded with equipment that was not securely tied;
- although it could be pushed by hand alone inside the station or the worksite, it was coupled to the loader;
- it was travelling at a speed of more than 4 km/h on a stretch with a gradient of 13‰, far more than the prescribed 5‰.

After this accident, the Departmental Infrastructure Division was asked to give evidence of the correct application of Provision 39/04 and the procedures provided for keeping the skills of maintenance personnel up to date. The Departmental Infrastructure Division was also asked to encourage dependent structures to comply with sector regulations and also conform with important measures to ensure safety at work.

Ala – Avio, 13/12/06. Collision of train 44157 with train 43131 stationary at P.B.I. 145.

Train 44157 (Trenitalia/Logistics) crashed into train 43131 (Rail Traction Company – RTC) on the stretch of line between the stations of Ala and Peri (Trento – Verona line).

Following problems involving another freight train running ahead of the two trains involved in the accident and an incident involving points at Peri Station, the traffic was congested at that time.

The RTC train was correctly stationary at Automatic Block 145 which was set at danger.

Instead, train 44157 inappropriately passed Automatic Block 147, despite the fact that the amber light at the previous Automatic Block 149 gave prior warning of the danger position. It crashed violently into the tail wagons of train 43131 which was transporting dangerous goods allowed by RID. The 16th wagon of this train, which was hit in the crash, contained a substance (known as MDI) classified as non-hazardous goods for rail, road and maritime transport.

The dual-track line is equipped with SCMT (ATPS) and BACC (automatic block system), but it was confirmed that the drivers travelled with both the signal repetition in the cab and the vigilance device switched off.

The two drivers of train 44157 died in the crash.

The cause of the accident was the failure of the driving cab personnel of train 44157 to obey the signal.

After this accident it was deemed appropriate to ask the RUs, with regard to the use of the vigilance device:

- to monitor driving occurrences on trains providing night service;
- to update train driver manuals and user regulations;
- to ensure that all devices ensuring vigilance and occupancy control that comply with FICHE UIC 641-O, or are already certified by USTIF or other European bodies, are operational;
- to refresh train drivers on the correct use of the vigilance device;
- to increase the awareness of management and/or maintenance staff in order to guarantee use of rolling stock equipped as specified in current regulations.

With regard to the carriage of dangerous goods, the following measures have been taken:

- to guarantee correct information for the parties who must intervene after a railway accident or incident, RUs are now obliged by regulation No RFI-DTC\A0011\P\2007\0000728 of 03/04/2007, to inform the institutional bodies responsible and the railway personnel concerned of the nature of freight being transported;
- to back up the monitoring of the carriage of dangerous goods, which already took place through Integrated Platform Traffic (IPT), Regulation No RFI-DTC\A0011\P\2007\0000726 of 03/04/2007 introduced the obligation for RUs to submit an annual report to the Infrastructure Manager on the quantity and type of dangerous goods transported, indicating the routes and stations used;
- pursuant to RID provisions, Section 1.8.1, a 'dangerous goods' joint working party was set up, through note No. RFI-DTC\A0011\P\2006\0000295 of 13/02/2006, tasked with programming controls on the carriage of dangerous goods on the

national railway infrastructure, overseeing their implementation and analysing them. The working party was mandated to draw up a procedure for controlling RID goods that are using rail transport and to draft a provision by the Infrastructure Manager regulating the requisite professional qualifications and the system for acquiring and maintaining the skills needed to perform the aforesaid controls. To date, the the joint working party's activities have aimed to:

1. identify controls that comply with current regulations,
2. define operating methods for said controls,
3. carry out trial tests,
4. run a pilot training project.

The controls, which will start from 1/7/2007 after the first agents have been trained, are expected to reach normal operating levels by early 2008 and will form part of the RU monitoring system. They will be carried out on all departing shipments and those downstream of checks performed by the RU.
The results of tests performed and the corrective measures implemented by the RUs after verifying the infractions will be analysed on a monthly basis by an Analysis Committee in the Technical Department.

D.3 Implementation status of Safety Management System

While confirming the importance of collecting the documentation required to demonstrate the correct operation of the safety management system and the effective implementation of suitable measures to minimise risk, coupled with the obligation to compile, file and produce the aforesaid documentation, Regulation No 2479 of 29 September 2006, 'Amendments to the safety management system documentation – Provision No 3 of the National Railway Infrastructure Manager of 26 June 2001 and subsequent amendments', no longer calls for the Safety File to be produced and submitted to the Infrastructure Manager. The same regulation also reminds RUs that safety management system documentation and the relevant updates must be sent to the following email address: sgs.dt@rfi.it.

D.3.1 Infrastructure Manager

RFI has adopted a single Safety Management System (SMS) that applies to the various organisational levels and meets the documentary requirements set out by Provision 13/2001 on the Train Operations and Railway Safety Management System.
In terms of documents, the two operational departments, the Maintenance Division and the Operations Division, have their own manuals and specific procedures; likewise, all the Departmental Operations Divisions, Departmental Maintenance Divisions and Territorial Units have their own manuals. Management procedures are also available which are valid for all levels of the Integrated System to ensure a single approach to safety management; these procedures are integrated with others defined by the Operations and Maintenance Divisions to cover specific topics (e.g. staff training).
The entire documentary structure of the Integrated Safety Management System had already been defined by 2005 at all business organisational levels. During the course of 2006 the documentation was completed by validating the ISMS Manual for RFI.
All the documentation referred to above is available to all RFI employees through Cruisenet, a web-based (intranet) suite.

The process was completed in July 2006, resulting in the certification of the entire Integrated Safety Management System. A total of 198 certificates were awarded to RFI S.p.A., to the central Maintenance and Operations Divisions, and to their respective subdivision sections (15 Departmental Operations Divisions, 15 Departmental Infrastructure Divisions, and 35 Territorial Units).
The organisational structures involved carried out at least one internal audit during 2006 to check the appropriateness and efficacy of the system. The audit focused on both management of the system and on operational aspects regarding specific train-service and railway-operation processes/activities. The number of inspection visits managed in 2006 is shown in the following table.

Structures subject to audit	Number of audits performed
Departmental Infrastructure Divisions	218
Departmental Operations Divisions	348
Territorial units	522
Operations Division	14
Maintenance Division	12
RFI	4
Total	**1118**

In addition to these internal audits, the certifying body also performed a number of audits, the details of which are given in the following table.

Structures subject to audit	Number of non-conformities (total)	Number of recommendations (total)
Operations Division	2	7
Departmental Operations Divisions	5	10
Maintenance Division	2	5
Departmental Infrastructure Divisions	14	7
Territorial Units	16	21

More than 1 350 corrective actions (CA) were instigated overall in 2006.This was approximately 10% more than in 2005; with the 'carryover' effect from 2005, CA management now exceeds the 2000 mark. There were practically no CAs that did not prove effective.
About 340 preventive actions (PA) were managed in 2006, of which around one third represented the carryover from 2005.
The non-conformities (NC) included here refer to standard maintenance and traffic processes for which there are no other control / registration procedures.
A total of just over 1 000 NCs were managed during 2006; this figure does not include NCs relating to standard maintenance and traffic processes since these are registered using specific applications.

During 2005 the new remits of the Integrated Safety Management System Auditor were defined, as well as the responsibilities, criteria and methods used in the respective assessment and management processes (see procedure RFI DSQ SIGS P10).
During 2006 the respective Training Plan was defined; approximately 250 persons will be involved and it will be implemented in 2007.

D.3.2 Railway Undertakings

The implementation status of the Safety Management System for Railway Undertakings at 31/12/2006 is summarised in the table below.
The procedure numbers in the table refer to the following procedures that form part of the obligatory documentation for the Safety Management System for Railway Undertakings:

1. Safety planning and re-examination using analysis and safety assessments,
2. Definition and circulation of important safety-related documentation,
3. Collection and filing of safety data and subsequent statistical processing,
4. Management of process non-conformities (accidents and dangerous events),
5. Planning and adoption of corrective actions,
6. Implementation of emergency plans,
7. Procedure in accordance with Provision 09/2005.

Compared to the situation for 2005, the table does not include the column referring to the updating status of the Safety Dossier which, following Regulation 2479 in 2006, no longer has to be produced and sent to the Infrastructure Manager.

During 2006 some RUs altered the documentation of the Safety Management System for RUs; in particular, Regulation RFI-DTC\A0010\P\2006\0001528 of 6 June 2006 'Provision of services between Railway Undertakings' imposed the need for RUs assigning train paths using staff not directly employed by them to carry out safety tasks or third-party rolling stock tasks to input these methods of managing the train path and correlated services in the Safety Management Systems of the RUs involved.
The implementation of this regulation resulted in amendments being made in 2006 to the manuals for the Safety Management System for the Railway Undertakings in question.

With regard to Trenitalia, the Safety Management System documentation is still undergoing rationalisation because of further reorganisation during 2006, which meant that documentation could not be produced that was consistent with the organisation. However, it is worth stressing that the Safety Management System documentation currently in force is available on the website http://tcontact.trenitalia.it, under the heading 'Procedure'.

RAILWAY UNDERTAKING	**MANUAL**	**PROCEDURES**							
	Rev.	1	2	3	4	5	6	7	others
Trenitalia S.pA.	A 3-Mar-04	✓	✓	✓	✓	✓	✓	✓	✓
Le Nord s.r.l.	13 4-Dec-06	✓	✓	✓	✓	✓	✓	✓	✓
Rail Traction Company S.p.A.	4 4-Aug-05	✓	✓	✓	✓	✓	✓	✓	✓
Del Fungo Giera Servizi Ferroviari	1	✓	✓	✓	✓	✓	✓	✓	✓

RAILWAY UNDERTAKING	**MANUAL**	**PROCEDURES**							
	Rev.	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**others**

S.p.A.	12-Apr-05								
Gruppo Torinese Trasporti S.p.A.	6 15-Oct-05	✓	✓	✓	✓	✓	✓	no	✓
SERFER – Servizi Ferroviari s.r.l.	1.3 29-Sept-06	✓	✓	✓	✓	✓	✓	✓	✓
Hupac S.p.A.	2.1 15-Dec-06	✓	✓	✓	✓	✓	✓	✓	✓
Ferrovia Emilia-Romagna s.r.l.	4 30-May-05	✓	✓	✓	✓	✓	✓	✓	✓
Trasporto Ferroviario Toscano S.p.A.	3 16-May-05	✓	✓	✓	✓	✓	✓	✓	✓
Nord Cargo s.r.l.	15 4-Dec-06	✓	✓	✓	✓	✓	✓	✓	✓
Ferrovie Adriatico Sangritana s.r.l.	E 20-Apr-06	✓	✓	✓	✓	✓	✓	no	✓
Sistemi Territoriali S.p.A.	7 30-Sept-06	✓	✓	✓	✓	✓	✓	✓	✓
Railion Italia s.r.l.	4 Oct-06	✓	✓	✓	✓	✓	✓	✓	✓
SBB Cargo Italia s.r.l.	2 1-Nov-05	✓	✓	✓	✓	✓	✓	✓	✓
Azienda Consorziale Trasporti A.C.T.	1 16-Jul-05	✓	✓	✓	✓	✓	✓	✓	✓
MetroCampania Nord Est s.r.l.	1 18-Nov-04	✓	✓	✓	✓	✓	✓	no	✓
Ferrovie Centrali Umbre s.r.l.	1 22-Jul-05	✓	✓	✓	✓	✓	✓	no	✓
Rail One S.p.A.	4 Oct-06	✓	✓	✓	✓	✓	✓	✓	✓
ATCM S.p.A.	Ed.1 – Rev.1 20-Oct-05	✓	✓	✓	✓	✓	✓	no	✓
ATC	1 15-Dec-05	✓	✓	✓	✓	✓	✓	no	no
SNCF Fret Italia s.r.l.	0 15-Nov-05	✓	✓	✓	✓	✓	✓	no	✓
SAD	1 14-Nov-05	✓	✓	✓	✓	✓	✓	no	✓

PART E – IMPORTANT CHANGES IN LEGISLATION AND REGULATIONS

The main changes to the statutory framework of reference for train operations and railway safety are shown in the Table in Annex D, which indicates:

- the topic,
- the title of the legislation or regulation,
- the date it came into force,
- whether it is new legislation or an amendment to existing legislation,
- a brief description.

The full regulatory framework can be consulted on the website www.rfi.it, under the heading 'Quadro normativo' [regulatory framework].

It is worth noting that, as part of the regulatory activities, special attention was focused on equipping the network and rolling stock with automatic train protection

systems. During 2006, Ministerial Directive No 13/2006/DIV.5 of 9.3.2006 on the installation of SCMT/SSC systems was issued by the Ministry of Infrastructure and Transport, and Ministerial Directive No 0044725 of 20.10.2006 on the use of the vigilance device was issued by the Ministry of Transport, as well as RFI regulations on the management of the transition phase, the launch of the programme to bring in pre-operation of SSC and to call for compliance with the said Directive.

Tools and clarifications were also provided on the subject of investigative activities to be carried out after accidents and incidents.
Lastly, regulations were also issued regarding professional qualification systems for employees undertaking activities relating to railway safety.

PART F – THE DEVELOPMENT OF SAFETY CERTIFICATION AND AUTHORISATION

The Infrastructure Manager is responsible for issuing certificates to RUs in accordance with Legislative Decree No 188 of 8.7.2003 'Implementation of directives 2001/12/EC, 2001/13/EC and 2001/14/EC ON railways'.
No certificates or authorisations were issued under Directive 2004/49/EC, currently undergoing transposition.
At 31/12/2006 there were 23 RUs certified to use the national infrastructure (one of which, Metronapoli, no longer provides a commercial service although it still holds a safety certificate).
The following were issued in 2006:

- one new safety certificate (No 78 issued on 07.03.2006 to SAD – Trasporto Locale S.p.A.);
- 18 certificate extensions.

Details of the certification situation of RUs are given in Annex E.
Reference regulations and legislation, as well as the key requisites for issuing Safety Certificates are available on the website www.rfi.it, under the heading 'Quadro normativo' [Regulatory Framework].

PART G – SUPERVISION OF RAILWAY UNDERTAKINGS AND INFRASTRUCTURE MANAGERS

G.1 Audits carried out in 2006

Audits on train operations and railway safety are carried out by RFI's Technical Department pursuant to Article 10(6) of Presidential Decree No 188 of 8 July 2003 and Regulations 13/2001 and 17/2001 of the Infrastructure Manager on RFI operational structures (Departmental Operations and Infrastructure Divisions) and on RUs operating on the national infrastructure. These audits aim to evaluate the implementation and appropriateness of the key processes of the Safety Management System adopted by RFI structures and by the RUs, as well as the correct application of regulatory standards and regulations issued by the Infrastructure Manager.

Thirty audits were performed in 2006:
- 3 on Departmental Infrastructure Divisions;
- 27 on RUs, namely 25 on Trenitalia, 1 on FER and 1 on Railion;

with 29 follow-up operations to check progress on implementing the corrective actions required to eliminate the non-conformities identified during the audit:
- 10 on RFI structures, namely 4 on Departmental Operations Divisions and 6 on Departmental Infrastructure Divisions,
- 19 on RUs, namely 13 on Trenitalia's territorial structures, 1 on Serfer, 1 on Ferrovie Nord Cargo, 1 on Sistemi Territoriali, 1 on SBB Cargo Italia, and 2 on Del Fungo Giera.

As specified in the multiannual programme, the Regional Operations Divisions were all inspected during the three-year period 2003–2006, and in 2007 they will be covered by the new multiannual audit programme.

The following tables contain details of the audits and the follow-ups that were carried out.

Audits undertaken in 2006			
Structures audited		**Registered office**	**Date**
RFI	Departmental Infrastructure Divisions	Naples	17-21 July
		Bologna	18-22 Sept
		Milan	23-27 Oct
Trenitalia	Passengers N/I Division	Production Sicily / Sicily Customer Assistance	13-17 Feb
	Regional Passenger Division	Lazio Territorial Division	20-24 Feb
		Emilia Romagna Territorial Division	28-30 March
		Friuli Venezia Giulia Regional Division	03-07 April
		Lombardy Regional Division	08-12 May
		Bolzano Provincial Division	09-13 Oct
		Piedmont Territorial Division	07-09 Nov
		Abruzzo Provincial Division	11-15 Dec
	General Logistics Operations Division	Naples/Reggio Calabria Area – Reggio Calabria installations	23-27 Jan
		Ancona/Bari Area – Ancona installations	12-16 June
		Naples/Reggio Calabria Area – Naples installations	11-15 Sept
		Verona/Venice Area – Verona installations	25-29 Sept
		Livorno Area	20-24 Nov
	Technical Operations Division	IMC Locomotives Rome – Rome shunting station	21-23 Feb
		IMC Light railcars Bologna	28-30 March
		IMC Carriages Mestre – OMR Trieste	04-06 April
		IMC Carriages Milan – Milano Farini	10-11 May
		IMC Light railcars Palermo	19-23 June
		OMC Carriages Messina - Messina	20-22 June
		OMC Locomotives Foligno	08-10 Aug
		IMC ETR Naples	12-14 Sept
		OMC Locomotives Verona	26-28 Sept
		IMC Locomotives Verona – OMR Bolzano	10-12 Oct
		IMC Light railcars Turin – OML Turin Shunting station	07-09 Nov
		IMC Locomotives Bologna – OML Livorno	21-23 Nov
Other railway undertakings	FER	Ferrara	13-17 March
	Railion	Alessandria	27 Nov – 01 Dec

Follow-ups undertaken in 2006			
Structures subject to follow-ups		**Registered office**	**Date**
RFI	Departmental Operations Divisions	Bologna	02-04 August
		Venice	30 Aug – 01 Sept
		Reggio Calabria	30-31 Oct
		Bari	15-17 Nov
	Departmental Infrastructure Divisions	Genoa	07-10 Feb
		Reggio Calabria	07-10 March
		Trieste	21-24 March
		Turin	15-18 May
		Ancona	29-31 May
		Cagliari	07-09 June
Trenitalia	Passenger N/I Division	Production Tuscany / Customer Assistance Tuscany	19-21 April
	Regional Passenger Division	Regional Division Puglia	01-03 March
		Regional Division Marche	29 May – 1 June
		Territorial Division Campania	18-20 Oct
	General Logistics Operations Division	Trieste Area	17-19 Jan
		Milan Area	26-28 April
		Bologna Area	03-05 May
		Turin Area	17-19 May
		Cagliari/Rome Area – Cagliari installations	05-07 June
		Palermo Area	04-07 Dec
	Technical Operations Division	IMC Locomotives Verona – OMR Udine	18-20 Jan
		IMC Locomotives Milan	08-09 May
		IMC Light railcars Naples – OMR Naples C.F. – OML Benevento	18-20 Oct
Other railway undertakings	Del Fungo Giera	Livorno	10-12 Jan
	Ferrovie Nord Cargo	Milan	10-12 July
	Sistemi Territoriali	Piove di Sacco	28-30 Aug
	Del Fungo Giera (repeats)	Livorno	06-08 Sept
	SBB Cargo Italia	Gallarate	02-04 Oct
	SERFER	Genoa	12-15 Dec

The types of non-conformities identified during the audits undertaken in 2006 are listed in the following table. The table also shows whether the non-conformity had already been reported during the 2005 audits. In the case of Trenitalia, the table draws a comparison with non-conformities identified by audits of similar structures in 2005; for other RUs, non-conformities are compared with those reported by audits on other RUs subject to audit in 2005.
This comparison highlights the fact that many problems have not yet been resolved. In some cases the difficulty lies in identifying and applying measures at a national level that require longer implementation times and where verifying their efficacy takes longer.
In other cases, it is necessary to identify further measures to guarantee eradication of the non-conformities.

Process	Principal non-conformities reported	Re: 2005
Infrastructure Manager		
Departmental Infrastructure Divisions		
Status of documentation for Safety Management System	There is no evidence in the Safety Plan of maintenance actions to improve existing safety standards, originating from the analysis of accident data or the outcomes of internal inspections.	
	The actions included in the Plan show a commitment in man/days, but do not give details of the purpose of maintenance work, thereby precluding a real appraisal and final calculation of the maintenance undertaken compared to planned maintenance.	
Training and skills acquisition and maintenance for personnel responsible for safety duties	No formalised system has yet been adopted to check the skills of personnel qualified as train drivers and inspectors. Specific training activities relating to the possession of these qualifications are not always provided for.	
	There is no systematic final calculation of the single training project records, no validation and controlled management of teaching material, no systematic performance of efficacy tests.	Already reported in 2005
	In many cases the follow-up visit was made late compared to the stated deadlines. Heads of department are not always aware of their responsibilities in the process of sending agents to make follow-up health inspections.	Already reported in 2005
Use of personnel	Cases emerged of exceeding the limits for overtime and working at night.	Already reported in 2005
Document management (statutory regulations, projects,	It is not always possible to track the distribution of documents on paper and in electronic format to installations.	Already reported in 2005

Process	Principal non-conformities reported	Re: 2005
etc.)	Regulatory tests were often present in the installations in a different format to the official version or were not updated.	Already reported in 2005
Monitoring and internal audits	Internal inspections, at Division and Territorial Unit level, are not carried out efficiently because they do not report non-conformities relating to operating safety.	Already reported in 2005
Operational incidents	There is no evidence of adoption of corrective and preventive actions which, by removing the cause of the incidents, can show that lessons have been learnt from experience to avoid repetition of same incidents.	
	In one DCI, the first findings following the incident or operating accident were not systematically sent to DCM within the stated times.	
Planning and programming	There is not always evidence of correlation between planned extraordinary maintenance activities and those actually carried out based on priorities attributed at DCI level.	
Departmental and national diagnostics	Immediate or traffic-restrictive maintenance measures are not always taken after relevant defects are reported by the mobile diagnostics railcars.	Already reported in 2005
Failure management	It is not always clear from COAMI reports that actions taken are monitored after analysing the causes of incidents and failures, until completion.	Already reported in 2005
Technical inspections and periodical visits	Visits to structures are often not made as often as planned.	Already reported in 2005
	The timeframe of 3-year technical inspections is not always respected.	Already reported in 2005
	Works managed on the IT system were reported as belonging to adjacent DCI. Structures were found with an overall assessment requiring urgent interventions that were then carried out after a long time.	
Maintenance of signalling systems and superstructure	Characteristic values for points were reported that are well outside the tolerances allowed by current regulations, old wooden sleepers and sleeper screws without any seal, worn switch points. The characteristic values on Form L.94 do not correspond to those found during the audit or else the values reported over longs periods of time were non-compliant. Long periods of time pass during which points are not inspected by Heads of Operations Units.	Already reported in 2005

Process	Principal non-conformities reported	Re: 2005
	Required checks are not always carried out on joints in run tracks with wooden sleepers.	Already reported in 2005
	Checks are not always carried out on body and ends of stretches of track consisting of long welded rails, also due to lack of finishing points on the line. Deviations found at ends of long welded rails (LWR) are greater than those allowed by current regulations. On stretches undergoing ballast renewal work, internal tension of LWR was not adjusted.	Already reported in 2005
	Defective welding is not always removed within times required by regulations.	Already reported in 2005
	On inspection reports for line and points, after non-conformities have been reported, no indication is given of measures taken or other work notices issued by the Section Head. These reports are not signed by the Department Head.	Already reported in 2005
	The wiring and signalling system diagrams archived by the Technical Department (S.O. Tecnico) are often not definitive or up to date.	Already reported in 2005
	The intervals specified for cyclical maintenance checks on signalling systems are not always respected.	Already reported in 2005
	There is not always evidence of inspections made by the Department Head.	
	Judging from reading Form IE 8.06, statistical maintenance book, Form M 45 has not always been issued for operations for which it is mandatory based on standard activities.	Already reported in 2005
	Thickness gauges used to measure the joint gap between switch point and stock rail are not always checked.	

Process	Principal non-conformities reported	Re: 2005
Management of equipment	During the course of site inspections by external contractors at improvement and renewal worksites, equipment checks showed that: - data on sides of equipment do not always match those in equipment books (mass, braked mass, data of regular servicing); - brake blocks are excessively worn in spite of having been checked regularly as required; - not all safety devices for equipment are available on equipment itself (torches, lamps, etc.) - some moving parts of the equipment were found without devices used to immobilise them during transit; - in one case, a hose on a brake pipe on a rolling stock forming part of the stopping site in the Pavia goods yard was dated 1982 (such hoses are valid for 14 years).	Already reported in 2005
Railway undertakings		
	Trenitalia	
Training, skills acquisition and maintenance for employees with safety duties	Often the analysis of training requirements is not structured or formalised.	Already reported in 2005
	Training plans are not complied with and there is no management of deviation.	Already reported in 2005
	There is no systematic evaluation of the efficacy of training provided.	Already reported in 2005
	The records kept of training provided are inadequate (registers, original qualification certificates, attendance certificates).	Already reported in 2005
	There are not enough accredited instructors for the skills maintenance procedures.	
	Professional skills maintenance activities (updating, stocks, shadowing, contacts, etc.) are not carried out with planned frequency and are not always traceable.	Already reported in 2005
	In the train crew and train formation sectors, formalised knowledge of lines and structures is lacking in several facilities.	Already reported in 2005
	In some facilities, employees whose review inspection deadline has passed are employed on safety duties. In some cases there is no systematic control of medical check-up deadlines for agents seconded from other facilities.	Already reported in 2005
Use of personnel	No systematic and preventive checks on reaching set limits for the use of personnel.	Already reported in 2005

Process	Principal non-conformities reported	Re: 2005
	The set limits for using personnel are often exceeded (overtime, consecutive nights, maximum daily hours).	Already reported in 2005
Management of working documents (regulatory texts, projects, etc.)	Prompt updating of documents for agents and archives is not always guaranteed.	Already reported in 2005
	Distribution of technical documentation in maintenance workshops is often not controlled.	Already reported in 2005
	No checks are made to see if Departmental Circulars have been distributed before they come into force, especially for drivers and train crews.	Already reported in 2005
Monitoring and internal audits	Internal audits are not carried out efficiently and in full, and they do not comply with the set deadlines.	Already reported in 2005
	Non-conformity management cannot always be traced.	Already reported in 2005
Operating incidents	There is no structured process for learning from experience.	Already reported in 2005
Specific activities in individual sectors	Driving: in various instances individual copies of regulatory documents are incomplete or not up to date; in some cases it was noted that erratic use was made of BFC.	Already reported in 2005
	Train formation: agents frequently do not check trains on a regular basis; M47 registers for service instructions are often kept in an erratic manner and not updated; operating standards are not always stringently applied.	Already reported in 2005
	Inspection: measuring instruments are frequently missing in service posts, labels are not used properly, and registers are not compiled correctly.	Already reported in 2005
	Train crews: in some cases additional operations are carried out in a way that does not conform with standards.	
Maintenance of rolling stock	Maintenance deadlines were not kept in several instances (exceeding limits, non-official postponement).	Already reported in 2005
	IT systems often use unreliable data.	Already reported in 2005
	There is no effective communication between Workshops and Control Rooms.	
	Maintenance plans that are not up to date were found in some installations.	
	There is no evidence of an analysis of reliability of maintenance plans.	
	In several cases traceability of maintenance operations is lacking.	Already reported in 2005
	In some cases the calibration of and/or checks on measuring instruments are not managed.	

Process	Principal non-conformities reported	Re: 2005
RAILION		
Status of Safety Management System documentation	SMS documents are not systematically complied with.	Already reported in 2005
	There is no evidence of methods of identifying the safety goals in the safety plan; moreover, the progress of activities included on safety plans is not managed.	
Training and skills acquisition and maintenance for employees with safety duties	Contrary to the specifications of SAMAC, there is no evidence of a planning process for staff training.	Already reported in 2005
	The efficacy of training provided is not systematically assessed.	Already reported in 2005
	Records of training provided are missing (registers, qualification certificates, attendance certificates).	
	Professional skills maintenance (continuous development) is not systematically carried out.	
	In the train formation sector, there is no formalised knowledge of lines and systems.	Already reported in 2005
	Employees whose medical check-up review has expired are sometimes used for safety duties.	Already reported in 2005
	In the driving sector, there is no evidence of corrective actions for repeated non-conformities reported by instructors while monitoring skills.	
Use of personnel	There are no systematic and preventive checks on reaching set limits for the use of personnel.	Already reported in 2005
	The set limits for the use of personnel are often exceeded (overtime, consecutive nights, maximum daily hours).	
Management of working documents (regulatory texts, projects, etc.)	In some structures the internal emergency plan is not available.	
	Exceptional transport permits are not always available and up to date in installations.	
	The technical documentation in maintenance workshops is not distributed on a controlled basis.	
Monitoring and internal audits	Audit activities are not carried out according to the company's SMS guidelines.	Already reported in 2005
Operating incidents	There is no evidence of an analysis of incidents to allow lessons to be learnt from experience.	
Specific activities in individual sectors	Driving: individual copies of regulatory documents are incomplete or not up to date.	

Process	Principal non-conformities reported	Re: 2005
	Train formation: agents frequently do not check trains on a regular basis; registers for deliveries to installations are not correctly compiled; operating standards are not always stringently applied.	Already reported in 2005
	Inspection: some measuring instruments are missing in service posts; registers are filled in incorrectly and quality controls for VTS trains (technical exchange audit with foreign administrations) are not always carried out.	
Maintenance of rolling stock	Maintenance deadlines were not kept in several cases.	Already reported in 2005
	Maintenance operations were not traceable in several cases.	Already reported in 2005
	In some cases the calibration of and/or checks on measuring instruments are not managed.	Already reported in 2005
FER		
Status of Safety Management System documentation	SMS documents are incomplete.	Already reported in 2005
	There is no evidence of methods of identifying the safety goals in the safety plan.	
Training and skills acquisition and maintenance for employees with safety duties	There is no evidence of the planning process for staff training.	Already reported in 2005
	The efficacy of training provided is not systematically assessed.	Already reported in 2005
	There is no register of maintenance staff.	
	Activities to update professional skills (stock, updates) are not systematically provided.	Already reported in 2005
Management of working documents (regulatory texts, projects, etc.)	The procedures used to distribute regulatory documents do not comply with those required by the SMS procedure.	
	Distribution of technical documentation in maintenance workshops is often not controlled.	
Monitoring and internal audits	Audit activities are not carried out as described in the company's SMS.	Already reported in 2005
Specific activities in individual sectors	Train formation: the Service Instructions Register was not available at the shunting installation inspection.	Already reported in 2005
Maintenance of rolling stock	Maintenance deadlines were not kept in several cases.	Already reported in 2005
	Maintenance operations were not traceable in several cases.	Already reported in 2005
	In some cases the calibration of and/or checks on measuring instruments are not managed.	Already reported in 2005

Follow-up checks revealed the partial completion of corrective actions defined during earlier audits (which were also held prior to 2006) using the agreed methods and deadlines; in several cases it was necessary to define and implement further actions and an additional follow-up was planned for some structures to check the critical problems still unsolved.
In particular:

Structure subject to follow-up during 2006		**% of non conformities resolved**
RFI	Departmental Operations Divisions	64
	Departmental Infrastructure Divisions	65
Trenitalia	N/I Passenger Division	62
	Regional Passenger Division	66
	General Logistics Operations Division	52
	Technical Operations Division	45
Other railway undertakings	Ferrovie Nord Cargo	61 (of which 35% were resolved during the follow-up check in September 2004)
	Sistemi Territoriali	43
	Del Fungo Giera	28 (January 2006) 67 (September 2006)
	SBB Cargo Italia	37
	SERFER	63

G.2 Implementation status of actions included in Annual Safety Plan

G.2.1 Infrastructure Manager

RFI's Annual Safety Plan for 2006 includes projects developed and monitored by the central office and projects carried out by RFI operational divisions (Maintenance and Operations); these projects were identified to resolve critical situations identified by the Infrastructure Manager, as stated in note RFI\AD\A0011\P\2005\0000775. It is worth noting the substantial completion of projects included in the plans. Information on the progress of actions included in RFI's Annual Safety Plans is given in the 'Rapporto annuale sulla sicurezza della circolazione dei treni e dell'esercizio ferroviario – RFI – Anno 2006' [Annual Report on train operations and railway safety – RFI – 2006], which is attached as Annex F.3 to this document.
The implementation status of the projects in RFI's general plan is summarised in the following table. Annex F.1 and Annex F.2 contain progress reports at 31 December 2006 for projects included in RFI's general plan, namely the projects managed by the central office and Cesifer respectively.

Project code	Project title	Compliance with schedule	Compliance with commitment	Compliance with contents / structure	Type of critical issue	Status
000005	Train Control System (SCMT) and vigilance device	On course	Greater	No change	-	In progress
000006	MVT systems	Delayed	On course	Different contents	Finding internal resources	In progress
000042	Trial and installation of dynamic weighbridges and gantries (In the 2007 plan there are now 2 projects: 000042 'Trial and installation of dynamic weighbridges' 000108 'Trial and installation of multifunction gantries')	Replanned	On course	No change	For weighbridges: Alterations during course of execution For gantries: Relations with suppliers	In progress
000051	Train driver support system – SSC	On course	On course	No change	Alterations during course of planning Other	In progress
000053	Release of NOI and NOME for tests on units equipped with SCMT	Delayed	On course	No change	Finding internal resources Relations with suppliers	In progress
000055	Diagnostic ETR Y 500 trains for AV/AC	On course	On course	No change		In progress
000010	Hot Axle box detection (HABD)	Delayed	On course	No change	Relations with suppliers Relations with institutions	In progress
000056	Tests for inspection/ certification purposes	On course	On course	Different contents	Relations with suppliers	In progress The activity will continue in 2007, even though the project concerned has not been included.

Project code	Project title	Compliance with schedule	Compliance with commitment	Compliance with contents / structure	Type of critical issue	Status
000052	Study of freight train control dynamics	Delayed	Greater	No change	Relations with institutions Other (other projects)	In progress
000061	HW and SW configuration control plan	Replanned	On course	No change	Relations with suppliers Other	In progress
000076	Equipment survey and markings	Replanned	On course	No change	Finding internal resources	In progress
000080	Revision of Provision 01/2003 concerning regulatory and technical legal requirements for rolling stock (In the 2007 plan there are now 2 projects: 000080 'Revision of provision 01/2003 concerning regulatory and technical legal requirements for rolling stock' 000106 'Realisation of a computerised tool for drafting and managing rolling stock certification plans')	Replanned	Replanned	Restructuring	Sourcing funds Changes during course of execution	In progress
000081	Preparation of a provision for rolling stock not included in Prov. 1/2003	Delayed	On course	Restructuring	Changes during course of execution	In progress
000082	Update of regulation 'Container traffic and road transport units carried by rail'	Replanned	Greater	Restructuring	Changes during course of execution	In progress
000083	Update of regulation ' Rail transport for passengers' cars'	On course	On course	No change	---	Completed

Project code	Project title	Compliance with schedule	Compliance with commitment	Compliance with contents / structure	Type of critical issue	Status
000093	Rolling stock certification plan	Delayed	Replanned	No change	Relations with suppliers	In progress
000094	Certified equipment monitoring	On course	On course	No change	—	In progress
000023	Adaptation of long tunnel infrastructure	(*)				
000024	Progressive elimination of level crossings	On course	On course	Restructuring	Relations with institutions	In progress
000016	Equipping lines with codified current automatic block devices (BAcc) – elimination of breaks	Replanned	On course	Restructuring	Relations with suppliers Alterations during work in progress Other	In progress
000017	Automatic increased protection system for level crossings (PAI-PL)	Delayed	Greater	Restructuring	Alterations during work in progress Relations with suppliers	In progress
000018	GSM-R	Delayed	On course	No change	Finding internal resources Relations with institutions	In progress
000019	MASS – Movable Advanced Security System	Delayed	On course	No change	—	In progress
000020	Protection of sensitive rail installations and premises	On course	On course	No change	—	In progress
000021	Infrastructure risk analysis (ARI)	Replanned	On course	No change	Alterations during work in progress	In progress
000022	'Safe command and control' technology	Replanned	On course	No change	Finding internal resources Other (other projects)	In progress
000059	Platform CCTV	(*)				

Project code	Project title	Compliance with schedule	Compliance with commitment	Compliance with contents/ structure	Type of critical issue	Status
000069	Trenitalia maintenance plan	On course	On course	No change	—	Completed
000079	Provision for technical approval of rolling stock on AV/AC lines	On course	On course	No change	—	Completed
000091	Issue of provision for approval of equipment	Suspended	Suspended	—	—	Waiting for reference EU legislation to be issued
000092	Planning of course on handling dangerous goods	Delayed	On course	No change	Finding internal resources Relations with suppliers	In progress
000096	CESIFER training plan	On course	On course	No change	—	Completed
000041	RU monitoring system certification	Replanned	Replanned	Restructuring	Alterations during planning Alterations during works	In progress
000095	SICES adaptation	Suspended	Suspended	—	Sourcing funds	—
000098	Monitoring installation of ATC/ATP systems	Replanned	Replanned	Restructuring	Finding internal resources Alterations during works	In progress
000033	SMS audit	On course	Greater	No change	—	Completed
000057	RUs uniform organisation plan with reference to SMS	Delayed	On course	No change	Finding internal resources	In progress

Project code	Project title	Compliance with schedule	Compliance with commitment	Compliance with contents / structure	Type of critical issue	Status
000060	Regulatory compliance linked to introduction of on-board technology systems	On course	On course	No change	—	In progress
000063	RU certification plan	Ahead of schedule	Greater	No change	—	Completed
000065	Operating incidents analysis committee	Delayed	Less	No change	Finding internal resources	Completed
000075	Updating traffic maps in view of ATP technology	Replanned	Replanned	Different contents	—	In progress
000084	Qualification of test laboratories	Delayed	Replanned	No change	Relations with suppliers	In progress
000085	Institutional inspection activity	On course	Greater	Different contents	Finding internal resources	Completed
000086	Update regulation 'Additional FS regulations annex II to RIV' (Volume 1 and 2)	On course	On course	No change	—	Completed
000087	Institutional inspections – technical operating requirements for new rolling stock	On course	Greater	No change	—	Completed
000088	Institutional inspections – work of staff responsible for safety-related duties	On course	On course	No change	—	Completed
000089	Inspection of fixed systems with regard to train driving aspects	On course	Greater	No change	—	Completed
000090	Backup activities to installation of new systems	On course	Less	No change	Alterations during works	Completed
000097	Institutional inspection activity – Compliance with technical operating requirements for infrastructure	On course	Greater	No change	—	Completed

Project code	Project title	Compliance with schedule	Compliance with commitment	Compliance with contents / structure	Type of critical issue	Status
000001	SAPC certification procedure	Replanned	Replanned	Different contents	Finding internal resources Relations with suppliers Alterations during planning Other	In progress
000050	Certification procedure for worksite mobile separation barriers	On course	On course	No change	—	Completed

(*) this information is available from project sponsors

G.2.2 Railway Undertakings

Details of the progress report on activities included in the individual safety plans issued by the RUs for 2006 are given in Annex F.5 to this document.
The plans were drawn up by identifying projects to minimise the critical situations indicated by the Infrastructure Manager in note RFI\AD\A0011\P\2005\0000775. With these critical situations in mind, the RUs have developed their own projects, focusing in particular on improvements to their business organisation and on training employees engaged in safety work.
The projects are classified into the following categories in line with the guidelines given in Provision No 56 of 29 December 2003 issued by the Infrastructure Manager:
- organisation;
- training;
- rolling stock;
- technological innovation.

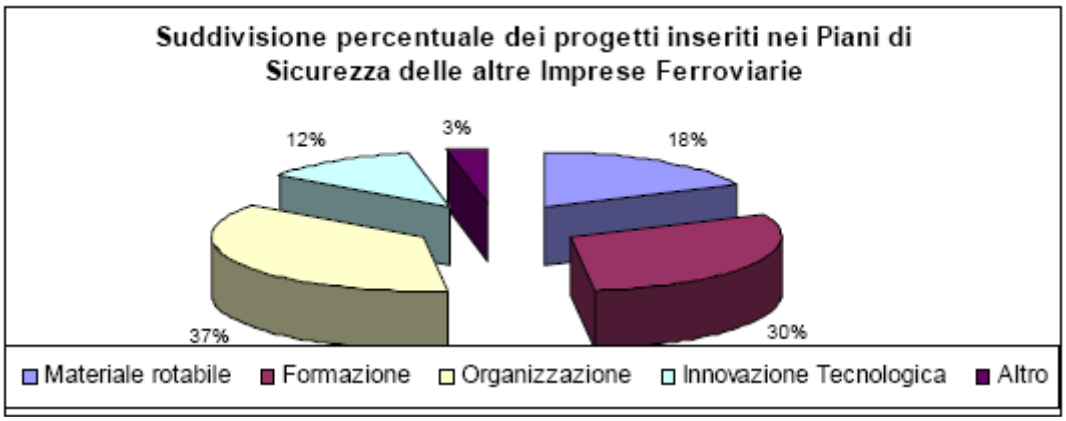
Any projects not falling into one of the above categories are indicated as 'other'.

Below is a summary of the implementation status of projects included in the 2006 Safety Plans. In view of its larger organisational size and the consequent increased number of projects included in Trenitalia's safety plan compared to other RUs, a separate summary is given for Trenitalia.
The charts show:
- the percentage of projects in each category; many projects fall into more than one category and appropriate percentages have therefore been attributed to the various categories;
- the percentage of projects completed; this percentage is calculated in terms of the actual commitment and resources used in projects compared to those planned;
- the percentage of projects completed in each category.

The following comments and charts are based on aggregate data provided by the RUs in the progress reports on safety plans at 31 December 2006. These aggregate data are

adversely affected by the fact that non-standard methods are used in their compilation and the fact that the data taken from the operating records of RUs' safety plans may be incomplete.
From the data supplied, it can be surmised that the main obstacles to the realisation and completion of the projects planned were sourcing funds, the availability of personnel, and overlaps with other projects.
In particular, in order to comply with Ministerial Directive No 13/2006/DIV.5 issued on 9.3.2006 by the Ministry of Infrastructure and Transport, the RUs were obliged to find the necessary resources to equip rolling stock with ATP systems, which meant that it was not always possible to complete other projects in the plan.

With regard to the final results for Safety Plans in 2006 for RUs other than Trenitalia, the progress of projects undertaken by Metrocampania Nord Est, which presented its Safety Plan during the year, was also taken into account.
From the progress of projects included in the safety plans, it is apparent that:
- approximately 37% of projects are on course in terms of schedule and planned commitments and have not undergone changes to contents;
- in terms of schedule, the remaining 63% can be broken down as follows: approximately 6% are on schedule, but entailed a different commitment in terms of resources; 5% have been suspended or cancelled; 40% are behind schedule, 10% have been replanned, and 2% are ahead of schedule.



Percentage breakdown of projects included in the Safety Plans of other Railway Undertakings

Materiale rotabile	Rolling stock
Formazione	Training
Organizzazione	Organisation
Innovazione Tecnologica	Technological innovation
Altro	Other

% for projects carried out by other RUs

% realizzazione progetti	% projects carried out
% completamento progetti	% projects completed

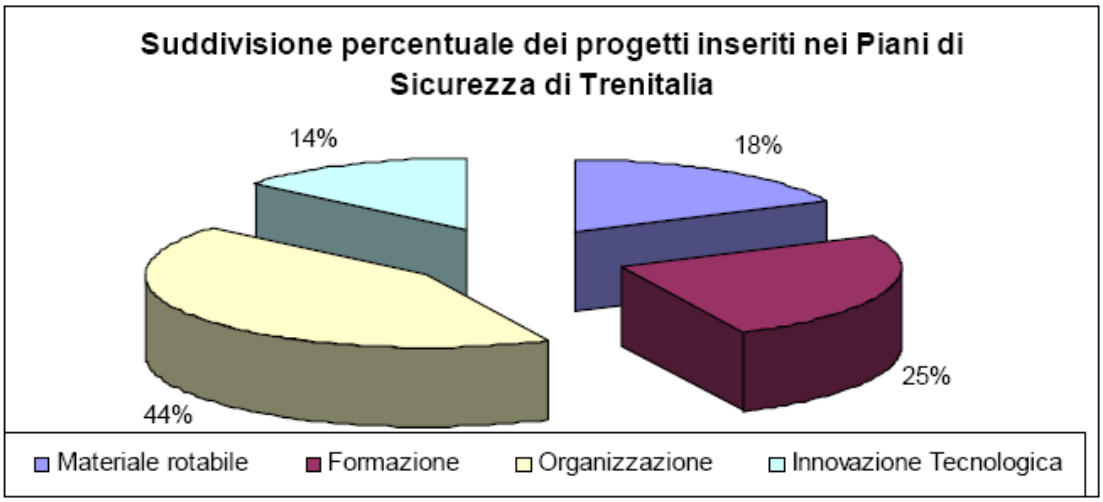
Percentages for RU projects carried out

Materiale	Equipment
Formazione	Training
Organizzazione	Organisation
Innovazione	Innovation
Altro	Other

From the progress report at 31/12/2006 for Trenitalia's Safety Plan, it is worth noting that:

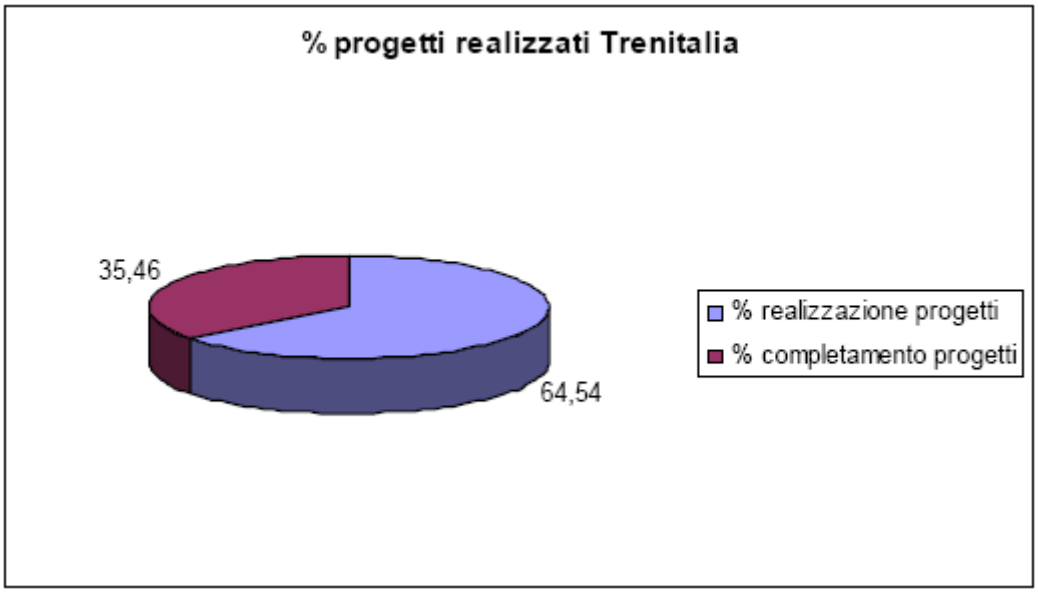
- approximately 30% of projects are on course in terms of schedule and planned commitments and have not undergone changes to contents;
- approximately 40% of projects have been replanned; of these, 70% required greater resources in view of the restructuring of the project, new contents or critical factors encountered during the year, while the remaining 30% called for less resources than planned;
- around 13% are behind schedule;
- around 13% are ahead of schedule;
- some 4% have been merged with other projects.

The final report contains details of two new projects that correspond to activities extracted from other projects included in the plan.



Percentage breakdown of projects included in Trenitalia's Safety Plans

Materiale rotabile	Rolling stock
Formazione	Training
Organizzazione	Organization
Innovazione Tecnologica	Technological innovation



% of projects carried out by Trenitalia

% realizzazione progetti	% projects carried out
% completamento progetti	% projects completed

Percentages for Trenitalia projects carried out

Materiale rotabile	Rolling stock
Formazione	Training
Organizzazione	Organisation
Innovazione Tecnologica	Technological innovation

PART H – CONCLUSIONS, PRIORITIES, SAFETY RECOMMENDATIONS

Rail transport, in particular the services provided on the network managed by Rete Ferroviaria Italiana, continues to be by far the safest mode of transport in Italy. When compared with the data available for other European networks it is clear that the Italian rail system continues to rank among the best in Europe for the safety of its train services.

An analysis of safety on the national rail network during 2006, considered with a comparison with similar data from 2005, reveals a drop in the number of fatalities and serious injuries due to accidents, and in particular derailments. Equipping the lines and traction units with automatic train protection systems is also playing its part. This project, which is due to be completed in 2007 in terms of the lines and by mid 2008 in terms of traction units, and the management of this transition phase are being constantly monitored by the Infrastructure Manager and the Railway Undertakings.

However, the data reveal an increase in the number of derailments, accidents at level crossings, and members of the public and railway workers injured.

In response to this trend, major investments have been programmed in the mobile diagnostic work carried out by measuring wagons in order to ensure a reliable and ongoing evaluation of the status of the superstructure.

With regard to the level crossings, work to close level crossings continues, but this needs to be accompanied by an incisive road safety campaign in order to reduce incorrect behaviour by road users.

On the subject of railworkers, special attention is being focused on training and skills maintenance, activities that call for further efforts and constant commitment.

Monitoring of activities affecting the safety of trains and railway operations during 2006 has highlighted a number of persistent problems in some critical situations, including training and skills maintenance for staff employed on safety work, the distribution of traffic safety-related documents both internally and among the various organisational structures, in addition to the maintenance of infrastructure and rolling stock.

These areas have been included among the critical situations identified by the Infrastructure Manager in order to draw up the safety plans for train and railway operations for 2008. These plans will define projects and activities aimed at eliminating or, at least, reducing these critical situations.

ANNEXES

Annex A: Information on railway structure

- Annex A.1: National railway infrastructure map
- Annex A.2: Information on Infrastructure Manager and Railway Undertakings

Annex B: Organisation of the Italian railway system

Annex C: Data on Common Safety Indicators

- Annex C.1: Definitions of Indicators given in Directive 2004/49/EC
- Annex C.2: Indicators given in Directive 2004/49/EC
- Annex C.3: UIC typical accident reports
- Annex C.4: List of UIC accidents in 2006

Annex D: Principal changes made to legislation and regulations

Annex E: Certification of Railway Undertakings - 2006

Annex F: Supervision of Infrastructure Manager and Railway Undertakings

- Annex F.1: General train operations and railway safety plan – RFI – 2006. Progress report on projects from central office at 31 December 2006.
- Annex F.2: General plan of train operations and railway safety – RFI – 2006. Progress report on Cesifer projects at 31 December 2006
- Annex F.3: Annual report on train operations and railway safety – RFI – 2006
- Annex F.4: Report on Cesifer monitoring of Railway Undertakings – 2006.
- Annex F.5: General train operations and railway safety plan for Railway Undertakings – 2006. Progress report on projects at 31 December 2006.