Project no. TIP5-CT-2006-0314150

INNOTRACK

Integrated Project (IP)

Thematic Priority 6: Sustainable Development, Global Change and Ecosystems

Deliverable D5.2.1
Documented validation procedure

Due date of deliverable: 31.12.2009

Actual submission date: 31.12.2009

Start date of project: 1 September 2006 Duration: 40 months

Organisation name of lead contractor for this deliverable:

European Federation of Railway Trackworks Contractors

Project co-funded by the European Commission within the Sixth Framework Programme (2002-2006)		
Dissemination Level		
PU	Public	X
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)	

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Glossary

CER ..... Community of European Railway

EFRTC.... European Federation of Trackworks Contractors

EIM ..... European Infrastructure Managers

ERPC..... European Railway Procurement Committee

HLOS..... High Level Output Strategy

IM..... Infrastructure Manager

ITS ..... Integrated Technology Strategy

KPI..... Key Performance Indicators

LCC ..... Life cycle costs

LICB..... Lasting Infrastructure Cost Benchmarking (UIC project since 1996

M & R..... Maintenance and renewal

NR ..... Network Rail

PPP ..... Public Private Partnership

TRIS ..... Track Information System

TSI ..... Technical Specification for Interoperability

1. Executive Summary

The results from INNOTRACK's subproject SP5 constitute a major step forward in handling logistics and procurement in the railway sector in an efficient manner. The result is however maybe not the same that was foreseen in the INNOTRACK Description of Work at the beginning of the project. The reality turned out to be much more complex than expected. In particular there was a need for more long-term actions than foreseen. Despite this, for the first time a lot of important issues have been identified and handled.

SP5 in INNOTRACK has identified the need for a better dialogue between the IMs and the contractors. At the same time, due to procurement regulations and procedures, this dialogue is today much more restricted than before. In the work of SP5 and especially in D5.1.5 and D5.1.6 it is clearly shown that an open dialogue between the IMs and the contractors could not only solve today's problems but also be a significant contributor to reduce costs. It is also shown how this could be feasible.

The reports D5.1.5 and D5.1.6 present the results of the studies on interfaces between contractors and infrastructure managers based on extensive and structured interviews targeting the project objectives for the improvement in cost efficiency and performance of track maintenance and renewal works. In total, representatives of twelve track work contractors and seven infrastructure managers were interviewed. The results clearly show that the conditions in different countries differ a lot. There is a long way to go to an open and competitive market in Europe. INNOTRACK has constituted an important step forward also in this direction.

Several contractors ask for an LCC approach in decision-making. This is also a common opinion from the IMs. The problem is that there has not been any European-wide accepted method for LCC and RAMS evaluations. In INNOTRACK's subproject SP6 such a method has been developed for the first time. The major remaining problem here is to obtain relevant input data to make the LCC-analysis accepted and meaningful.

The reports in SP5 also show that some of the questions raised by the contractors are already considered by the IMs. The problem is too often that it takes time to change procedures, a well-known Achilles' heel of the railways. Some problems, like increased possession times, are already in the focus for the majority of the IMs but the situation with increased traffic (many European countries had an all

time high in operations during 2008) has in reality meant a decrease in possession times.

Another opinion raised by the contractors is that the IMs must be more open to innovations. Today most IMs are very open for new ideas but the IMs do not have the full control over the situation. Regulatory bodies like EBA in Germany, RSSB in UK, EPSF in France and Transportstyrelsen in Sweden have today a role that is negative in the respect of getting innovations implemented faster. In INNOTRACK this issue has been raised with a regulatory body.

In SP5 a lot of commonly experienced problems have been identified and structured, see below. The work shows a number of areas where there are potentials for enhancements. The challenge in INNOTRACK is to start more long-term work to really implement mitigations to these identified problem areas.

Looking in the mirror on the objectives of SP5 in INNOTRACK it is seen that they were a bit optimistic. They were driven by contractors and IMs that did not have an international overview of the European situation. For this reason the results from WP5.1 are so interesting. For the first time the real problems have been identified on a European level. Earlier reports and findings have too often been top-level and not gone into enough technical details. Therefore it has been too easy to make the wrong conclusions regarding the actual operational situation.

In D5.1.5 and D5.1.6 the key conclusion were a number of findings resulting from the processing of interviews. These were grouped into the following seven clusters:

A – Market strategy

B – Long-term funding, planning and contracting

C – Work programming

D – Project management and logistics

E – Contracting strategies

F – Rules and Regulations

G – Plant

In INNOTRACK there has been a clear aim that subsequent work after the finalization of INNOTRACK will be carried out. In some areas this work has already been successful. For example members of EIM, CER and EFRTC have agreed on the follow up of the INNOTRACK conclusions and recommendations. The following priority areas from the report findings were put forward for the future work in this group:

- Market, long term funding, strategic planning
- Contracting strategy including harmonisation of procurement

- Review of current rules and regulations for cross acceptance of machinery, staff and works, proposal for harmonisation including qualification of contractors
- Review of the existing safety rules and regulations, current practices, proposal for harmonisation; in particular with the focus of the protection of the staff working on the track.

This is described more in detail in chapter 3.

One of the key objectives of INNOTRACK was a reduction of life cycle costs with 30%. Most of the interviews with both contractors and IMs show a possible cost reduction to this extent solely form logistics related issues. Since the statements done in the interviews are not verified and often refer to specific activities it is however not possible to draw more precise general conclusions.

Another conclusion from SP5 in INNOTRACK is that a follow up project of SP5 is well motivated and needed if different European Union directives shall have a chance to become a reality in a near future.

2. Introduction

As stated in D5.1.5 and D5.1.6 the interface between contractors and infrastructure managers bears significant potential for increasing efficiency of track maintenance and renewal works. It is also stated that the performance of the contractors' works can be improved by a more collaborative partnership-based approach with infrastructure managers aimed at optimising the use of the possession times available, reducing the costs and/or delivering more for available budget and thus increase the efficiency of providing railway infrastructure for operators in general. A major problem was to find the right organisation within the IMs where the question is dealt with. Since the question is wide there are often several different parties who are handling parts of the question. The consequence of this is that INNOTRACK has met difficulties in SP5 to find the people in charge of the questions raised.

The following activities have been carried out to meet these difficulties.

2.1 Information exchange with European Railway Procurement Committee - ERPC

ERPC is an informal group that was created within UIC among the heads of procurement in different railways. They have annual meetings and the main focus is on information exchange. There are no working groups with an allocated budget reporting to ERPC.

INNOTRACK has been reporting to, and discussing with the ERPC. In Saltsjöbaden on the 6th of March 2007 INNOTRACK was on the agenda. Several members of ERPC were afraid that INNOTRACK would give participating industry preferential treatment. Of course this is the case since the participating industries works close to the IMs and gets information about problems that the IMs have and also needs for specific innovations. At the same time it is important to point out that there is no preferential treatment in specific purchase situations, which is the important item from a legislative point of view. There is no alternative to working in projects like INNOTRACK if the railways shall have a competitive and well functioning railway industry.

In October 2009 INNOTRACK results were presented to the ERPC in Germany.

2.2 Starting up long term work in organisations within and outside INNOTRACK

Since INNOTRACK is a project limited in time and resources it is important that existing organisations within and outside of the INNOTRACK consortium take over the responsibility of the results from INNOTRACK. This is especially the case since most implementation is carried out when INNOTRACK is ended. One initiative in SP5 is described in the above section. Another initiative was to hand over some of the result to working groups in existing bodies. This has been very successful and is described in chapter 3.

2.3 Open questions after INNOTRACK

The biggest problem is that European practices vary considerably between different countries. The situation is also very complex within most countries. A lot of national practices and laws regulate the situation in the individual countries. This means that the transformation process will be much longer than expected. The intention from INNOTRACK was to address these questions to IMs and industry so that the results of SP5 will become a basis for future work and not some interesting “shelf warmers”.

One must have in mind that benchmarking of unit costs indicates that there is considerable room for improvement. In fact, only by adopting the currently best practice there is a significant potential in reducing costs and increasing performance of track maintenance and renewal.

3. EIM, EFRTC and CER Working groups

3.1 Market strategies

3.1.1 Remit for market strategies

Michael Robson of EIM is responsible for this Working Group. The group is lead by Martin Arter, NR.

The purpose is to propose methodologies/criteria for IM's to assess the benefits/drawbacks of contracting in or contracting out maintenance and/or renewal of their network. These methodologies/criteria should be based on current best practices, whilst also exploring the scope for new processes.

The aim is also to identify any points of principle, which should be followed e.g. that the client must not loose its knowledge of the assets.

The scope should detail the main areas where the methodologies can be used encompassing an understanding of the long-term costs and benefits of either contracting in or out or a mix of strategies. It should also propose the type of data, which should be shared between IM/Contractors to ensure that a balanced view is obtained. The work started by looking at the areas of major costs track works, signalling, electrification before moving onto other areas e.g. telecommunications. The scope does not include actual procurement of the services. In order to ensure no bias from either side it is proposed to have the sessions run by a facilitator.

3.1.2 Planned deliverables

- A document, which lists measurable criteria under different headings, separating maintenance and renewal by track work, signalling and, electrification
- Identification of categories of information which can be shared between IM/Contractors and a proposed format for this together with how this information would be used in evaluating contracting strategies.

3.1.3 Result so far

A questionnaire on in/outsourcing maintenance & renewals has been sent out and been answered. The questionnaire covered two aspects:

- What criteria do IMs use to make decisions on in/outsourcing M&R works?
- How do IMs measure the performance of contractors and/or in-house teams in charge with M&R works?

Network Rail prepared the questionnaire. Below you can see some result from these questionnaires.

There are also several case studies.

Please rate the following criteria according to their importance in taking decisions to in/outsource maintenance & renewal works	*1 = not important, 5 = essential*					Average score	Rank
	1	2	3	4	5		
➢ There is a rigid, constraining framework (national law, political context, pre-defined policy…) that limits in/outsourcing decisions by the IM	3	2	2	2	2	**2,8**	12
➢ Competence available in-house vs. competence available on the market	1	0	3	4	3	**3,7**	7
➢ How critical the activity is, desire to maintain a certain level of control	0	1	0	4	5	**4,3**	1
➢ Keeping knowledge and know-how inside the company	0	1	1	3	6	**4,3**	2
➢ Large vs. smaller volumes of work	1	0	6	1	3	**3,5**	9
➢ Level of competition on the contractors' market	1	0	1	5	4	**4,0**	4
➢ Access to technology / innovation / knowledge	1	1	1	4	2	**3,6**	8
➢ Cost optimisation	0	1	0	5	5	**4,3**	2
➢ Own resource optimisation	1	1	0	3	5	**4,0**	4
➢ Peak period leading to an overload of work	1	2	2	2	3	**3,4**	10
➢ A positive risk analysis has been carried out	2	2	3	2	1	**2,8**	13
➢ Contractor's track record of successful projects	2	1	3	0	4	**3,3**	11
➢ Evidence that the contractor has appropriate resources and the capability to deliver the activity to the agreed specifications and schedule	0	2	3	1	5	**3,8**	6

Part 1: decision-making criteria from 11 Infrastructure Managers.

Value Adding Behaviours	*Please state whether you agree or disagree that the following behaviours **add** value*			Agree	
	Agree	Partly agree	Disagree	*IMs*	*Contractors*
➢ Openness on the work scheduled to be done over the medium-term (five years)	87%	7%	7%	57%	100%
➢ Clarity and simplicity of technical, legislative and safety standards required to be met in delivering the work	94%	6%	0%	100%	89%
➢ Long term partnerships between client and contractor	63%	19%	19%	43%	78%
➢ Single point of contact with contractors	50%	36%	14%	43%	44%
➢ Development of industry wide training schemes that contractors are able to get involved in if they wish	67%	27%	7%	86%	44%
➢ Behaviours of mutual respect – treating each other with honesty, courtesy, openness and respect – agreed via a partnership charter or equivalent	88%	13%	0%	86%	89%
➢ Joint development of whole life best value solutions	87%	7%	7%	71%	89%
➢ Collaboration and concise, clear, timely communication	88%	13%	0%	100%	78%
➢ **Good Safety and Environmental culture at all levels**	100%	0%	0%	100%	100%
➢ **Openness about Financial issues**	69%	25%	6%	71%	67%
➢ **Work is delivered to the agreed quality first time**	94%	6%	0%	86%	100%

Value Destroying Behaviours	*Please state whether you agree or disagree that the following behaviours **destroy** value*			Agree	
	Agree	Partly agree	Disagree	*IMs*	*Contractors*
➢ Lack of clarity in scope of work to be done, frequent uncontrolled and late changes by client, specifications, standards and capacity	100%	0%	0%	100%	100%
➢ Short-term late-notice contract award	88%	6%	6%	86%	89%
➢ Poor scope definition at both the future workbank level and individual project level as well as late changes to scope	88%	13%	0%	71%	100%
➢ Switching between in-sourcing and out-sourcing for any particular activity	63%	31%	6%	43%	78%
➢ Lack of focus by client on activities that could make the contractors more successful	75%	19%	6%	71%	78%
➢ **Poor site management or pressure to take "short cuts"**	94%	0%	6%	100%	89%
➢ **Poor quality work impacting passengers and requiring corrective action**	88%	13%	0%	86%	89%
➢ **Poor change management process**	81%	6%	13%	71%	89%
➢ **Short notice change to track access requirements or availability**	93%	7%	0%	71%	89%

Part 2: value-adding vs. value-destroying behaviours form 7 IMs, 10 contractors in 10 countries.

Today a structure for the Market Strategy draft report is ready. In the background the INNOTRACK report is an important input to this work. The report will have two parts. The first is “Decision making criteria used by Infrastructure Managers” where identifying types/categories of relevant criteria, measuring performance of maintenance & renewal works and refining and weighing range of criteria identified is reported. The second is “Understanding the importance of behaviour”. Finally there will be and Catalogue of best practice examples and also General conclusions and recommendations

This work is a good example of how other bodies have taken over an done a good job setting out from the results of INNOTRACK.

3.2 Long term Funding and Strategic Planning

3.2.1 Remit Long term Funding and Strategic Planning

Michael Robson EIM is responsible for this Working Group.

The purpose is to deliver proposals on how to empirically measure the benefits of Long Term Funding and Strategic Planning in the railway industry in respect of maintenance and renewal. The ability to measure the benefits will enable more effective lobbying for long term funding.

The scope is limited to maintenance and renewal work. The group should look at all factors including investment in people, process, research and machinery.

A careful study should be made of the UIC ongoing work Lasting Infrastructure Cost Benchmarking (LICB), Regulatory Bodies and IM/Contractors KPIs to see what already exists and how they could be built upon.

3.2.2 Planned deliverables:

- A set of performance indicators showing projected performance, asset condition, safety and price across a number of key activities over periods of between 1 and 10 years as a benefit of long term financing. This information will be used by IMs to lobby Member States for long term funding of infrastructure investment
- A table showing the reducing costs/increased output for the same level of investment over varying periods of time from 1 to 10 years. This information will be used by IMs to lobby Member States for long term funding of infrastructure investment

- A set of common KPIs to be used by IM/Contractors showing outputs in key areas to support EIM/CER in discussions with member states in terms of Multi Annual Contracts. These KPIs should cover the main activities in track work signalling and electrification.

3.2.3 Result so far

The lack of IM resources has resulted in that the results to date result are still rather poor.

3.3 Safety issues hindering harmonisation of rules and regulations for cross-acceptance of machinery, staff and working processes

EFRTC is responsible for this Working Group. The work is planned to end in 2010.

The objective of this task is to facilitate the cross-acceptance of contractors work by harmonizing safety rules and regulations related to contractors' plant, staff and works based on true willingness to find a consensus with added value for both national and pan-European levels.

The tasks are.

- Completion of the overview of the application of the Safety Directive 2004/49/EC with full European coverage with regard to
  - Safety authorities
  - Investigating bodies
  - Role of IM
  - Impact on the contractors
- Review of the safety requirements as applied by IMs and legislation per country – identification of differences and problems for cross acceptance aiming at harmonisation of the safety rules for work-site protection and logistics
- Cost implication of the safety requirements for contractors – benchmarking and best practices
- Means of the protection of the staff working in the track – review of the existing systems and proposal for harmonisation
- Contractors involvement in the process of the revision of TSIs related to safety

- EIM and EFRTC cooperation with regard to the elaboration of CEN standards related to safety
- Agreement on the calendar for the implementation of harmonized rules and regulations

3.3.1 Planned deliverables:

- Review of the application of Safety Directive – identification of potential impacts on contractors and commitments to implement by all stakeholders – report (lobbying document) at M6, responsible: Mr Naggar
- Review of current equipments and practices for the protection of the staff working in the track, report (benchmarking/code of practice) at M12, responsible; Mr Guyot
- Identification of major obstacles in application of the various safety requirements for cross-acceptance of contractors work – report (lobbying document/code of practice) at M12, responsible: Secretary General
- Proposal for harmonisation of the safety rules for work-site protection and logistics report (code of practice/proposal for rules/regulations) at M18.
- Cost implication of the safety requirements for contractors – report (lobbying document) at M 24.
- Proposal for the European project on individual warning installations/systems complying with ERTMS/ETCS, proposal at M24, responsible: Secretary General
- Periodical reporting on contractors' involvement in the process of the revision of STI related to safety, reporting every 6 months, responsible: Secretary General
- Periodical reporting on EFRTC involvement in CEN activities, reporting every 6 months, responsible: Mr Guyot
- Periodical review of the agreed calendar for the implementation, reporting every 6 months, responsible Chairman

Lean and efficient working teams for each item will be appointed from the association's experts. The experts shall be competent, committed and contributing to the fulfilment of remit. For this purpose it is essential to define the profile of experts and to select those accordingly.

3.4 Rules and Regulations – Harmonisation of Procurement Procedures

3.4.1 The remit of Rules and Regulations – Harmonisation of Procurement Procedures

This remit was based on the re-initiation of the tasks proposed by the former EIM/EFRTC Working Group on Harmonisation of Procurement (HoP). It forms a part of the overall remit for harmonisation of rules and regulations for cross-acceptance of contractors following the proposals of the joint infrastructure managers – contractors' workshop (Paris, 18.06.2008) as outcome of the INNOTRACK project.

The tasks is carried out by the newly set-up joint Working Group with strengthening the participation of infrastructure managers from EIM, enhancing them by infrastructure managers - members of CER, and contractors – members of EFRTC.

The appointments of the members for the new joint CER/EFRTC/EIM Working Group is made on the basis of the circulation of this remit by EFRTC, EIM and CER secretariats to its members calling for the experts of their members having capability and expertise to work on this remit.

The Chairmanship of the joint Working Group will be assured jointly by appointed infrastructure manager and contractor. Eric Maatjes from ProRail on behalf of infrastructure managers and Nick van den Hurk from VolkerRail on behalf of contractors are proposed to act as the joint Working Group Chairmanship.

3.4.2 Planned deliverables:

- Remit – "Lobby" document as a call for experts to "man-up" the working group. Circulation of call by CER/EFRTC/EIM secretariats ends 2008.
- The start of the work by current core team, appointment of participants was the 7th October 2009. Produce a draft document on decision making process.
    - Draft documents (in a matrix format) per EIM / CER member on:
    - Technical requirements ;
    - Organizational set up ;
    - Administrative and economical thresholds ;
    - Staff build up and competences;

- Plant & Equipment including the operational process & admittance;
- Current blockades preventing quick wins.

- Set of documents with analysis of the differences, proposals for solutions to overcome them based on consensus building.
- The sequence of the documents will be decided at the joint CER/EFRTC/EIM meeting.
- Draft document on the implementation of the recommendations; i.e. via cross acceptance of audit results.
- Draft document on the procedure to resolve differences of opinion on proposed solutions.

The objective is to set up lean and efficient working structure with the appointment of the association's experts who shall be competent, committed and contributing to produce deliverables as set up above.

3.4.3 Results so far

Also here there have been problem with engagement from IMs.

A new start up meeting was held in Amsterdam on 7th October 2009. It was a breakthrough with nine contactors, ten IMs and three organisations. All participants agreed that the work was important and to carry on with the task according to the remit.

On the meeting the "Directive 2004/17/EC" of the European Parliament and the Councilof 31 March 2004 was one of the working documents. "Coordinating the procurement procedures of entities operating in the water, energy, transport and postal services sectors" was discussed and a will be a basic document for future work.

4. Validation of results

4.1 Validation criteria ratings

	WP 5.3 – Support		WP 5.4 – S&C		WP 5.5 – Rail	
Seven Success Critical Areas	Financial Impact	Difficulty of Implementation	Financial Impact	Difficulty of Implementation	Financial Impact	Difficulty of Implementation
A – Market Strategies	M	L	H	M	H	M
B – Long Term Funding and Strategic Planning	H	M	H	M	H	M
C – Work Programming	H	M	H	M	H	M
D – Management and Logistics	M	L	M	M	M	M
E – Contracting Strategies	M	L	M	M	M	M
F – Rules and Regulations	H	M	H	H	H	H
G – Plant	M	L	H	H	H	H

Financial Impact – High (H), Medium (M), Low (L) – High is worst case.

Difficulty of Implementation – High (H), Medium (M), Low (L) – High is worst case.

The separate validation above was not possible to carry out within INNOTRACK. Therefore it is based on earlier interviews and questionnaires from D5.1.5, D5.1.6 and background material. The ranking can be clustered in five combinations of Financial impact vs Difficulty of implementation:

1. H-L – 0 Cases
2. H-M – 9 Cases (Blue)
3. H-H – 4 Cases (Red)
4. M-L – 4 Cases (Yellow)
5. M-M – 4 Cases (Green)

It was further suggested to regroup the seven success critical areas (A to G) since they have a different aspect.

Some are political like A, B and F. Some are commercial while others include mixed logistics and engineering aspects .

4.2 Outcome

Market strategies have successfully been tackled. See section 3.1.

Long term funding, planning and contracting has also been tacked. It has not been so successful mainly due difficulties to find suitable and engaged resources from the IMs. See section 3.2.

Work programming and Project management and logistics have been evaluated. See the work in WP5.3 – WP5.5, mainly deliverables D5.3.2, D5.4.2 and D5.5.2.

Contracting strategies and rules and regulations have been dealt with by the EFRTC, EIM and CER. See sections 3.3 and 3.4. It is also been a part of WP5.3-WP5.5.

Finally Plant has been investigated in WP5.3-WP5.5, see deliverables D5.3.2, D5.4.2 and D5.5.2.

This means that all findings from D5.1.5 and D5.1.6 have been addressed.

5. Conclusions and recommendations

As said in the executive summary and looking in the mirror on the objectives of SP5 in INNOTRACK it is clear that the objectives were a bit optimistic. The proposal was put together by contractors and IMs that did not have an international overview of the European situation. At the same time the European situation was much more complex than expected. This means that the outcome of SP5 was not the expected. Two other reasons for this was that the driving partner Carillion due to economical facts left INNOTRACK and that many participating Track Contractors where novices in participating in EU-projects.

If we look at the results from WP5.1 it is a big step forward. For the first time the real problems have been identified on a European level. Earlier reports and findings have too often been top level and not gone into enough technical details. The result from WP5.1 could be defined as good and first State-of-the-art reports in this area.

The deliverables from WP5.3-WP5.5 are more the developed result. Here there are several reports with figure that shows logistic benefits. This is also a step forward.

One of the key objectives of INNOTRACK was a reduction of life cycle costs with 30%. Most of the interviews with both contractors and IMs show a possible cost reduction to this extent. Since the statements done in the interviews are not verified and often referring to specific activities it is not possible to draw more precise conclusions. In D5.3.2, D5.4.2 and D5.5.2 some conclusions are drawn. They clearly show the potential of cost reduction.

Another conclusion already said in the executive summary is that a follow up project of SP5 is well motivated and needed if different European Union directives like “DIRECTIVE 2004/17/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 31 March 2004 shall have a chance to become a reality in the future.

In INNOTRACK the work carried out has also improved the understanding for the Track Contractors of the IMs situation and vice versa. This is probably the most important outcome of SP5 in INNOTRACK.

6. References

1. INNOTRACK Deliverable D5.1.5, Final report on existing states-of-the-art for construction, maintenance and renewal activities and assessment of logistic constraints, 21 pp (and 9 annexes 4+2+4+5+2+2+3+2+6+50), 2008
2. INNOTRACK Deliverable D5.1.6, Final report on conduct of interfaces between contractors and infrastructure managers and means of improvement, 34 pp, 2009
3. INNOTRACK Deliverable 5.3.2, Final report on logistics & support, 18 pp, 2009
4. INNOTRACK Deliverable 5.4.2, Final Report on the logistics of S&C, 16 pp (and 2 annexes 1+1 pp), 2009
5. INNOTRACK Deliverable 5.5.2, Final report on the logistics of rails, 18 pp (and 1 appendix 8 pp), 2009