TWINNING PROGRAMME

'Enhancing the cooperation between Railway Infrastructure Managers for better safety management'

Enhancing the cooperation between Infrastructure Managers for better Safety Management

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Executive Summary

The twinning programme action was undertaken by a consortium of twelve member states across Europe. The consortium was then grouped according to matching criteria with a view to maximising the benefit and learning to be gained from experiencing the safety culture in each other's organisation.

This report will provide information on the conclusions drawn from the visits. However, key and common findings include:

Safety leadership is integral to the success of improved safety culture within an organisation. Organisational leaders create the environment that allows or inhibits the development of a mature safety culture. Authentic and demonstrable commitment to safety of public, passengers and workforce by influential infrastructure leaders throughout Europe is essential to continuously improving safety.

NSA (National Safety Authority) has the utmost influence and therefore a profound and inescapable effect on the extent to which safety culture can be developed within an organisation. For many member states, the degree to which they are expected to comply with rules set by the authority inhibits the opportunity for exploring safety culture. Similarly, the national culture and organisational culture impact on the internal safety culture and NSAs have a critical role in challenging, nationally and organisationally, to support improvements in safety, often in conjunction with other national bodies.

Demographics also play a major role in the growth of safety culture in an organisation. Discussions and analysis during the visits revealed that in some areas it is more difficult for an older generation to embrace the merits of safety culture activity – attitudes, expectations and drivers for safety have changed considerably and more long-standing staff need different support to change 'how they have always done things'. Similarly, there was a recognition that the 'generation smartphone' brings with it some challenges where the immediacy of use of technology can import its own risk.

Direct staff vs contracting staff require different ways of approaching safety culture based on whether the infrastructure organisation can set and enforce all safety rules/processes or whether they can only influence and govern/assure them.

Safety Culture KPIs – Safety Conversations and Close Calls

It was agreed in advance of the activity by participating organisations that the programme would be an ideal opportunity for the industry to test the potential key performance indicators for safety culture identified and proposed by the PRIME subgroup. These concerned two particular areas: a model for measuring 'safety conversations' within a business, and a model for assessing an organisation's method for reporting and analysing 'near misses'.

All organisations see the importance of considering human factors and safety culture within the SMS. The consortia members had many open and honest and challenging conversations evaluating their own safety culture and determining how to improve it. Learning from each other in this way was considered very helpful. However, making any comparison between

organisations was difficult due to many national and organisational factors that influence safety culture and indeed local human factors. The KPIs need considerable work to be helpful but it was felt that they should only ever be used a basis for internal review and a supportive challenging conversation for improvement rather than as an across Europe comparative scoring system.

Context

Initiation of the action:

The PRIME safety culture subgroup for several years had attendance from the European Rail Agency (now the European Union Agency for Railways) and during 2015 the Commission attended and offered help to facilitate the work being done on the subject and to support growth in this area, particularly with recognition that in 2020-2024 safety culture would be included within SMS for member states.

In 2015 the PRIME subgroup on safety culture made a proposal to the European Commission to initiate a twinning programme across Europe to support learning and sharing across EU/EFTA Member State rail infrastructure manager or an association of EU/EFTA rail infrastructure managers with a focus on safety culture. Accordingly, the EC launched a call for applications in April 2016. In its capacity as the potential coordinator of such a programme Network Rail presented at several events such as NSA meetings, national rail infrastructure manager events, CEO sessions and national training and learning sessions to encourage people to join the process. Twelve Infrastructure Managers put themselves forward to participate. The offer submitted by Network Rail was found to be eligible for grant funding.

Network Rail, as agreed coordinator, worked to prepare and implement the project as per the timeline below.

Overall timeline of the project

Network Rail was appointed as co-ordinator for the activity and a draft grant agreement drawn up by the European Commission

February – March 2016 – The co-ordinator invited potential participating infrastructure managers throughout Europe.
April 2016 - Organisations wishing to participate submitted their applications to the co-ordinator.
May – June 2016 - The co-ordinator worked with the European Commission to ensure that all of the necessary paperwork was completed.
June 2016 - The co-ordinator matched partners using specific criteria.
June 2016 - The co-ordinator compiled an overall submission applying for the grant.
August 2016 - The commission approved the application and gave consent for the activity to go ahead.
October 2016 – Participating countries began planning their visits and engaging with their partners
December 2016 - The grant agreement was signed by both parties
February 2017 - Visits began taking place.

December 2017 - Final conference took place, where findings were presented.

Eligible applicants

The invitation to participate in the activity and be eligible for a direct grant award was only open to railway infrastructure managers or associations of rail infrastructure managers.

Eligible activity

The Conditions for awarding grants stated the eligible activity criteria for the programme. It specified that the Programme Support Action should be implemented through two major activities:

- twinning programme;
- a conference to be organised at the end of the twinning programme.

To be eligible to participate, an organisation had to identify and enlist up to five staff members with management responsibility and the desire/potential opportunity to change and develop some aspect of safety culture through their job. Each identified twin partner was required to be paired with a colleague in another national network interested in a broadly similar development area, with acceptance depending upon a workable match. After identification and matching of twin pairs, twinning arrangements needed to be established and undertaken.

To be eligible for funding the twinning programme and the conference had to concern one or more of the following fields, related to the objectives of the Connecting Europe Facility in general and to the enhancement of the cooperation between railway infrastructure managers for better safety management in particular:

(1) safety management and behaviours;
(2) development of common principles for management of railway safety;
(3) occurrence reporting;
(4) transition towards a more mature safety culture;
(5) implementation of safety culture and management, both within organisations and cross-border.

These were translated into the suggested (but not limited to) areas as follows:

- Development of safety awareness/culture/commitment within organisations
- Sharing operational definition of safety concepts
- Transposition of successful stories in different organisations and national frameworks
- Sharing knowledge on safety systems, processes, tools and behaviours
- Identification of benefits of safety management and reporting
- Safety conversations
- Safety resources needs and management
- Identification and management of blocking points for development of a safety culture
- Cross-border integration of safety processes used in different countries
- Analysis of incidents and accident data, occurrence reporting
- Leveraging the exchange of experts to increase the level of safety awareness and commitment within hosting organisations

Application process

Rail Infrastructure Managers throughout Europe were contacted by the co-ordinator, and on occasions through groups such as PRIME and ERA, to invite them to apply to take part in the twinning programme. The draft grant agreement and conditions for awarding such were circulated to these organisations, along with an application form provided by the European Commission.

Nominated representatives in each organisation were then tasked with compiling all the relevant information and completing the paperwork and returning it to the co-ordinator by a specific deadline set by the European Commission. Network Rail as the co-ordinator then compiled the applications into one overall submission, including their own. This was sent to the European Commission, which subsequently reviewed and evaluated the applications.

At the beginning of August, the commission wrote to Network Rail to inform them that the application had successfully passed the evaluation and that the grant agreement would be drawn up and signed.

Matching process

As part of the application process, Network Rail asked all the applicants to identify areas from the proposed focus areas list in from the grant conditions document to select three of the priority areas their organisation would benefit most from exploring:

- Development of safety awareness/culture/commitment within organisations
- Sharing operational definition of safety concepts
- Transposition of successful stories in different organisations and national frameworks
- Sharing knowledge on safety systems, processes, tools and behaviours
- Identification of benefits of safety management and reporting
- Safety conversations
- Safety resources needs and management
- Identification and management of blocking points for the development of a safety culture
- Cross-border integration of safety processes used in different countries
- Analysis of incidents and accident data, occurrence reporting
- Leveraging the exchange of experts to increase the level of safety awareness and commitment within hosting organisations

Participants were also asked to state in their application how long they would wish to twin for and how many experts would be taking part in the exchange. The co-ordinator then assembled this information on a matrix and matched organisations as partners according to their desired topics and duration of visit. Initial pairing was based on learning and preference as follows (Table 1):

Country 1	People	People	Country 2	Matched Preferences		
Italy			France	Sharing of knowledge on safety systems, processes, tools and behaviours	Analysis of accident/incident data	
Netherlands			OEBB	Development of safety awareness/culture/commitment within organisations	fety management: monitoring of effectiveness of measures (CSM monitoring)	
Belgium			Croatia	dentification of benefits of safety management and reporting	Transposition of successful stories in different organisations and national frameworks	Leveraging the exchange of experts to increase the level of safety awareness and commitment within hosting organisations
Poland			Ireland	Sharing of knowledge on safety systems, processes, tools and behaviours	fety conversations	
Romania			UK	Identify/manage block points for development of a safety culture	xchange technical/ behavioural failures related to safety management	
Spain			Sweden	Identification and management of blocking points for the development of a safety culture	Identification of benefits of safety management and reporting	

Table 1

However, it was clear on further discussions that several organisations felt that their pairing would not give them as much learning opportunity as they hoped so instead of '6 twins' we extended into 3 larger groups and one twinning group. See Appendix 1 Matching participating countries for a complete breakdown of the matching criteria used.

Four groups were formed, as follows:

Group 1: Network Rail, CFR, HZI and Infrabel
Group 2: Adif, PKP and Trafikverket
Group 3: Prorail, Irish Rail and OBB
Group 4: SNCF Reseau and RFI

The larger groups with 3 organisations participating made visits to all countries.

Each twinning visit varied in length, but the maximum duration was 5 days; whilst all participants recognised the benefits of longer, more absorbing visits, the planning and back-cover required for this in both organisations was not felt to be possible within the time duration of the action.

Organisations unable to participate
Unfortunately, several organisations were unable to complete the paperwork to join the action within the prescribed timescales e.g. Norway, Hungary, Switzerland and thus the twinning groups maintained close contact with these organisations to enable them to gain learning alongside the action. A representative from Switzerland (SBB) joined the sessions in Vienna and Utrecht. ERA also joined part of the twinning activity with one of the groups and continued their support during sub-group meetings which occurred during the twinning action.

Visit details

Visit dates and locations (Table 2)

	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Visiting Organisation											
NR				CFR	INF						Conference
CFR			NR INF HZI								Conference
HZI				INF		CFR					Conference
PLK				TVK					ADIF		Conference
OBB	IR				PRO						Conference
Infrabel (INF)			NR	HZI							Conference
ProRail (PRO)	IR			OBB							Conference
Irish Rail (IR)				OBB	PRO						Conference
ADIF				TVK				PLK			Conference
SNCF		RFI									Conference
RFI		SNCF									Conference
Trafikverket (TVK)								PLK	ADIF		Conference

Table 2

The twinning visits were planned by each group as above. All visits had to be completed with sufficient time to analyse learning before the final conference on the 12th December 2017. Regular telephone conferences took place for all the twinning consortium to support design and planning and to share on-going learning.

Scope/purpose

Each twinning organisation was asked to conduct a twinning visit, that as a minimum allowed the visiting professionals to experience all the areas outlined in the Table 3 below:

Area of observation and exploration	***Activity and possible questions***
Senior leaders	Meeting with some senior leaders How senior leaders impact, enable or block the specific area of focus- what is their role in safety? Benefit to recipient organisation- the leaders have to describe their role in safety and are challenged to be part of leading the change rather than coming from safety professional alone
Data	How is data used to enable understanding of safety and to help manage safety culture? Review the data management systems and explore how this data is used for learning and improving safety- how proactive is this learning. How do senior leaders use data to drive strategy? Benefit to recipient organisation- the use of data as a learning tool is explored and there is challenge as to how data in the organisation is impacting on learning and safety improvement
Investigations and learning	What processes are in place to make investigations about learning and improvement? Is there a fair/just culture process or equivalent? Observe or discuss an investigation into an incident or near-miss/close call to understand how involved managers/staff are in learning; how broad/deep the investigation is in getting to root cause; how far the investigation spreads into looking at and improving system error/unsafe acts. Could include union engagement Benefit to recipient organisation- feedback on how robust their investigations are from an impartial observer; shared learning about management of behavioural issues
Front Line staff	Observation and discussion with front-line staff to understand how the system and processes set are delivered at front-line Participants will have the opportunity to visit staff who work track-side to review how the processes/systems and culture of the central management organisation impact on their day to day working How well are the messages received; what is used? How compliant are staff; how involved/engaged are staff with safety- what do they see as their role Benefit to recipient organisation: feedback on how well safety messages and initiative land and are re-enacted at front-line. Feedback from an impartial observer on the current safety culture
Industry partners	An opportunity to speak to key stakeholders- regulators, Train companies, contractor organisations How do the rules, processes and systems within the organisation align or embed within their partnering organisations? What is the culture of collaboration like? Look for evidence of innovation in collaboration with stakeholders Benefit to recipient organisation: Independent review of how collaboration and alignment is working. Spotting of opportunities to improve both collaboration and innovation. Engagement by jointly being part of the visit
Others	These might include training departments within the organisation, Human- resources, cross-industry competency management (eg sentinel), National investigation body. The content of these can be discussed when areas of focus are determined

Table 3

It was felt that having the opportunity to witness many different staff groups and activities in the host organisation would offer the greatest learning across the areas they identified in the proposal. Hosting organisations planned internal visits and wide engagement with extra staff at all levels. During several visits hosts also involved their contractors, stakeholders and suppliers.

All participants were asked to self-assess their organisations on the trial safety culture KPIs (Safety conversations and Near miss models) and to discuss these with their twinning visitors. More information in this is included later in this report under the section Feedback on KPIs.

Once the matching had been established and the groups were identified, organisations set up their own WebEx and planning events to prepare for the activity.

Personnel involved

Each organisation brought a variety of staff for the twinning activity (see Table 4 and 5)

Organisation		Delegate Professional Role					
	Country	Safety Manager	Safety Management Systems	Investigations	Safety Culture/ Human Factors Expert	Executive/other e.g international links	TOTAL
ADIF	Spain		3			4	7
CFR	Romania	1	1			3	5
HZI	Croatia	1	1		1		3
INF (Infrabel)	Belgium	1	2		2		5
IR (Irish Rail)	Eire		2				2
NR	UK	1	1	1	1		4
OBB	Austria					1	1
PLK	Poland	2	2				4
PRO (ProRail)	Netherlands	1		2			3
RFI	Italy		2				2
SBB	Switzerland	1					1
SNCF	France		2			1	3
TVK (Trafikverket)	Sweden	1	1	1	1	1	5
	TOTAL	9	17	4	5	10	45
		Safety Manager	Safety Management Systems	Investigations	Safety Culture/ Human Factors Expert	Executive/other e.g international links	

Table 4

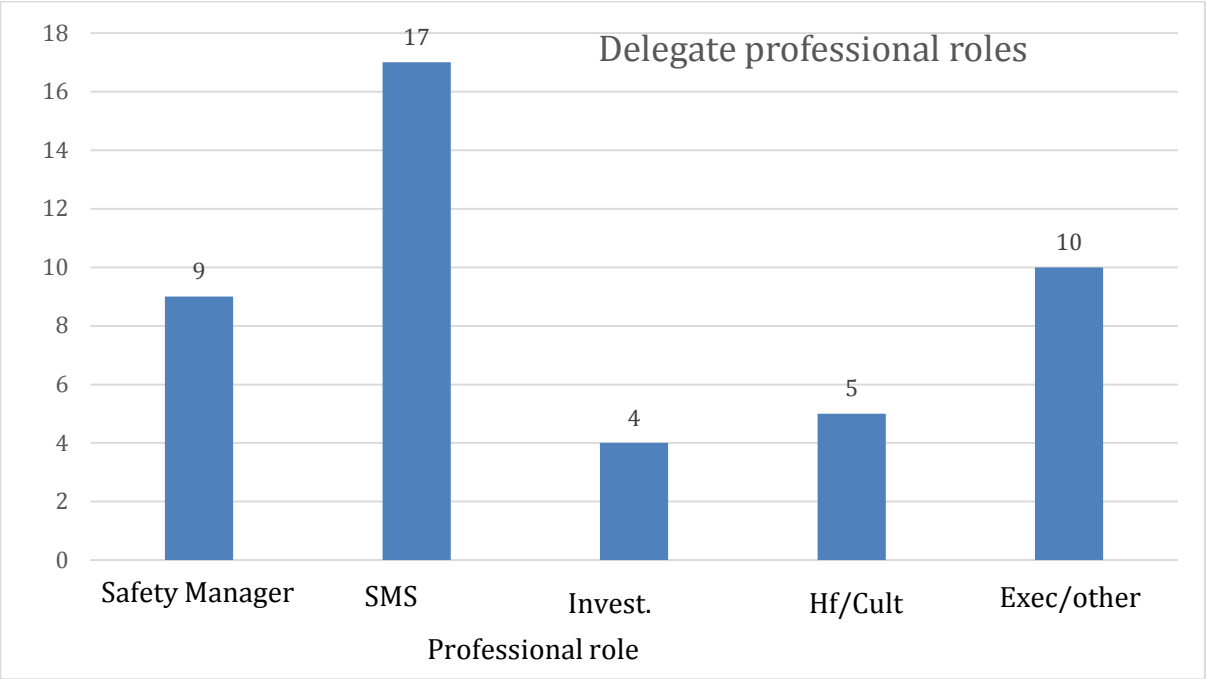


Table 5

A total of 45 people was directly involved in the activity with up to a further 10-20 people supporting the hosting from each organisation (a total of between 165-265 people approx.).

The table suggests that the largest group of people engaged with safety culture are directly involved with the SMS more generally. It also suggests that safety culture is still generally owned within safety departments although the number of senior mangers with more generic roles who took part suggest a shift towards safety culture being seen as a more integrated responsibility.

Learning from Twinning

The twinning programme highlighted five fields upon which experiences and learning would focus:

Safety management and behaviours
Development of common principles for management of railway safety
Occurrence reporting
Transition towards a more mature safety culture
Implementation of safety culture and management, both within and cross-border.

Different national infrastructure management organisations had their own priorities within this list and were twinned with partner organisations which shared many common priorities. For this reason, the learning achieved was often bespoke and would not necessarily translate as a priority for all delegate organisations. However, many common themes did emerge, shared across several partners:

A safe organisation requires that senior leaders prioritise safety and promote systems and a culture to embed safe practice.

The promotion and development of a mature safety culture is not a stand-alone process. Safety culture is embedded in national and organisational culture and the mechanisms to develop safer practice do not necessarily translate across these borders.

The delegate teams participating in the twinning visits contained many professionals. In analysing the professional roles of the delegates, these were roughly divided into four areas: safety management, safety management system professionals, incident investigators and safety and behaviour culture experts. Of the twelve delegations, only two included professionals drawn from each of these roles. Perhaps this suggests that these two organisations have a wider perception of the roles relevant to the promotion of safety within organisations and perhaps a more developed safety culture maturity. The most represented role in this respect was that of safety management systems professionals. One twinning pair focussed entirely on technical issues surrounding reporting and management of safety information and incidents.

Some national safety systems have been retained strictly in-house, whereas in some countries many safety critical roles have been outsourced. Clearly it is far easier to organise tight safety systems when in-house, as outsourced schemes can become fragmented. While it is possible to insist on common rules and their application, for example through commercial contracts, the sharing of a consistent safety culture is very difficult. Similarly, tight organisational arrangements are far easier in small organisations and jurisdictions than in large. Indeed, in some delegate organisations there is a clear 'family' pride in maintaining common and historic standards. However, when a central safety jurisdiction must be implemented through many small organisational elements it becomes far more difficult to be consistent. Common to several countries is the need to promote change through a developing safety culture, allied to the challenge of implementation via high proportions of long-established staff, often set in their ways and resistant to new ideas.

Systems and processes cannot be divorced from safety culture. These two aspects clearly influence, and feed off each other. There exists a 'chicken and egg' situation here – which comes first? Maybe it is the wider organisational culture which plays the key role, and the development of appropriate safety culture becomes a lens through which to view the whole organisational culture.

Whatever the detail of organisational systems and culture, all effective safety practice relies upon high quality communications both internal to the organisation and outside. Delegate organisations have developed and continue to develop more responsive and effective ways to communicate with staff and the public and to promote and train individuals and teams about expectations and actions. Internal TV channels, information booklets, VR simulations and role-playing games are used widely. Good examples of sharing knowledge and learning from incidents were seen that were non-technical but were based on close relationships between managers and their staff and a responsibility for ensuring safety learning as part of management. Some organisation were highly effective at sharing learning (rather then just information) quickly.

All organisations agree about the importance of fundamental and consistently applied rules e.g. NR 10 Life-saving Rules. Safety requires ownership of the rules by all those expected to follow them. To this end, the simplification of rule systems has been key, as is the move away from reliance on technical external standards (accounting systems), described as 'paper safety', to

real-world awareness and procedures, supported by consequences for rule-breakers in a 'fair-culture' environment.

Rules get applied and are complied with or broken. Sometimes it emerges that these rules are not fit for purpose. An appropriate safety culture requires compliance but has the facility for rapid review of rules and procedures and their overturning or modification if evidence shows the rules are wrong or counter-productive. This learning from mistakes requires the arbitration of a National Safety Authority and a National Investigations Board, resourced to be responsive to any emerging issue.

The identification of risk and the sharing of information, guidance and awareness is vital. Within many organisations there are developing formal systems like 'Close Call' at NR and embedded practice for regular safety conversations. It is difficult to compare the efficacy of these across organisations because there is not yet a common understanding of what to report. For example, there is not yet a shared definition of what constitutes a 'near miss' and so there is fairly consistent under-reporting of important incidents and probably an over-reporting of the trivial.

Different organisations must approach promotion of safety and a safety culture in different ways. There is no one path to success. However, there is a shared understanding that rules alone do not make railways safe. Success requires an embedded culture where every member of staff feels personally responsible, and more importantly, personally empowered, to promote safe working practices. Individuals feel confident to challenge unsafe behaviour or systems and speak up to actively promote the best and safest practice for themselves, their colleagues and the public.

All participating organisations have valued the opportunity to observe and learn from fellow safety professionals within the European railway industry. Some problems and issues are common, and shared solutions make everyone's lives easier. Some issues may be unique, but learning from colleagues, perhaps working in a different culture, enables all to reflect on their own practice and constraints, and so become reflective practitioners and more effective professionals within their national jurisdictions.

Feedback from the KPIs

The PRIME safety culture subgroup, which comprised of a large number of twinning participants, identified two viable metrics by which an organisation's safety culture could potentially be indicated. The possiblity has been discussed and developed that these could be proposed as industry-wide KPIs in years to come. The group recognised that the twinning activity would provide an ideal opportunity for rail infrastructure managers to test the models. The first area concerns 'Safety Conversations', and the second 'Near Miss'.

Safety Conversations (model below)

The ability of staff in an organisation to discuss safety in a mature way was identified as being key to culture. Communication, the way we talk about things, is of course very indicative of culture itself, therefore what better way of analysing the level of safety in a business than by looking at how it is discussed. The group acknowledged this begins with leadership; if senior leadership are not able to talk about safety, then it is unlikely the business will either. Beyond this, the model enquires about when safety is discussed and in what way, e.g. is it only discussed

in a reactive sense following an incident? Do staff feel confident to discuss safety proactively? Are the conversations about safety well-balanced and are staff empowered to challenge, or is the dynamic very hierarchical?

During the activity the consortium members applied the model in their activities, where possible, in order to shape a picture of maturity level. It was found that some organisations have scheduled programmes of activity in this area – assigning their own trackers of conversations around safety in which leaders, in particular, are taking part. Beyond this, the model sought to establish how 'organic' safety conversations are, therefore whatever the visiting organisation would be introduced to, whatever area of the business or task or tool, an opportunity arose to assess how naturally safety is discussed.

The feedback on the model is that it is certainly a viable one for the future, but that it requires further development to incorporate higher cultural challenges: how 'rule-driven' an organisation is, how directive the leadership is and the national 'style of culture' will largely dictate the nature of safety conversations and this needs to be factored into how the assessment is qualified.

Maturity level	1	2	3	4	5
Leadership on safety conversations	Not visible. Other things go first	Involvement after an incident. For the sake of the process. Focus on what went wrong. Closed/one way communication - no questions	Planned and fixed involvement. Focus on what others can learn. Instrumental approach	Real engagement. Actively checking what is learned, sharing lessons learned in teams. More challenging.	Also focus on own learning. Use of story telling to motivate others. Sharing lessons learned industry wide
Leaders...	"give no priority"	"must do"	"want to"	"lead"	"inspire"
Planning of safety conversation	None	Unplanned, ad hoc, on the spot	Structured planning by safety staff	Structured planning with more flexibility	Less explicit planning
Support – instructions/ training	No drive, no interest	Basic instructions for managers ("do that")	Competences defined, specific training in place	Part of company's competence management	People trained for open discussion
Support - documents	None	No fixed use of documents	Fixed checklists and procedures. Part of SMS	Toolkit available in SMS, flexible use - context based	Any document can be used, also outside SMS
Operation - who performs conversations?	Nobody/unclear	Manager-worker	Staff-manager Manager-worker	Everybody, in all processes related to safety	Everybody, also across company borders
Performance evaluation & improvement	Poor/none	Unstructured, main focus on quantity	Organized, system in place. Use of checklists: "have you done it?". Focus on quantity	Organized, focus on quality: "have you done the right things?". Also checking follow-up	No explicit measurement, more trust: learning is standard

Close calls/near miss model (below)

Similar feedback was given to the near miss model which the consortium agreed to trial during their visits. Organisations further along the safety maturity journey, comparatively unshackled by the rules imposed by their NSA, have been able to flourish in this area, whereas organisations

who are still in the gradual stages of developing safety culture have not had the benefit of driving a near-miss reporting culture to the same degree.

It was recognised that all participating organisations have some mechanism or other of capturing this information and certainly appreciate the integral value of the data, however these mechanisms – and the extent to which they are embraced and used – were variable and more established in some than in others. The notion of trust amongst workforce was reported as a fundamental factor in the development of a near miss-reporting culture; many organisations acknowledged that their workforce are possibly not quite at a level yet whereby they would have the confidence to report unsafe conditions and acts, particularly when it may impact or reflecy negatively on a colleague.

There was confusion about terminology about 'near-misses' and it was recognised that what we were actually trying to measure was safety learning which would remove much of the confusion. Overall, whilst the reaction was positive, the consortium recommended that the model would need a good deal more work in order to be viable, and this would again largely involve factoring into the metric cultural differences and wider maturity levels.

Metric description		Level 1	Level 2	Level 3	Level 4:	Level 5:
This metric looks at the organisations ability/desire to proactively look and manage safety risk throughout the organisation	Learning	Risk managed only post serious incident Investigations discover obvious cause only-Often from regulators Serious accidents blamed on individuals no root cause analysis	Investigations of all safety incidents- Outputs rarely used for safety improvement. Learning only as a reaction to major problems	Initial reporting of safety issues pre accident but learning from close calls doesn't drive improvement. Numbers driven- information over-load and seen as an additional load rather than useful information	Starting to adopt a risk based approach. Starting to look at organisational failure. Root cause analysis. Trends and themes captured	Close call number have reduced because close calls are mainly around behaviours- close call challenges current thinking and planning at all levels in the organisation
This metric evaluates the maturity of a system within the business to record, analyses and feedback information on reported safety issues through the business	Process	No close call in place. Investigations reactive	Reporting system available-Education on system use not outputs Targets for reporting quantitative only. Close calls only made by most staff through management instruction	Development of a process to support the learning from the system eg managers responsible in the busiess for review and close out of calls including feedback- howvere at this stage this is not fully effective. Close calls 'encouraged' by target setting	System available and feedback provided. Still some staff suspicion about value of system. Some quality data not just quantity. Feedback regular and asked for by reporter. System understood and used. Train operators and wider industry involved too	Close calls used to improve processes and reduce risk and information from close call shared and used for industry improvement. Close call information is owned by all business, front-line, corporate an leadership an thus impacts on decision making. reporters are part of the safety solutions.
This metric looks at the ownership of safety learning as indicated by business wide leadership of safety data collecting, analysis and learning for improvement	Leadership	Focus on commercial safety. Safety seen as a front-line issue only. No fair culture (or equivalent process) thus no consistency of approach or consequences Leaders interested in safety when it affects performance	Leaders need development to champion close calls- extra responsibility seen as an extra load. Rare Feedback to reporters. Main responsibility seen only at front-line leadership thus limiting systemic learning	A drive from management to do close calls but little support to use for improvement- target driven. Poor quality of feedback to staff who report. Close call made by all staff including senior leaders	Management interest in close calls throughout the business. Engaged and use data for their decision making. Investigations inclusive and fair. Monitoring of interventions	Culture of trust and confidence of learning system which includes close calls system. Data used to understand issues, themes, and risks and all staff see safety as their responsibility to both report and resolve- leaders enable this by listening, questioning and demonstrating use of close
		No priority	Must do	Want to do	Lead	Inspire
This metric looks at the driver to create and use a close call system	Who owns	External regulatory pressure to investigate incidents/close calls/near misses	Owned by safety professionals- little reporting in rest of the business. Investigations only by safety team. Someone else should fix issues	Senior leadership recognise a need to change and to look at safety reporting as a whole business process but see the accountability as that of the safety teams only. A process is created to record close call data in a wider context	Close calls owned by senior leadership/board. Data regularly interrogated in senior meetings. All starting to use a risk- based approach- reporting unsafe conditions and acts. Behaviour of others and self regularly close called.	Owned by everyone- proud to be part of it- safe behaviour part of company DNA. Awareness of information from close calls high throughout business- with a desire to use it to create safety improvement. Process owned locally. Fair culture truly in place
This metric looks at the maturity of data analysis as part of a close call reporting system	Measurement	Measurement is many of accidents rather than near misses or pre-cursor data Reporting as a tick box- seen as an annoying and not valuable management requirement.	Some engagement with process but different measurement across business- and still seen as big numbers best- poor closure. Extra load on investigations seen as negative.	An increasing value experienced in availability of data and not just from meeting targets. Local initiatives demonstrate the value of reporting. Sharing across business from preventative learning is starting	KPIs on close call include not just numbers but outcomes too. Investigations look at control measures including human error. Leading KPIs for close calls. Equal emphasis on high risk close calls as on incidents	Open data sharing in industry. Fewer close calls as unsafe behaviour not tolerated. Investigation of all safety risks increases both safety learning and improved safety ownership throughout the business.
This metric describes the outcomes from reporting	Outcomes	No real outcomes	Lots of data	Some thematic data on serious risks- some learning	Thematic and some pre-cursor data- understanding and mitigating of root causes	Predictive data used to prevent incidents- learning and few repeat incidents- all control safety risk

It was agreed that individual organisation scoring would not be shared but that the process would be used to evaluate the use and effectiveness of the KPIs and to support robust safety culture discussions between the twinning groups.

The exercise proved to be invaluable in so far as the twinning visits did provide an impartial platform from which the industry could give constructive feedback to how these tools could be made more robust and inclusive.

Overview of the final conference

On the 12th December 2017 the final conference for the activity was held in Birmingham, United Kingdom. A brochure for this event is included as an appendix to this report.

The purpose of the event was for representatives from the participating groups to come together in one forum and share their findings with guests from across the industry. Almost 100 people from the European rail industry attended to watch the presentations and gain an insight into the proactive nature of the programme. An introduction was delivered by Keir Fitch from the European Commission and concluded with remarks from Bart Accou, European Union Agency for railways (these words are included in Appendix 1). Throughout the day each group took to the stage to deliver a joint presentation on the key learnings from their visits and to promote use of positive tools and processes they had identified in their partner organisations.

The intention of the activity was to share information and best practice. With this in mind, the final conference was merely the beginning of a further activity for the consortium: to continue to develop the work into safety culture, and to continue to promote the work done through the twinning programme. Various materials – presentations from the conference, associated materials and this report amongst other things – will be made available and readily accessible to the industry via links provided on the final page of this report and via other channels where possible.

Next steps

The consortium members have committed to continue promoting the output of the twinning programme throughout the industry. Similarly, the relationships that have been formed through the activity continue to prosper and the findings made by the participating teams will continue to be developed with reciprocal support.
The findings made will also continue to be explored, as will the maturity models regarding safety conversations and close calls, by the PRIME subgroup tasked with developing safety culture for the industry. This group was instrumental in the initiation of the twinning programme and still comprise of a significant number of the representatives who participated in the activity. The group convene four times a year and have most recently met in Utrecht on the 6th and 7th March, where the subject of the twinning programme findings and maturity models was discussed. Positively, the group has now grown in number, with more rail infrastructure managers becoming members of PRIME and discharging their experts to be part of the subgroup.

At this meeting, the subgroup discussed the potential for further twinning activity to progress the activity with the following approaches:

Identification of core key findings from the programme to focus on
Varying the size of groups and making visits with different partners
Establishing a consistent theme or topic area for groups to explore
Opening the invitation to more organisations

The participants have recognised the value of the twinnning activity and have suggested to the European Commission that they consider funding further activity in 2019.

Useful links relevant to the activity

- Twinning material available on Safety Central (safety resource website for domestic and international community)
- https://safety.networkrail.co.uk/safety/industry-groups/european-safety-culture-twinning-programme/
- PRIME safety culture subgroup
  https://webgate.ec.europa.eu/multisite/primeinfrastructure/content/subgroups-2_en
- European agency for railways
- http://www.era.europa.eu/Pages/Home.aspx

APPENDICIES:

Appendix 1:
Closing address

The Safety Culture Twinning Programme Conference (Birmingham, 12/12/2017)
Closing Note –(B. Accou) on behalf of EC and the European Union Agency for Railways

'When this PRIME Twinning Programme started, I was still sitting at the other side of the table, as Head of Safety of one of the participating infrastructure managers, pushing for my organisation to participate. Pushing, because I believe in the power of exchanging practices – there is always something to learn.
After what I've seen today, now representing the Agency and the European Commission in this closing speech, I must admit that even at that time I did not expect that the results of this Twinning Programme could ever be so positive. I'm impressed by both the quality of the presentations and the way they achieved to bring realism and pragmatism into the concept of safety culture.
This for me is clear evidence that the Twinning Programme succeeded in fostering an exchange of good ideas and practices on behavioural safety in railways. But it did more: it managed to have the involved organisations to speak up openly, both on their strengths and weaknesses, and to critically reflect on their own practises. It is this openness that actually creates the right conditions for learning and I believe also to be speaking on behalf of the Commission, when I say that this is the type of initiatives that can actually help to improve the railway system at a practical and operational level and therefore fully deserves our further support'.

Appendix 2:
Learning and next steps from each twinning organisation:

ADif:
Learning with Trafekverket
In relation with these key findings, the key learning points that must be remarked from this visit should be the importance of the leadership and the commitment of the top managers to set up the vision that must guide all the company, establishing clear and achievable objectives, providing the resources needed and being the engine that impulse all the necessary changes that must be implemented to achieve the goals.

Another important learning is that when a company wants to implement a change it´s really important to define a clear model of the change. It must be easy to understand in order to ease the organization where it must lead to. It´s also necessary to emphasize the need of clear processes and procedures that can be easily followed, avoiding unnecessary complexities. Otherwise, the resistance to the proposed change will be greater and more difficult to implement.

Finally it´s important to underline that the culture of each country influences in the safety culture of the companies, so the actions needed to evolve towards a more positive safety culture can be different in different countries. It doesn´t exist a unique solution that can be used in every place, and these differences must be taken into account when a change in the safety culture wants to be driven.

Learning with PLK

The most remarkable learning related to the visit to Poland is that to improve the safety performance sometimes it isn´t needed a huge budget, just good ideas to implement. For instance, PKP-PLK has put in touch with famous Polish youtubers to influence the young people of their country and explain to them which are the risks related with level crossings, and which should be the behaviour that a driver must have when going to cross one of them. Youtubers are followed by young people, but also young people influence their parents, so in this way they have changed and improved the safety culture in their country.

It has to be mentioned also that the commitment of the top managers is decisive to implement the safety measures needed in the company, which allow obtaining good results. In recent years PKP-PLK has drastically improved most of their safety indicators due to a change in this aspect in senior managers.

Other key learning is the importance of collecting just the useful information, and the value of the analysis made of it, which will be essential to choose and implement the appropriate and effective safety measures. All these processes must be followed by the definition of appropriate indicators that help to detect the deviations to restart again the process.

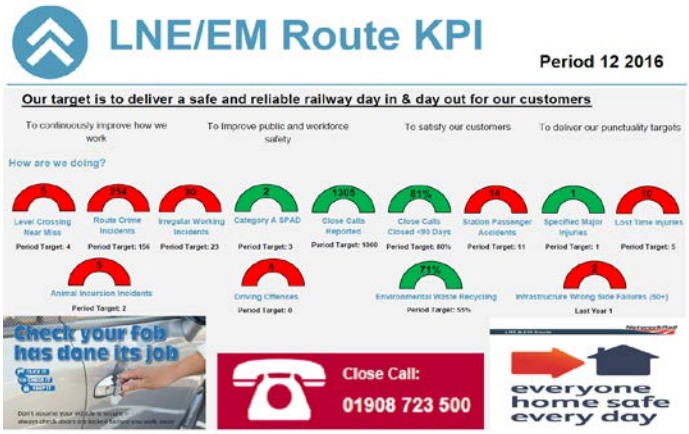
CFR:

We consider that the visits have achieved their purpose, in the sense that the representatives of CNCF "CFR" SA understood how the NR and HZI are organized, the level of implementation, development and improvement of the Safety Management System, the way of investigating the accidents / incidents, etc. Good parts have been noted and can be taken over and implemented.
Following the visits to NR and HZI, information on how to implement the safety culture was gathered, and in order to improve work within the CFR, debates were initiated to address the following:

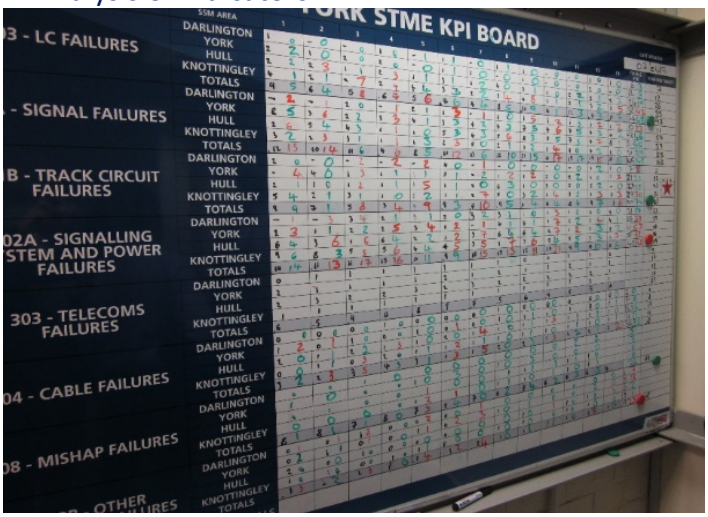
- Stimulate communication of safety issues from the bottom (the worker) to the top (the manager) level.
- Better involvement of managers in security conversations.
- Improve the existing CFR safety conversation system and improve the rapid alert system in the event of railway accidents / incidents and the transmission of the results of their investigation.
- Awareness of the managers about the example they must give regarding the safety at work.
- Improvement of Safety Management System procedures, in particular on how to set objectives, risk management and internal security audits.

Ten simple statements ('one liners'), with pictures, quotes and headlines of the learning from the visits.

1. Setting objectives and indicators.



2. Analysis of indicators.

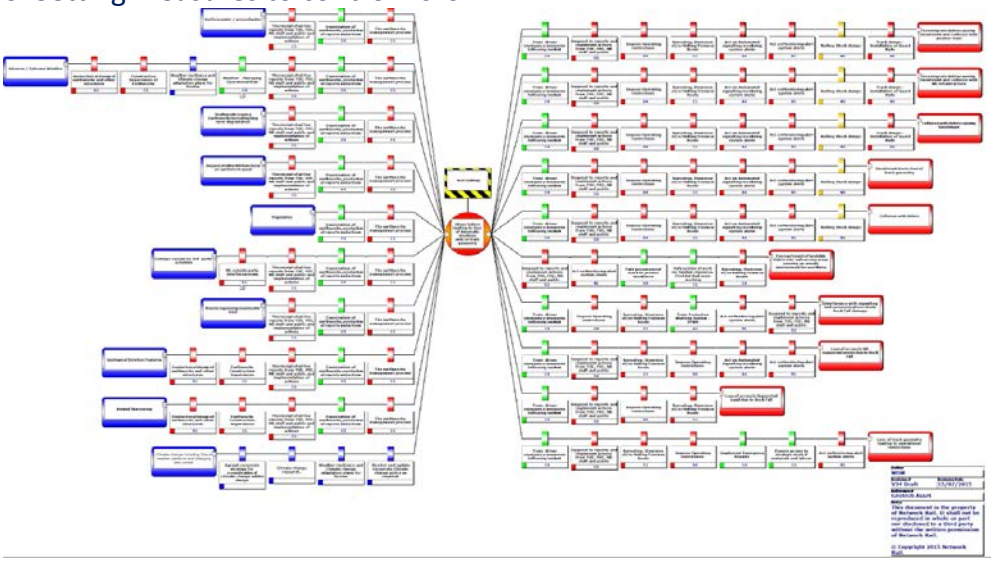


3. Setting priorities according to the proposed objectives.

4. Everybody gets home safely every day.

5. Define rules that save lives.

6. Setting measures to control risks.



7. Continuous improvement techniques can be used to keep track of the implementation of control measures.

8. Improve communication within the company.

9. Employing managers to improve safety culture.

10. Awareness of contractors to ensure safety during the works.

HZ:
Learning with Infrabel
The key findings according our visit to Infrabel were:

- Safety Culture and its internal and external communication
- Signal Controlled Protection System for Track Workers

Our key learning point about Safety Culture and its internal and external communication in Infrabel was way of using all reachable tools to achieve an effective safety communication. Among all presented internal and external communications tools we would like to highlight the next few:
Internal communication

Safety First logo in every Infrabel's room
Internal TV
Booklets for every employee
External communication

TV safety spots
Theoretic course with giant board game
Theoretic course with virtual reality

Safety First logo

Internal TV

Booklet for every employee

Booklet for every employee

Giant board game

Virtual reality

The knowledge and experience about Safety Culture and its internal and external communication, gained from the exchange with Infrabel - we will use to improve our own communication strategy.

Our key learning point about Signal Controlled Protection System for Track Workers was the way of using modern signal controlled protection system with an aim to expel the classical approach of the track worker protection with lookouts and reduce possibility of accident and incident occurrence.

ZKL3000 - Signal Controlled Protection System (zones with track circuits)

ATW Tx - Signal Controlled Protection System

The knowledge and experience about Signal Controlled Protection System for Track Workers gained from the exchange with Infrabel - we will use to improve our own strategy in the field of track worker protection while doing their work on the track. We will focus on reduction of human factor and the classical approach of the track worker protection.

With CFR
The key findings according our visit to Infrabel were:
Safety Analysis of Railway Traffic
Metal Theft Risk Management

Our key learning point about Safety Analysis of Railway Traffic in CFR was way of internal communication about safety issues that include the next measures:

Quarterly meetings in which railway safety activity is analysed
Analysed circumstances of occurrence and cause of accidents and incidents
Measures taken to prevent similar accidents and incidents
Way of accident prevention

Participants of Safety Analysis Meetings		
HQ Level		Permanent way and Signaling Direction – Director, Staff with a training and control duties - Safety Department – Safety manager, Safety experts
Regional Level		Permanent way and Signaling Division – Regional director, Head of exploitation divisions, Head of units, Regional staff with a training and control duties - Regional Safety Department – Head of Regional Safety Department
Units Level		- Permanent way and Signaling Depots – Head of units or subunits, Staff with safety responsibilities - Railway stations –Staff with safety responsibilities Traffic coordination centers - Staff with safety responsibilities

In the meeting minutes must mention the documents presented and those discussed during the meeting and have it signed by the persons who participated.

The knowledge and experience about Safety Analysis of Railway Traffic gained from the exchange with CFR, we will use to improve our own system of internal communication about safety issues.

Our key learning point about Metal Theft Risk Management in CFR was how to effectively deal with a wide-spread problem of thefts in the railway infrastructure. It has multiple implications for the company's activity and involve in-depth analysis not only in terms of traffic safety but also from the point of view of labour protection, costs and access contracts concluded with RUs. Among all presented measures to mitigate these risks in line with the company's performance requirements we would like to highlight the next few:

At legislative level:

Changes in the national legislation regarding trade with scrap metal stating the prohibition of the purchase from natural persons of ferrous and non-ferrous metals and their alloys used in the railway activity.
Cooperation protocols between the Ministry of Transport and the Ministry of Administration and Internal Affairs and between the Police General Inspectorate, for the prevention and fight against the criminality specific to the railway infrastructure.

At organisational level:

Creating a system for advising and highlighting in real time, the thefts and destructions of railway infrastructure components;
The periodic analysis at regional and central level, of the situation of theft and destruction of railway infrastructure components, resulting in precise information about the stolen or destroyed components, the frequent occurrences of such facts, the moment when the theft or destruction take place;
Measures for protection of railway signalling and tracking installations by replacing copper with steel conductors or by burying them, by replacing carcasses and subassemblies made of aluminium or cast iron with those made of plastics where the technical conditions allowed it or by changing the closure systems of the exterior cabinets in which signalling equipment operates;
There have been created warehouses for the small track material, railway tracks, railway sleepers, etc. in places specially arranged for this purpose, where there are means of surveillance;
The presentation in press articles of the implications of the thefts to the railways



Examples of metal theft

The knowledge and experience about Metal Theft Risk Management gained from the exchange with CFR we will use to improve our own system of theft preventions.

Trafikverket:

To be part of the Twinning programme has been a great opportunity for Trafikverket to look at other infrastructure manager's safety work and their safety management system to better understand how safety culture is part of it. We also realised how difficult it is to 'speak the same safety culture language when e.g. the culture of the nationality and company cultures are different.
Both PLK and ADIF have a clear structure of the processes and the safety management system and a dedicated safety department with clear responsibilities within the organisation. Especially ADIF has structured all the processes according to the High-Level structure of CSM which probably is a huge advantage for efficiency. As an 'outsider' it was very easy to recognise the different processes and understand what they were all about.
After benchmarking ADIF and PLK it confirms the necessary improvement work Trafikverket has identified and partly started to carry out. Trafikverket processes and procedures are not transparent and the support tools are not so efficient. Today's safety management system is fragmented. Although, we have more of a set of Safety Management Rules we could work on the safety culture for parts of the processes in the safety management system, e.g. reporting

process/procedure but the learning cycles is not in place and it probably won´t give any long-term results.
Due to the weak points of Trafikverket SMS we cannot work systematically with the safety issues and safety culture in a huge organisation like Trafikverket. See also report “Uppdrag kort- och långsiktiga förslag på åtgärder för att stärka säkerhetsarbetet på järnväg”.
Trafikverket has the same situation as ADIF when it comes to outsourcing processes under the safety management system. It is very hard to write the right safety requirements in the contract. It is also difficult to check if the contractor really follows the procedures that they say they use including to check the safety culture by the contractor. Many times, the lack of a good safety level becomes obvious when there is an accident. The difference between a good safety level and luck at the contractors is very difficult to find out.
In summary, the most important lessons learned from the exchange is that, within systematic safety culture area, Trafikverket still have development potential and can learn a lot from other countries, most prioritised should be to:
Assure that Trafikverket SMS complies to the CSM-rules
Trafikverket quality management system, in which safety management system is integrated, needs a clearer structure, preferably based on the CSM-rules, and better support tools in order to work more systematically with safety and safety culture to get long term results.
State clear mandates and resources to a central safety department
Make a strong central safety department that has mandate, resources and competence in the different CSM areas. They should have the responsibility to plan, develop, organise and coordinate the different safety areas with support from and within Trafikverket, as well as state the safety rules and inspect the safety work at the different departments of Trafikverket. They should also have the responsibility to:
Make long term plans on improvement and reviews of safety culture.
Assure systematic development of safety indicators, reporting and follow ups.
Assure that the organisation works systematically within safety and to review that this is done.
Develop design rules regarding usability and human-system interface for less human errors and better workload for the employees.
Develop the tools for a continuing learning cycle to improve safety. The experience feedback loop should e.g. be improved through better root cause analyses regarding human errors, the willingness to report and assure systematic learning and feedback from incidents and accidents.

Infrabel:

What will we do with the knowledge, experience and information we have gained from the exchange?
An internal feedback session about our key findings was organised on 29/01/2018 for all Infrabel experts that participated in the programme.
A short general feedback video was shown on the internal Infrabel TV.
All documentation obtained during the programme will be shared within Infrabel via share point.
A list of ideas of potential interest for Infrabel will be discussed with the relevant platforms and committees, f.i. practical use of 10 life-saving rules, safety hour, yearly assessment of the safety culture programme, remodelling of the investigations processes in order to establish a preventive way of dealing with risks, human factors, pre-cursors.
Feedback about the key findings and ideas of potential interest will be presented to the Board of Directors of Infrabel.
We will continue sharing information and learning from each other, thanks to the good contacts built during the twinning programme!

Our key statements on the twinning programme:

Irish Rail

1. Close call and near miss reporting:
   Colleagues are commenting the reporting process is difficult to complete.
   If nothing negative actually happens and there is no evidence to suggest something untoward occurred, a close call or near miss will probably go unreported.
   The term 'near-miss' is associated amongst Infrastructure staff with being nearly struck by a train and could be misleading staff into not reporting events of a differing nature.

   2. Irish Rail does not publish enough detail about incidents. People only hear about incidents local to them.

   3. The perception amongst staff is that the safety is constantly improving.

   4. In breaking a rule colleagues only think of the immediate impact of breaking the rule. Consideration is not given of the wider 'system failure' consequences that a number of minor individual violations could cause.

   5. Even though by size comparison with the twinning partners, Irish Rail is a relatively small organisation, it faces the same challenges as the other two companies.

Network Rail

1. National bodies
   National bodies have a strong impact on the focus for safety in the organisation. This can be supportive or limiting. During our visit to Infrabel we saw that the focus of their NSA on fencing as a safety issue meant considerable effort and monies were channelled to fencing even though other risks had been internally evaluated as of higher priority. A strong focus in CFR on operational risk, to the exclusion of workforce safety, were both driven by the relationships, set up and emphasis from the governing bodies. Indeed, in CFR having separate regulatory bodies for train operation risk and another for workforce risk seemed to result in more effort in areas where the regulatory body was strongest and most influential. This potentially had a big influence on how occupational health and well-being and human factors were considered in safety incidents and accidents. We reflected that our own relationship with our regulatory bodies, particularly the Office of Rail and Road (ORR), has developed considerable over the past 5 years and in considerably more collaborative fashion, with Network Rail more often experiencing them as 'critical friends' helping us to be our best.
   Because of this learning Network Rail is working in closer collaboration with ORR. In addition, we are strengthening our collaboration with our trade unions around health and safety so that safety is experienced as a united approach.
   To ensure clarity of behavioural requirements, Network Rail is striving to pull together the leadership and behaviours needed for health, safety, environment, security, and care so that we simplify and make more manageable the change needed and truly show how good safety behaviours deliver great performance.
2. National Culture, particularly in relation to safety culture.
   We experienced the impact of national culture on internal safety culture. In Belgium there is a strong national learning culture and an expectation to review, problem-solve and learn. This was mirrored in the Infrabel approach to learning from incidents and the interactive designs of their

learning interventions. In Romania the culture towards safety is much more relaxed and greater risks are generally taken in dangerous conditions. Indeed, we saw people regularly crossing the line when trains were coming, less focused attention to driving (for example no seat belts) than you generally see in the UK and people working in construction with limited protection. To then mandate strong rules around safety behaviours within CFR becomes far more of a challenge.
The UK has a good safety record and a national commitment to safety which enables our internal safety culture. However nationally the degree of risk learning in childhood has changed and that combined with a much wider cultural diversity in our organisation and particularly at front-line means we need to look differently how we manage different safety perspectives. It was also clear in Romania that they will have greater safety challenges as their infrastructure develops. The risks on their railway for both staff and passengers are affected by the fact that they have few and slow trains - the likelihood of incidents is less frequent, and consequences **may** be less too. This is a similar position to several of our rural lines and may impact on the behaviour of both staff and passengers there too. As a result of the visit there will be some research into the impact of train frequency and speed on local behaviours.

3. Learning culture

Both Infrabel and CFR had a very strong link between safety incident/accident learning and training events. In CFR the regulatory body has oversight of all recruitment and training and thus the training has a positive and highly visible link to European regulations. Whilst this has some obvious advantages there was a sense that this did not demonstrate trust of CFR by their regulators. All staff have monthly training which includes an overview of any incidents or accidents, for learning.

Line-managers must have been in CFR for 8 years before they can take on people management and this appears to build credibility and a deep line-management knowledge of their staff. Any absentees from monthly training catch up on a one-to-one basis on return with their line manager. The role of front-line leaders is obviously seen as highly important in CFR.
Infrabel has a high commitment to both technical and non-technical training. Every job has a specific training of between 30-60 days; there is also Induction safety training of 1.5 days for all new starters from the safety team; In Infrabel any incident is analysed from multiple view points to get to the root cause. Infrabel showed an unusual proactive examination of failures of a particular procedure. This very thorough approach produced real learning about process and procedural failure; however, the lack of a fair culture process did still mean there was a tendency to revert to individual responsibility and blame for errors. Infrabel was extremely strong on using

new technology for the benefit of learning and we saw two great examples one for look outs and one for trespass.

Although Infrabel is developing technology to remove the need for lookouts it has recognised that in the interim they need lookouts to be higher skilled and are therefore using virtual reality to give direct feedback, both to the individual and their line-managers on strengths and developmental areas.
Similarly, they are using virtual reality to produce a hard - hitting campaign produced in conjunction with and for 14-19-year olds

As a result of the experiences in both CFR and Infrabel around learning, closer links have been made with Network Rail Training to support quicker and more robust incorporation of learning from events into live classroom sessions. The information on the virtual reality tools has been shared with the relevant departments in the business. The safety hour sessions are also being developed to provide more effective learning and ownership of safety improvement.

4. Safety Leadership

In both CFR and Infrabel there was a clear recognition that to deliver a more mature safety culture it needed to start from the top. In both organisations senior leaders engaged and became involved in the twinning events. Senior leaders in Infrabel demonstrated their commitment and focus on safety through several initiatives and by their awareness of process and procedures. Our discussions with our twinning partners suggest that there is still a way to go until safety is owned throughout the business and less strongly driven by the safety team. However, in Infrabel the safety initiatives have a high visibility in corporate offices and in cross-organisation communications.
In CFR there is increasing commitment to spending money on safety, for example improvements in safety at frequently used level-crossings. Understanding of the impact of role-modelling the right behaviours was less embedded and leaders we met did not always demonstrate their commitments in their day to day actions e.g. wearing PPE.
Network Rail has spent some years focussing on demonstrable safety leadership and the comparison suggests we have come a long way. It is still inconsistent as was evidenced by the difference between the 2 DUs we visited with Infrabel and CFR respectively. As a result of the twinning there will be a refreshed push on safety behaviours both at senior manager level (for example revisiting past reviews and evaluations and measuring progress – e.g. DuPont) and

front-line through the front-line leaders programme, behaviours in role-based competency development and through risk management skills through a risk management campaign.

OBB

In Irish Rail there is a very open and transparent communication between all concerned parties. They are rule-based but with a different approach than in Austria.
Key learning points (possible implementation in ÖBB) for ÖBB are:
1. Two safety days per year with all departments – "accident free – depends on me" is the main sentence of these days. All departments carry out hazards and measures regarding these hazards. They are also topics in the monthly executive and board meetings.
2. Investigation and reporting tool – all accidents and incidents are registered in the system "on-time" and can be displayed minutes after the case is in the system. The investigation team carries out safety measures. All executives and the safety department have access to the tool.

One time a year a check should be done by a manager from another area. These checks are additional to the planned checks from the managers in their own area. 4. Random checks from all communication records and also alcohol and drug tests. Periodically these checks are done not announced.

PLK

Safety culture as a phenomenon exists in the context of other cultures of – company's organisational culture, national culture.

The position of safety in business processes reflects the company's perception of safety and influence the way safety culture is shaped within the organisation

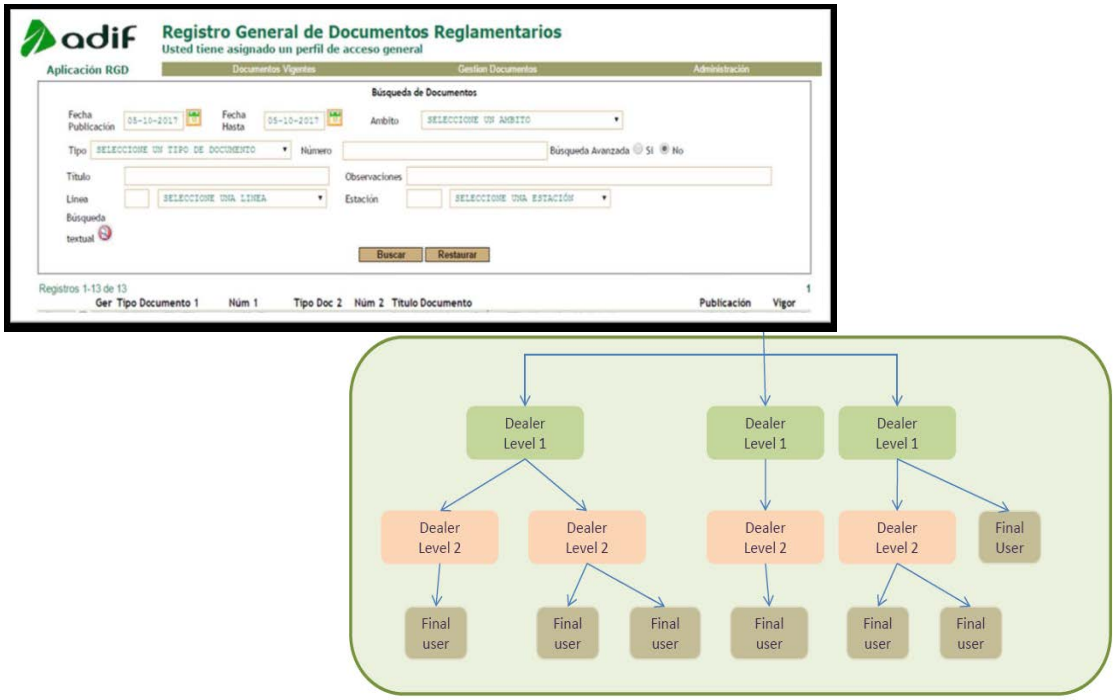
Are the safety management processes included in the business procedures or are there separate procedures?
Is there a dedicated safety department in the company or are the safety activities part of various jobs in different areas of the organisation (traffic management, maintenance, planning, strategy, asset management)?
Is there a person/body coordinating all safety related issues in the organisation? (a top level safety manager / safety commision)

The perception of employees' responsibility for safety is crucial for establishing safety culture in a company

Numerous actors in the railway sector and multiple interfaces between them are a challenge in developing safety culture

Infrastructure managers and railway undertakings
Administrative, regulatory and investigation bodies
Contractors and suppliers
Etc.

IT tools allow better management of safety critical processes, which contributes to safety in various way (monitoring, communicating responsibilities, providing access to knowledge, culture of learning and reporting)



Analysing human factors in railway safety is vital in understanding human behaviour and its organisational context.

Cooperation between organisations in the EU railway sector allows continual development of railway safety performance in all Member States

ProRail

1. The situation in Ireland is different from the Dutch situation because the network size and utilization differs between the two countries and because Irish Rail only has four railway users (RU's) on its network (ProRail appr. 35-40), of which two are from their own holding, and Irish Rail works with only one large contractor (ProRail: four maintenance contractors and various contractors for infrastructure projects).

2. Less fragmentation within the sector like in Ireland is good for safety culture, it makes safety conversations easier and enhances transparency.

3. The role of the safety staff is very important. For achieving a proactive culture it should be more supporting and challenging, less prescribing and controlling.

4. Reporting of near misses can be stimulated by supplying a simple app like contractor Balfour Beatty introduced.
5. At incident investigations, Irish Rail uses post incident group sessions inclusive of all people involved in the incident, including managers and people involved in planning, for establishing the causes and circumstances of the incident.

6. A sector wide operational safety meeting (like the Operational Risk Group meeting at Irish Rail) supports cooperation and learning in the sector. In the Netherlands this seems difficult to arrange because of the large number of companies.

7. Irish Rail and their main contractor show a high level of transparency and trust though they are different companies, which shows that outsourcing doesn't need to harm safety conversations and transparency.

Combined OBB, ProRail, Irish Rail

Irish Rail, ÖBB Infra and ProRail formed a twinning group, with SBB Infra as an observer. Visits were paid to Dublin, Vienna and Utrecht.

The visits led us to the conclusion that the companies differ widely. The comparison illustrates that the national culture is of a large influence on the safety culture of the companies. The analysis shows that: •
ÖBB is strongly rule based and operates in a national setting where the government and prosecutors strongly influence the safety culture. •
ProRail has a quite open and transparent culture. Fragmentation of the rail sector (35-40 RU's, several contractors, engineering firms) make safety conversations and cooperation more difficult. •
In comparison to the twinning partners Irish Rail has a relatively small network and is a less complex organisation. These characteristics help to promote an open and transparent culture within which safety conversations regularly occur across the organisation and with industry partners. Irish Rail is also quite strongly a rule-based organisation.

The role of the safety staff differs strongly too:

- At ÖBB by law the responsibility for safety is put with the safety manager.
- ProRail made the line management responsible for safety (e.g. every board member is responsible for one or more safety risks) with the safety staff mainly advising and supporting. Irish Rail is somewhere in between, with a safety staff strongly focused on monitoring and controlling safety.

Other important findings are:
The three companies have no common definition/understanding of "near miss"; every organisation has its own interpretation of near misses. The three companies have in common that there are limited KPI's on near misses and reporting is low. The near miss model used and reviewed in the twinning program is too generic. The model promotes general good practice, but each company would probably need to modify the model to suit their needs. The 'one size fits all' model does not seem appropriate.
The safety culture in all three companies has improved over the years, which is a general feeling of all people interviewed. Continuous effort though is required to keep the improvement going.

All three companies face safety issues arising from the use of smartphones. Smartphones today are part of daily life but the way they are used (while working) is a cultural factor.
The safety assurance/validation process using external companies (NOBO's, DEBO's, ISA's) has created extra costs for infrastructure managers but does not make the item subject to validation any safer. The result of the work of external companies is primarily "paper safety". Focus lies more on the application of the process than the contents and real risks and hazards. The infrastructure manager will rely on the external company instead of assessing safety itself, even though the expertise and knowledge will invariably be available within the company. If infrastructure managers perform the analyses themselves, it will promote learning and improve safety knowledge and consciousness inside the companies

RFI

To explore the safety culture, we proceeded with a systematic approach, viewing the following SMS's processes:

- ♣ Safety performance monitoring
- ♣ Hazard identification and risk assessment
- ♣ Investigations in case of accidents or incidents
- ♣ Improvement management

Those topics are implemented in the "PRISME project"

The "PRISME project" allows SNCF Réseau to develop safety awareness, culture and commitment. It is possible to identify in the Organization benefits of safety management

Interesting tools used in SNCF Réseau for safety culture:
• Feedback from experience
• Human Factor Two types of periodical journals, (where a selection of incident and accident are discussed and analysed), are available: - Monthly for the management - Two-monthly for all the operator This represents an effective way to disseminate the safety information to all the staff

Interesting tools used in SNCF Réseau for safety culture:

- Experience returns
- Human Factor and Organization (FOH) It's not a «real tool» but it is a structured approach: Developing non-technical skills of operators
- Analysis of the "deep" causes of events
- Integrating FOH into safety management processes

Interesting tools used in SNCF Réseau for safety culture:

- Feedback from experience
- Human Factor and Organization (FOH)

We consider those as useful actions for the Organization managed by the Direction Sécurité, Sûreté, Risques (DSSR)

SNCF

During the visit to RFI, SNCF Réseau particularly noted the following key findings:

- on management & control of existing risks: Technical "fundamentals" are very formalised and traced (e. g. hazard record, explicit links between hazards and operating procedures…),
- on SMS: Approaches to safety culture and human factors are taken into account throughout the entire safety management system,
- on the IT tools: An integrated web tool allows management to record all non-conformities and their management. It feeds the monitoring and experience feedback,
- on accident and incident investigation process: The process focuses on the validation of content by RFI management (legal risk and liability determination), rather than on the contradictory aspect of the immediate findings (logic of SNCF Réseau's PVCI).

All of these elements are a strong basis for an effective risk control, and they also directly contribute to staff awareness and a shared safety culture. The most important consideration is that the safety «fundamentals» control is a prerequisite to any innovative approach.

SNCF Réseau's findings are detailed below. The main learning points are related to:

- The general safety policy,
- The risk-based approach,
- The human factors,
- The safety documentation.

1) The general safety policy:

1.1) RFI's SMS was first developed by RFI in 2001, before ANSF was created (RFF developed its own in 2008). Rules have therefore not been "imposed" from the outside by the legislator and are hence not experienced as arbitrary coercion.

Contrary to SNCF Réseau's practice, RFI's SMS:

- is based on the ISO 9001 model,
- is integrated with occupational health & safety (OSHAS 18001) and environment (ISO 14001). The 3 management systems respond to different legislation, but they have the same structure, and also documents and processes in common.
- RFI is certified accordingly. ISO certification is of interest to RFI in terms of image and lower insurance costs; it is also useful for some international activities. According to RFI, the quality approach, based on continuous improvement (PCDA), is the safety basis.

The SMS is composed of 7 "system" processes

1: common to the 3 certified systems:

- monitoring and improvement,
- audit,
- vocational training,
- documentation and safety information management,
- emergency,

2: specific to railway operations safety:

- risk management,
- investigations.

► Contrary to SNCF Réseau's practice, the SMS is certified according to ISO standards and is integrated with the occupational health & safety and environmental aspects.

1.2) RFI's organisational model combines a hierarchical and functional approach (very similar to SNCF Réseau's practices). It is based on:

The central departments, amongst which:

"Produzione" (operations, known as DPR),
"Sicurezza di Rete e Qualità" (known as SRQ), Safety Department, in charge of:

- safety authorisation management and relations with ANSF,
- safety policy definition,
- SMS management,
- integrated annual plan management[2],

[1] As opposed to "operational" processes.

- monitoring of the Territorial Production Departments (control of safety services and correct CSMs application, experience feedback and investigations),
- the integrated SMS audit,
- Territorial Production Departments (known as DTP, one for each of the 15 Regions), which report to the central "Produzione" Department.

In each Central or Territorial department, a SMS referent is appointed; he reports hierarchically to his director and functionally to the Safety Director (SRQ).

► Organisational principles are broadly similar to those implemented at SNCF Réseau, but we note that:
- the Audit Department is located in the Safety Department (SRQ),
- in each Central or Territorial Department, one SMS referent reports hierarchically to his director and functionally to the Safety Director.

2) The risk-based approach:

2.1) Principles are explicit:

Two process types are distinguished in the SMS:

- management of existing risks (level II document RFI PSE 01),
- risk management for technical, operational or organisational changes (level II document RFI PSE 02).

2.2) An IT tool is common to the entire organization:

An intranet portal, called "Cruisenet", provides management with a set of applications (including databases for planning and execution of maintenance or for tracking train delays causes). Its environment is protected, with different levels of profiles and access rights. All applications useful for safety management are grouped together in a platform called "SIGS" (integrated safety management system), and in particular:

- documentation management,
- management of non-conformities and associated corrective and preventive actions,
- management of audits and associated corrective and preventive actions,
- the BDP (Banca Dati Pericoli) containing:
- the accidents and incidents database,
- the hazard record.

[2] Italian regulation requires, contrary to the French one, an annual calendar as well as sending the plan to ANSF, which can comment and ensure that deadlines are fulfilled.
The integrated annual plan contend depends on the results of monitoring, risk assessment, audits, effectiveness of measures taken following non-compliances, annual high-level reviews, post-accident and incident investigations, ANSF and National Investigation Body's recommendations.
The plan is adapted in the Territorial Production Departments (DTPs). It is reviewed every three months; its monitoring is formalised, based on indicators and a specific IT tool.
Each project is linked to a plan indicator in order to "close the PCDA circle".

The BDP is ISO9001 certified and managed by the Safety Department (SRQ).

2.3) Mapping and management of existing risks:

The management process of existing risks is governed by the above-mentioned document II RFI PSE 02.

The BDP of SIGS platform contains the Hazard Record. Setting the latter began in 2012, based on all existing documents to date and available historical data. It required a major "reverse engineering" effort to achieve the desired level of detail.

- 66 dangers are in the register, and for each of them it specifies in particular:
- code, description,
- possible causes (different levels),
- accident or incident scenarios,
- risk level (frequency, severity), and acceptance criterion,
- type of barrier installed, the associated technical or operational measures,
- person responsible for its management (known as “RGP”).

33 people are currently in charge of its updating and evolution (2 per territorial production department and 3 in the central safety department).

The management of each hazard is framed. It is assigned to a responsible person (the above-mentioned “RGP”). Each year, the Board assesses risk acceptability; type of action to be implemented is decided using a table in document RFI PSE 02 and the BDP is updated.

To assess risk, the RGP normally relies on a matrix (frequency, severity) based on EN50126, except for rare events for which it is considered unsuitable, and a “bow tie” model is performed. The matrix makes it possible to justify the priority given to decided actions.

An explicit link is made between documentation and the risks it deals with, since a table showing for each document the associated hazards is being completed (see §4). It will eventually be connected to the accidents and incidents database to perform detailed statistics by hazard and procedure.

► Management of existing risks is formalised and explicitly provided for in the SMS.
► Each procedure is linked to a process; each process is linked to a hazard.

2.4) Experience feedback:

The core of the approach is identifying and managing non-conformities. Non-compliance is related to a procedure, the danger associated with the procedure (procedure is a barrier to one or more hazards), and the type of human error.

A manager who detects a non-compliance informs the SIGS platform, where all resulting corrective and preventive actions are tracked, as well as each step validation by hierarchy. Approximately 2,000 people are empowered to initiate the process.

The accident and incident database is also in the SIGS platform:

- it has been existing since 2001,
- it is subject to quality control, certified and audited,
- it offers a great many functions for filtering, displaying, processing and exporting data in various formats...
- a person in charge is designated in each local entity (50 persons for the whole RFI),
- 926 events were recorded in 01/2017, including vandalism on trains,
- RUs have an obligation to provide useful information (General ANSF Directive), there are difficulties with some of them, but situation is improving because of pedagogy,
- about 20 precursors are monitored, but they are only known if concerned staff agree to communicate incidents (for example, drivers do not always inform the dispatcher).

Statistics are monitored for each Territorial Production Department (DTP), each type of accident (corresponding to "critical events") and each precursor (about twenty or so of the most important types).

- Studies can be carried out on specific topics (e. g. track constitution) and statistical analysis is based on non-conformities and non-compliance with procedures.

- Experience feedback is generally performed by the Territorial Production Departments (DTP). It is organised by the training referent once the investigation is completed and involves all concerned staff.

  ► Experience feedback is structured by the hazard record.
  ► Non-conformity detection triggers a formalized and traceable processing process that feeds the experience feedback.

2.5) The accident and incident investigation process is quite different from SNCF Réseau:

- RUs involvement in immediate findings is not imposed; RUs are informed when their responsibility is called into question,
- experts gathering immediate findings are not local managers, they are chosen in a pre-defined list,
- subsequent analysis steps are triggered by RFI, if it is liable,
- management plays a role in validating the report content at each stage, the process is complex because these reports can be used by judges,
- BDP is fed at the end of the process,
- in principle, the investigation outcome is not public.

► Focus is placed on report content validation by RFI management (legal risk and liability determination), rather than on the contradictory aspect of the immediate findings (logic of SNCF Réseau's immediate findings report – PVCI).

- 2.6) Change risk management process:

- The risk management process for technical, operational or organisational changes (level II document RFI PSE 02) is based on the CSM for risk evaluation and assessment imposed by Regulation 402/2013/EC.

- The applicant is appointed by the director of the territorial entity concerned and has all the economic and engineering resources at his disposal.

- He is supported, in particular in evaluating change significance (rilevanza), by a "technical body" located in a central department and guaranteeing process homogeneity throughout Italy. A large number of training courses are aimed at territorial organisations, applicants and engineers. The creation of local technical bodies is envisaged.

- RFI has set up no internal entity for the independent evaluation required by the CSM. Six independent external evaluators are recognised by the ANSF in Italy.

- The RFI annual report contains the list of significant changes for which the CSM on risk assessment has been applied.

The organisational changes processing is subject to a written procedure by the HR department.

► A central "technical body" assists the applicant in assessing the change significance and ensures process consistency throughout the country.

3) The human factors:

3.1) « Rule based » v/s « managed » safety:

- RFI emphasises above all the need to maintain sound and controlled fundamentals (based on the rules, their relevance and their explicit management).

- Staff is consulted before new documents are issued (see the writing documents process in §4).

- The Rasmussen model (SRK) is used to analyse HF aspects of not correctly applying procedures, and to code the error type for statistics.

3.2) “Just and fair” culture:

- SMS processes actually promote Safety culture:

- ad hoc or periodic meetings are planned at different organisational levels:
- every month, each Territorial Production Department Director reviews indicators and safety issues,
- every three months, the central directors report on all their department’s problems,
- “SMS” and “training” territorial referents attend these meetings and translate them into their own entities. In particular, a feedback on investigations or on the Integrated Annual Plan application is made to frontline staff.

- specific training courses cover SMS, document management, safety processes and monitoring,
- according to RFI, the SMS and procedures formalization promotes objectivity, which contributes to better management decision-making,
- risk explication in the BDP promotes staff risk awareness.

4) Safety documentation:

4.1) Safety rules and associated RFI documentation structure are based on 4 levels:

- 1st: SMS manual, safety policy, roles and responsibilities,
- 2nd: principles, guidelines to ensure approaches and processes homogeneity,
- 3rd: operating rules common to the entire network: circulation, maintenance and design,
- 4th:"territorial", local operating rules. Whenever the local level must write a specific local document, it is based on the corresponding national 3rd level guidelines.

Documentation volume or complexity is not a problem for RFI, but an effort has been made to reduce the documents number (about 4000).

4.2) The documents writing process involves concerned staff:

For level 1 to 3 documents:

- Interested staff have 40 days to comment on drafts. Each entity has a referent that defines the list of staff to consult,
- An experience feedback is performed 6 months after publication, with a specific form,
- RFI prefers documents not be printed, in order to avoid obsolete versions circulation.
- Tools are in place to distribute documents and publication notices. A 20 days period is allowed after publication for necessary adaptations.

Level 4 documents developments are highlighted in the text itself or summarized on the first page. Territorial service orders may explain changes before they come into force.

4.3) Documentation and risk management:

There is an explicit link between documentation and the risks it addresses. Indeed, a table indicates for each document:

- reference, author and title,
- the safety activity concerned (e.g. “movement authorisation"),
- safety functions involved (there are 7),
- business context,
- related procedures,
- associated hazards, against which the procedure constitutes a barrier.

The table is included in the SMS, and ANSF is kept informed of its developments. It is under construction: the project lasts 3 years, almost 3000 Level 3 documents have been reviewed. 90 people contribute in working groups. It will eventually be connected to the accidents and incidents database to make detailed statistics by hazard and procedure.

► Document management contributes directly to risk control because each procedure is linked to a process, each process is linked to a hazard.

Appendix 3
Conference programme

TWINNING PROGRAMME

'Enhancing the cooperation between Railway Infrastructure Managers for better safety

Safety Culture Twinning Programme

Tuesday 12th December 2017

Birmingham, United Kingdom

Story of the Twinning Programme

For some time, a sub-group working on behalf of PRIME had been focussing on how safety culture could be developed for the European rail industry. Throughout this work, the European Union Agency for Railways (ERA) had been very supportive, attending the session themselves and providing input and feeding back to the European Commission. Following a meeting in 2016 in Valenciennes, at which representation from the commission was present, they recognised that a twinning programme to supplement this activity could be extremely beneficial.

Network Rail was appointed by the European Commission as the co-ordinator of the activity and in spring of 2016 the challenge began of forming a consortium. As a result, 11 other Infrastructure Managers from across the continent came together. These organisations were:

ADIF (Spain), **CFR** (Romania), **HZ** (Croatia), **Infrabel** (Belgium), **Iarnrod Eireann** (Ireland), **Network Rail** (United Kingdom), **OBB** (Austria), **PKP PLK** (Poland), **Pro Rail** (Netherlands), **RFI** (Italy), **SNCF Reseau** (France) and **Trafikverket** (Sweden).

The consortium was split into four groups, with the matching process being instructed by a combination of factors but primarily the desired areas of safety culture that each organisation expressed an interest in exploring. In December 2016, the grant agreement was signed by all members and the activity was authorised to start.

At the start of this year, once the groups had been established, teams from the respective organisations got down to the business of making contact with each other and making plans. Remarkably, by February, some visits were already taking place. Throughout the following months, the exchanges continued from one corner of Europe to another, and the consortium came together on a regular basis via teleconferences to report progress.

Finally, in late summer, the last visit was completed.

Our conference today is our opportunity to let you know what we have learned about safety culture. This will not only feature our observations on universal factors that affect the growth of culture, but also information on systems, processes and tools that we have discovered during our visits that we would like to promote throughout the industry as best practice.

We hope that you enjoy the day and we would welcome your feedback.

All the best

The Twinning Consortium

Agenda

10:00 Open and welcome (Lisbeth Fromling, Chief QHSE Officer, Network Rail)

10:15 The value of twinning (Keir Fitch, European Commission)

10:30 Group 1 presentation: Network Rail, CFR, Infrabel and HZ Infrastruktur

10:30 Network Rail findings
10:40 CFR findings
10:50 Infrabel findings
11:00 HZ findings
11:10 Group 1 learning for the industry

11:30 Break

11:50 Group 2 presentation: Prorail, Irish Rail and OBB

11:50 Prorail findings
12:00 Irish Rail findings
12:10 OBB findings
12:20 Group 2 learning for the industry

12:40 Lunch

13:15 Group 3 presentation: Trafikverket, ADIF and PLK

13:15 Trafikverket findings
13:25 ADIF findings
13:35 PLK findings
13:45 Group 3 learning for the industry

14:05 Group 4 presentation: RFI and SNCF Reseau

14:05 RFI findings
14:15 SNCF Reseau findings
14:25 Group 4 learning for the industry

14:35 Learning activity based on safety culture evaluation

14:55 Learning summary and actions

15:15 Review of day and closure (Representatives from E.C.)

Speakers/presenters (alphabetical by organisation)

Aitor Ballesteros, ADIF

Aitor Fajardo Ballesteros has a Master Degree as Civil Engineer and a Master in Construction and Maintenance of railway infrastructure. He has 6 years of experience working in the Maintenance Division in Adif and 6 years of experience working in the Construction of High Speed railway lines in the South of Spain. Since the beginning of 2017, he has been working in the Safety Directorate in Adif as Chief of process analysis.

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Radu Urziceanu, CFR

Graduating in 1991 from the Transports College of Bucharest Polytechnic University, Radu specialized in Railway Rolling Stock and MBA in 1995 at the National School of Political and Administrative Studies of Bucharest. His experience has taken him from the operative levels of Romanian Railways, depots and Railway Region (Route) into the CFR headquarters. He is responsible at management level with the international affairs of CFR SA and, currently, in strategy and regulations.

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Adrian Laslo, CFR

Adrian works at CFR as a Project Manager in all aspects of maintenance, renewal and upgrade of railway infrastructure (permanent way) My motto and interest in safety culture is based on the principle that everyone deserves to get home safe every day.

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Razvan Constantin, CFR

Razvan Constantin is a traffic expert (inspector) in the Safety department at CFR. Over the last 22 years he has occupied various positions in railway traffic operation, including 17 years' experience in accident/incident investigations activities and safety monitoring processes. Since 2009 he has coordinated the design and implementation of the Safety Management System in the company, through the development of specific procedures, staff training and auditing of safety processes (Internal safety auditing).

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Marin Vladut, CFR

As principal trainer within the Signalling function of CFR, Marin is interested in ways to improve safety culture, especially aspects of increasing the quality of the staff training process. He is also interested in safety conversations, about how they are organized, monitored and measured.

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Keir Fitch, European Commission

Mr Fitch is the former Deputy Head of Cabinet of Siim Kallas, Vice-President and Commissioner for Transport where Mr. Fitch is responsible for land transport, security and state aids, inter alia. He was also the coordinator of the White Paper of the Future of Transport. Mr Fitch studied mathematics and law at Cambridge, was a lawyer at Herbert Smith and then moved on to the UK civil service in 1993. He joined the European Commission's Legal Service in 1999. Before joining the cabinet of Mr. Kallas in 2004, he was a Member of Cabinet of Vice-President Kinnock, responsible for Administration.

Keir is Head of Unit Rail Safety & Interoperability in DG MOVE in the European Commission.

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HŻ INFRASTRUKTURA

Goran Nujic, HZ Infrastruktura

Goran is the Head of Safety at HZ, where he has been working since 1987, with the last 10 years spent in the safety department.

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Tomislav Petanovic, HZ Infrastruktura

Tomislav is the Manager of the Regulations Department at HZ. He has 12 years' experience in different areas of the safety management system, and for last 3 years has been dealing with safety regulations.

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Josipa Jagatic Celinscak , HZ Infrastruktura

Josipa is the Manager of the Professional Education and Safety Culture at HZ, where she has worked for 15 years, the last 10 of which has been spent in the Safety department.

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INFRABEL
Right On Track

Helga Colpaert , Infrabel

As Coordinator of the Infrabel safety culture programme, Helga has 25 years of professional experience which enables her enable me to offer expertise and skills in several specific areas which range from safety culture and safety awareness, strategic management and policy support, quality and performance measurement, process improvement and project approach to corporate social responsibility.

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Yvan Smets , Infrabel

During the early beginnings of his career as engineer in the automotive business (Volvo and Ford), Yvan learned that the personal skills of workers are one of the most important elements in creating a quality product or service. Later on in his career at the Belgian railways he worked in the field of maintenance and construction of infrastructure, freight, safety investigations and the management of signallers and train drivers. Here again, he experienced that the personal skills (knowledge, ability and attitude) have a massive influence on the safety of railway service. During the last 2 years he has been working in the design and implementation of the new Integrated Management System of Infrabel. In their new SMS, the processes covering knowledge and competence management, in combination with the inclusion of human factors in the improved model of investigations and monitoring, provide the basis for the new approach to Safety Culture at Infrabel.

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Neil Blakeley , Iarnrod Eireann (Irish Rail)

As Rule Book Executive for Iarnród Éireann, Neil is responsible for the ongoing revision and development of the Iarnród Éireann Rule Book and associated documents.As an author of safety rules he has a keen interest in understanding why on occasion people fail to apply rules. What factors motivate or influence a person's decision? The study of an organisations safety culture may assist in delivering the answers.

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Kay Doyle, Iarnrod Eireann (Irish Rail)

Kay is currently Strategic Safety Manager in Iarnród Éireann with responsibility for development and implementation of strategies which deliver a safe rail network. The culture of an organisation is an important element in developing and achieving successful strategies in the improvement of safety.

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Lisbeth Fromling, Network Rail

Lisbeth Fromling is a M.Sc. Engineering, Civil and Structural Engineer from the Technical University of Denmark (DTU)

She has a long carrier within Quality Health Safety and Environment and has held leadership roles in these areas in Safety Critical Companies for more than 20 years. She has been in global roles within the Oil industry as well as the manufacturing industry for 8 years before joining Network Rail as the Chief Quality, Health Safety and Environment Officer.

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Lynn Chamberlain-Clark, Network Rail

Lynn has been the lead on a company-wide transformational safety culture change programme in Network Rail since 2012. She has worked on culture change within a variety of sectors including government, private and public sector and profit and not for profit organisations both nationally and internationally.

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Allan Spence, Network Rail

Allan is Head of Corporate Passenger and Public Safety at Network Rail. During his career, he has three decades of experience in encouraging safe and healthy work activities. He believes progress to make railways more safe – protecting passengers, workers and the public who live, travel or play nearby – depends on the prevailing safety culture. Honest reporting, learning from all events and changing behaviour all depend on that culture. So much more than a slogan, the way we do things round here can save, or cost, lives; it's our choice.

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Jason Jordan, Network Rail

Jason's role within the organisation has changed recently however he still has an accountability for looking at the way Network Rail manage assets and safety risks within the organisation. His role has overseen the creation of over 70 risk bowties and the creation of robust means of control to ensure that as an organisation NR closely manage the risks and threats which will ultimately lead to major safety impacts for both NR staff and passengers. During the creation of this framework safety culture has come to the fore and he has been intrigued to understand how an organisation contributes so much to the safety culture amongst its staff. It has also been very interesting and insightful to see how other countries manage to create this culture with different political, environmental and economical landscapes.

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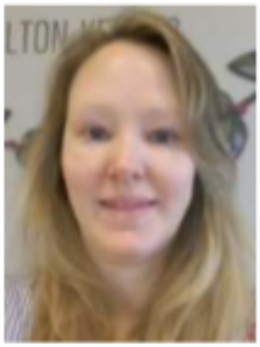

Louise Cox, Network Rail

As a Head of Health and Safety for the London North East and East Midlands route in the U.K., Louise's role encompasses the entire safety remit for a significant part of the British network. Her interest in safety veers firmly into the transformative and she believes safety culture is at the heart of how any organisation must develop.

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Sean Brierley, Network Rail

Sean has worked in the safety function at Network Rail for 12 years, where he has occupied roles across a variety of high-profile projects. This experience has allowed him to sample the various steps of the safety culture ladder. He sees his role in communications as being key to the journey.

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ÖBB INFRA

Ludwig Koschutnig, OBB

Safety and human factors expert at OBB, Ludwig believes Safety culture is an important way to improve safety awareness and is directly linked to improve safety performance. For 20 years he has been interested in human behaviour and always seeks answers to the question: "how and why is it like it is?"

Ludwig says he likes his job because "safety is my life".

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PKP POLSKIE LINIE KOLEJOWE S.A.

Krzysztof Zubilwicz, PLK

Krzysztof works in the Safety Department of PKP PLK as an SMS Monitoring and Development specialist. One of hisresponsibilities in the organisation is the development of the safety culture programme and activities that are aimed at facilitating cultural change in the company. He is interested in this topic because he believes that safety culture and awareness are one of the key issues contributing to high levels of safety in railway transport.

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ProRail

Menno Rook, Pro Rail

Menno is a senior safety advisor at ProRail and worksin the corporate safety department. He works on a.o. the safety management system, safety culture and stakeholder management. He is also safety manager for a large ICT project. He believes that a more mature safety culture will not only improve safety performance but will also enhance cooperation and quality within their company thus improving overall performance.

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Ellen Klijn, Pro Rail

As an advisor in the ProRail Safety Culture team, Ellen's experience is extensive in the coordination and communication of incident investigations (with internal and external parties), owning the process of the corporate procedure Learning from safety incidents. She has also been account manager in liaising with the NSA regarding safety incidents .

Ellen believes a solid and just safety culture is essential for improving (safety) performance within the sector.

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Vito Donato Raimondi, RFI

Vito started as safety expert in Maintenance Department of RFI SpA. He has worked several years in the field of safety management systems. He is now responsible of Unit "Monitoring of change and safety performance" in Railway Safety Network and Quality Department of RFI SpA.

For him, safety culture is important in the organisation because it allows the design and development of an effective and "living" SMS.

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Salvatore Castello, RFI

At RFI, Salvatore is responsible for the Unit that monitors the Territorial Production Directions in their application of the SMS, specifically in the North-East area of Italy. His unit is also working as interface between RFI and NSA during their audit activities. The work of his Unit is part of a bigger Department (Railway Safety Network and Quality) that defines SMS's rules on national scale. He believes therefore that their work is founded and built on safety culture and its diffusion.

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Jean-Marc Pourchier, SNCF Reseau

Jean Marc started as a permanent way maintenance engineer. He has worked a long time in RAMS and risk analysis at the system level. He is now TSI manager in the SNCF Réseau Europe Department.

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Anna-Maria Ostlund, Trafikverket

Anna-Maria has over 20 years of professional Human factors experience from the Swedish Nuclear regulator, the National Transport regulator and Trafikverket, working in the broad field of human and organisational factors.

She is passionate about safety culture and from her previous work sees clearly the need of a more systematic and methodical approach to safety, and the possibilities to learn from other businesses.

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Jari Kokko, Trafikverket

Jari is a railway safety rule- and competence developer with more than twenty years of experience in the field of teaching and investigating railway safety. He currently works in the maintenance division at Trafikverket in Sweden.

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Pelle Thoren, Trafikverket

As a national safety officer at Trafikverket, Pelle believes safety culture is important because it doesn't matter how much safety managing and steering documents we create, if the safety culture is bad it will all be for nothing.

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