



Development of the Future Rail Freight System to Reduce the Occurrences and Impact of Derailment

D-RAIL

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Dissemination and implementation of D-RAIL result

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Status: Final

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Dissemination Level		
PU	Public	√
PP	Restricted to other programme participants (including the Commission Services)	
RE	Restricted to a group specified by the consortium (including the Commission Services)	
CO	Confidential, only for members of the consortium (including the Commission Services)	

D-RAIL consortium

1.	UNIVERSITY OF NEWCASTLE UPON TYNE	UNEW	United Kingdom
2.	UNION INTERNATIONALE DES CHEMINS DE FER	UIC	France
3.	RAIL SAFETY AND STANDARDS BOARD LIMITED	RSSB	United Kingdom
4.	TECHNISCHE UNIVERSITAET WIEN	VUT	Austria
5.	PANTEIA BV	PANTEIA	Netherlands
6.	CHALMERS TEKNISKA HOEGSKOLA AB	CHALM	Sweden
7.	POLITECNICO DI MILANO	POLIM	Italy
8.	THE MANCHESTER METROPOLITAN UNIVERSITY	MMU	United Kingdom
9.	LUCCHINI RS SPA	LUCC	Italy
10.	MER MEC SPA	MERM	Italy
11.	FAIVELEY TRANSPORT ITALIA SPA	FAIV	Italy
12.	TELSYS GMBH	TELS	Germany
13.	OLTIS GROUP AS	OLT	Czech Republic
14.	VYZKUMNY USTAV ZELEZNICNI AS	VUZ	Czech Republic
15.	DEUTSCHE BAHN AG	DB	Germany
16.	HARSCO RAIL LIMITED	HARS	United Kingdom
17.	SCHWEIZERISCHE BUNDESBAHNEN SBB AG	SBB	Switzerland
18.	OBB-Infrastruktur AG	OBB	Austria
19.	SOCIETE NATIONALE DES CHEMINS DE FER FRANCAIS	SNCF	France
20.	TRAFIKVERKET - TRV	TRV	Sweden
21.	UNIVERSITY OF HUDDERSFIELD	HUD	United Kingdom
22.	FAIVELEY TRANSPORT AMIENS SA	FT	France

Executive Summary

D-RAIL's work-package 8 (WP8) covers the dissemination, training and exploitation activities of the project. WP8 is coordinated by UIC with support from University of Newcastle. A total of 5 partners contribute to the activities in this work-package. All dissemination has been approved by partners to ensure that commitments have been fulfilled and that confidential information has been protected. D-RAIL is also an open EU-project in the sense that the majority of the deliverables are public.

In summary, WP8 objectives have been to ensure that the technical and scientific objectives and results of D-RAIL have a real impact in the railway world. Detailed plans are therefore required in order to implement the necessary steps and specific actions outlined in deliverable D8.2.

Dissemination has been carried out as a driver process. Workshops and dedicated presentations have in several cases been presented to standardisation bodies and also targeted towards groups existing under the UIC umbrella such as TEG (Track Expert Group), PoSE (Panel of Structural Experts) and TTIG (Train Track Interaction Group). ERA had considerable influence over the D-Rail proposal and has continuously supported D-RAIL. ERA has, for this reason, been represented in the Steering Committee as a non-voting member. The intention from the coordinators is also to establish working groups that will continue working on and refining the D-RAIL results also after September 2014.

Concerning workshops, the project has organised two general public project workshops. The first was held at the midterm of the project while the second one has taken place in late September 2014. Additionally a seminar will be arranged in November 2014 in order to conclude and spread D-RAIL result and formulate future work plans. It is foreseen that a number of workshops, conferences and scientific papers will result from the work. A first overview of planned events with time frames is presented in section 5.1. In addition, the public website, leaflets, flyers and posters are following what was described in the DoW.

D-RAIL aims to make public 16 out of 25 project deliverable in order to attain the level of visibility desired. Chosen deliverables will be organised into practical guidelines to enable the materialization of project findings into practical applications in the field. To this end, some deliverables have been translated into practical guidelines.

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Glossary

Abbreviation / acronym	Description
CEN	European Committee for Standardisation
CER	The Community of European Railways
EFRTC	European Federation of Railway Trackworks Contractors
EIM	European Rail Infrastructure Managers
ERA	European Railway Agency
PoSE	UIC Panel of Structural Experts
TEG	UIC Track Expert Group
TTIG	UIC Train Track Interaction Group
UNIFE	The Association of the European Rail Industry
UIC	Union International des Chemins de Fer (International Railways Union)

1 Introduction

The organization of D-RAIL is shown in Figure 2-1. The dissemination and communication activities in Work Package (WP8) are coordinated by UIC. All partners contribute to the dissemination activities but 5 partners out of the 19 which constitute the consortium of the project have been more deeply involved in disseminating the project:

Part n°	Short Name	Country	Person months
1	UNEW	UK	2.00
2	UIC	FR	5.80
3	VUT	AS	1.00
4	CHALM	SE	1.00
5	MERM	IT	1.00
Total			10.80

The work is carried out by

- preparing dissemination material,
- implementing dissemination activities,
- representing the D-RAIL project at scientific events
- participating in training events.

The dissemination of D-RAIL has been a carefully planned and driven process. The results are presented to established international working groups during and after the project. At suitable times the project has been presented through workshops and seminars. By working with established UIC groups like TEG (Track Expert Group), PoSE (Panel of Structural Experts) and TTIG (Train Track Interaction Group) D-RAIL is transferring results to standardisation bodies.

In order to achieve this ambition, several deliverables have been prepared and organized as guidelines.

Finally, project results will be made available to the general public with the intent of establishing acceptance over possible changes resulting from the project. However the majority of the dissemination effort will be directed towards the implementation of results through established groups, workshops and training within the industry.

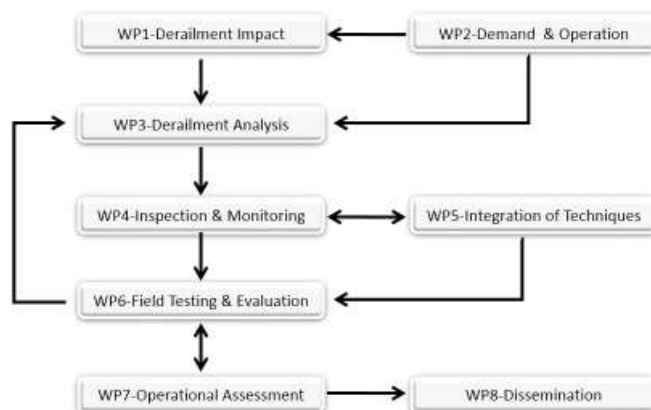


Figure 2-1 General organisation of D-RAIL

Note:

All publications and dissemination material produced by D-RAIL (constituting the foreground to the project) include the following statement to indicate that it was generated with the assistance of financial support from the European Community:

“The research leading to these results has received funding from the European Community’s Seventh Framework Programme FP7-SST-2011-RTD-1 under Grant Agreement n° 285162.”

2 Main results that will be publicly available

2.1 Public website

In D-RAIL the website (<http://www.d-rail-project.eu/>) was established directly when the project started. It has been updated regularly during the project and will in the end be a complete site where it is easy to reach information and documents.

Under the first headline “About D-RAIL project” you can now find an overview of D-RAIL.

Under “Project partners” you can see who participates in D-RAIL.

Under “Result” you can download all public deliverables.

Under “Work Plan” you can get a short explanation about the different WPs and how they are linked together.

Under “Contact” you can get information about the contact persons.

Finally under “Members Area”, there is a link to the project internal collaborative platform where all documents are stored (both administrative and technical). A password is needed to get access to that platform.

The website will be kept in its present form for at least six years.

2.2 D-RAIL Presentations/paper titles and Workshops

2.2.1 Promotion and presentation of D-RAIL at INNOTRANS 2012 in Berlin 18 September 2012

University of Newcastle presented D-RAIL in their exhibition case at INNOTRANS with support from some D-RAIL participants

2.2.2 D-RAIL presentation on an ERA seminar in Lille, France 25 September 2011

D-RAIL was presented to ERA on a seminar where the background to ERA's initiative was presented. D-RAIL is seen as a long-term project while short- and medium-term actions were presented.

2.2.3 D-RAIL Kick Off at UIC in Paris 10-11 October 2012

D-RAIL had an open Kick Off with a mixture of participants and other participants, mainly from UIC members.

2.2.4 Expertise Development Platform, PKP HQ Warsaw, Poland. 17 November 2011

Björn Paulsson made an overall presentation of D-RAIL to the UIC group “Expertise Development Platform”. They have an important role among the railways since they represent the training centres of the railways. These training centres have an important role as most railways are large organisations that are widely spread over the countries.

2.2.5 D-RAIL presentation to ERRAC in Brussels 31 May 2012

D-RAIL with focus on WP1 was presented to ERRAC in Brussels 31 May 2012 according to an earlier agreement. The presentation was done by Björn Paulsson UIC and Gordana Vasic UNEW who presented the result of WP1 according to the DoW.

2.2.6 D-RAIL presentation to an ERRAC WP04 Final Workshop on Railway Safety and Security at UIC in Paris, 12 July 2012

Björn Paulsson presented D-RAIL to an ERRAC WP04 Final Workshop on Railway Safety and Security.

2.2.7 D-RAIL presentation at Railcon conference in Nis, Serbia 4 October 2012

D-RAIL was presented with papers and fliers at the Railcon conference in Nis, Serbia 4 October 2012 by University of Newcastle.

Paper and presentation title:

“Development of the Future Rail Freight System to Reduce the Occurrences and Impact of Derailment”

2.2.8 Key Note presentation at the Nordic Railway Research seminar in Tammsvik, Stockholm, 3 November 2012

The Nordic Railway Research seminar is a seminar that is carried out every second year. On the event 2012 Björn Paulsson held a Key Note presentation.

Presentation title:

“D-RAIL an EU-project to reduce derailments in a cost efficient way.”

2.2.9 Presentation to the two UIC groups Track Expert Group (TEG) and Panel of Structural Experts (PoSE) at UIC in Paris 30 January 2013

D-RAIL presented at the annual meeting with TEG and PoSE.

2.2.10 Midterm Workshop at UIC in Paris 16 April 2013

The Midterm Workshop of D-RAIL took place at UIC in Paris 16 April 2013. It was open with a mixture of participants and others mainly from UIC members.

2.2.11 A D-RAIL training session at TEG meeting in Eslöv, Sweden 8 October 2013.

A training session on D-RAIL WP3 was held on the TEG meeting in Eslöv, Sweden 8 October 2013. A more detailed presentation was asked for by the TEG. This evolved to a training session.

2.2.12 Presentations at WCRR in Sydney, Australia 25-27 November 2013

University of Newcastle made three oral presentations and a poster in relation with D-RAIL work and results at WCRR in Sydney, Australia 25-27 November 2013.

Presentations' titles:

“Holistic overview of freight train derailments in Europe: causal and impact analysis”

“Investigation and guidelines on use of monitoring technologies for preventing and reducing the occurrence of freight train derailments”

“Triple rail freight demand by 2050 in EU27- realistic, optimistic or farfetched imagination?”

Poster title:

“Types of rolling stock in 2050 in EU27 to meet Transport White paper 2011 target”

2.2.13 Oral presentations at TRA2014 in Paris 14 April 2014

University of Newcastle made two oral presentations in relation with D-RAIL results at TRA2014 in Paris.

Presentations' titles:

“What mitigation technique should be implemented to reduce freight vehicle derailments by 2050”

“Overview of freight train derailments in the EU. Causes, impacts, prevention and mitigation measures”

2.2.14 Interaction with HRMS project including workshop in Paris June 5–6

In order to translate findings from D-RAIL's WP3, there has been a strong interaction with the UIC-led HRMS (Harmonization – Running Behaviour and Noise on Measurement Sites) project. A number of workshops have been including in Paris June 5–6 where Wolfgang Zottl of ÖBB and Anders Ekberg of Chalmers presented key results from D-RAIL WP3 and how these have been translated to operational guidelines to the UIC Train Track Interaction Group.

2.2.15 Final D-RAIL workshop in Berlin 22 September 2014

A final workshop of D-RAIL was held in Berlin 22 September 2014 where the main results of the project were presented.

2.2.16 Key Note presentation at the Nordic Railway Research seminar in Bergen, Norway, 15 October 2014

At the Nordic seminar 2014, Anders Ekberg of Chalmers gave the keynote presentation “Scientifically based limits for wheel loads: Approach, recommendations, consequences”, which outlined some of the key results from D-RAIL WP3.

2.2.17 The 2nd Workshop of Ballasted Track between Japan and the United Kingdom, Edinburgh, 16th October 2014

University of Newcastle presented partial D-RAIL results, with focus on WP1, 2, 4 and 6 results. The workshop was attended by participants from academia and research organisations, as well as industry.

Presentation title:

“Freight train derailments in the EU. Causes, impacts, prevention and mitigation measures”

2.2.18 Presentation at RRUKA's 3rd Annual Conference, London, 5th November 2014

University of Newcastle will present partial D-RAIL results, with focus on MERMEC prototype technology tested in the UK. The conference is to be attended by participants from academia, research organisations, industry, and RUs.

Presentation title:

“Development and testing of wheel checker for derailment prevention”

2.2.19 Final D-RAIL seminar in Stockholm 12 November 2014

Since many of the deliverables were produced at the very end of the project, no final conclusions could be drawn on the final workshop in Berlin. For this reason, and due to the high potential of the D-RAIL results, it was decided to arrange a final D-RAIL seminar in Stockholm 12 November 2014. On this seminar ERA made a keynote presentation on ERA's general view on derailment development and activities to reduce derailments and how the results from D-RAIL fit into this picture. Further, future dissemination and implementation activities were discussed and decided at the seminar as outlined in the next chapter.

3 Implementation

The most important outcome from WP1 and WP2 is input to other WPs in D-RAIL. Some output can be used directly like the data on number and causes of derailments. These findings can be exploited in further studies and as input and statistics. Data and methodology to assess the impact of derailment can be used by ERA and IMs. There are also recommendations on regulatory framework and procedures that can be useful for ERA and IMs.

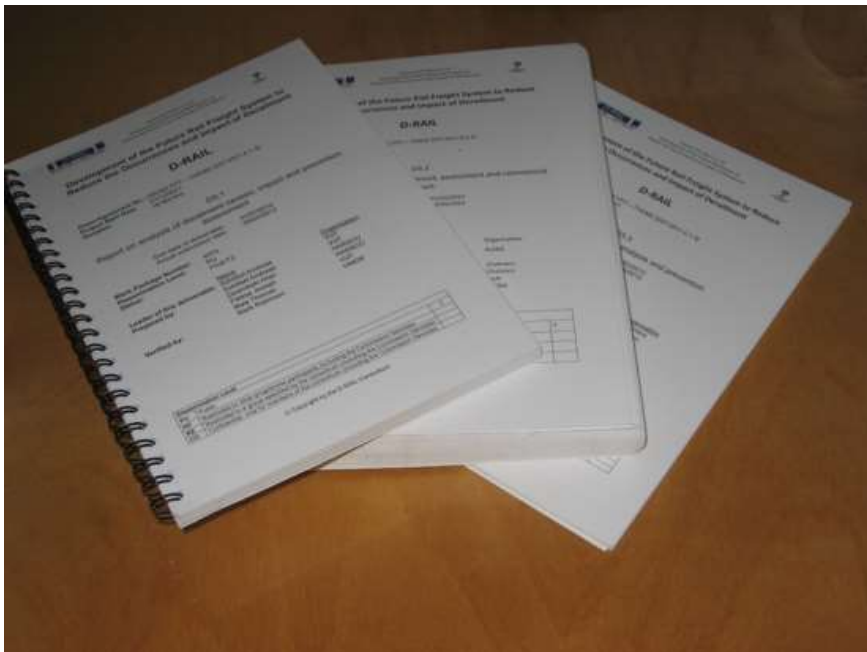
The result from WP3 is three reports namely:

D3.1 – Report on analysis of derailment causes, impact and prevention assessment, 86 pages

D3.2 – Analysis and mitigation of derailment, assessment and commercial impact, 301 pages

D3.3 – Guidelines on derailment analysis and prevention, 28 pages.

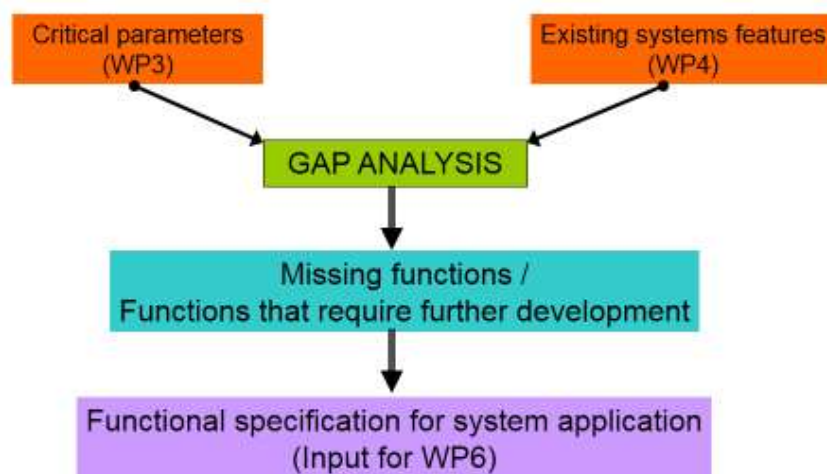
The result has been used as input to several WPs. They will also be used as stand-alone documents.



In the picture above you can see the three deliverables D3.3 is a guideline with only 28 pages and easy to read while D3.2 is a deeper technical deliverable. These deliverables have been externally reviewed by the UIC group TEG. By doing this we paved the way for implementation.

In WP4 two questions have been looked at namely:

What functions in existing systems require further development and what functions in existing systems are missing? These have been identified and solutions proposed. Then three monitoring equipment have been tested in WP6 to verify functions. Of course the industry will implement the result on their equipment. In the diagram below the workflow is shown.



In order to use the findings from D-RAIL and implement the result in a good way a special seminar was arranged in Stockholm 12 November 2014. At this seminar it was proposed, in the short term, to carry on with work in the following three areas:

- Hot Axle Box Detection (HABD)
- Axle load checkpoints (ALC)
- Track geometry measurement system (TGMS).

This is based on the conclusions from WP7 and deliverable D7.4.

At the final seminar of D-RAIL in November 12, 2014, it was proposed to investigate the possibility to bring findings from D-RAIL in to Shift2rail/Horizon 2020. This would provide a long-term solution to assure that results from D-RAIL are implemented when suited. It also allows for results that are not fully implementable at the moment to be adopted in future research projects.

4 Specific Audiences

4.1 Audiences within the railways

Within the railway sector two target audiences can be identified:

- Top management (both business and technical) who will receive the high-level summary material that has been produced at the end of the project.
- Managers, including high-level engineers who make decisions about what to use on the railway. This is the key audience for D-RAIL, as they ultimately are potential users and implementers of D-RAIL guidelines and recommendations.

4.2 UIC – Train Track Interaction Group (TTIG), Track Expert Group (TEG) and Panel of Structural Experts (PoSE)

The objective has been to continuously inform the UIC experts about targeted project results in order to gain their support for the next step of implementing the project results. D-RAIL has provided representation at these group meetings to encourage the exchange of ideas and information to benefit the project.

As one example of successful cooperation, the HRMS project could be mentioned. Here the D-RAIL partners UIC, ÖBB, SBB, Trafikverket and Chalmers have been involved. This has facilitated the inclusion of D-RAIL results into the specification of limit levels of operational wheel loads and vehicle identification. As a result key D-RAIL results are a good way towards widespread implementation already at the end of the project. Further, it allowed for suggested operational regulations to account for the very latest scientific progress. In all this proved to be a true win-win situation.

4.3 Consortium partners

For obvious reasons this deliverable can only report on samples of external dissemination activities. In addition each consortium partner will have internal and external dissemination activities where D-RAIL results are communicated, analysed and progressed. Often this is in a form where D-RAIL results are put in context to other activities of the consortium partner.

To give just *one* example from *one* partner, the centre CHARMEC at Chalmers has presented their work in D-RAIL at internal (but open) seminars at three occasions. The seminars featured also other research projects, which put the D-RAIL research in context. It could be noted that these seminars were attended by representatives from most of the Swedish railway sector including infrastructure managers, operators and industry.

In the same manner it is obvious for industrial partners to incorporate D-RAIL results e.g. in product presentations for potential customers. Further, infrastructure manager partners have taken up the INNOTRACK results in their evaluation and progress of operational practices.

4.4 ERA and UNIFE

D-RAIL has already from the onset of the project acknowledged that ERA and UNIFE are key organisations for the implementation of results. Motivated by this, both ERA and UNIFE have been continuously informed on results and are both members of the D-RAIL Steering Committee. In addition ERA was invited as keynote speaker on the final seminar to elaborate on how the D-RAIL results fits into ERA's work towards derailment prevention.

5 Concluding remarks

D-RAIL project was aiming to provide significant improvements in the detection and prevention of derailments and mitigation of their subsequent effects.

- To provide cost-effective solutions to reduce the occurrences of freight train derailments across Europe by 8 – 12%.
- To reduce derailment-related costs by 10 – 20% through improved mitigation measures.

As detailed in the D-RAIL reports there is a high potential to achieve the objectives. However, this requires a successful dissemination and implementation of D-RAIL results. As outlined above, there have already been significant efforts toward this end. In addition, the final seminar in Stockholm in November 2014 discussed and proposed a strategy for further dissemination and implementation activities to achieve this objective. These proposals will be taken further through established groups in tight integration with ERA.