INNOVATION PROCESSES IN SURFACE TRANSPORT

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1. Introduction

The present document refers to the 1st Consultation Workshop included in WorkPackage 2, Task 2.2 and constitutes part of the workpackage deliverable (D2) and is based on focus group reports.

The 1st Consultation Workshop took place in Antwerp on April 13 2010 and was hosted by the University of Antwerp (Lead partner). The task, while led by the University of the Aegean was fully supported by all partners.

This document is structured in five parts. The background to the consultation event provided in section 2 including information on the organisation of the event. The main findings are presented in section 3. Conclusions are drawn at the end. Support material and documentation is organised in Annexes.

2. Background

The **main objectives** of the 1st Consultation were to:

i. Conclude on the reality fit of the initial proposal (including innovation typology)
ii. Select 12 best practices and 12 failures for WP3 and WP4, respectively
iii. Identify the relative importance of factors to be considered in the analysis in WP4 and WP5 (scoreboard)
iv. Identify the influence of the *support processes* on the effectiveness of innovation adoption and ordinal ranking in relation to specific innovations
v. Identify thresholds for success and failure (definition)
vi. Select 3-6 types of innovations not on the market for WP5

The consultation was based on **input from task 2.1**, which included:

- The Preliminary Innovation Report
- Scoreboard and innovation cases to be used as consultation material
- Template full descriptions of innovations. As presented in Table 1, these include:
    - Road prepared by UA (six cases of success and six of failure or not—yet-success)
    - Rail prepared by CNRS (six cases of success and six of failure or not—yet-success)
    - Maritime prepared by UGenova (six cases of success and six of failure or not—yet-success)
    - Inland water ways prepared by TUDelft (six cases of success and six of failure or not—yet-success)
    - Intermodal prepared by UAegean and LCA (six cases of success and six of failure or not—yet-success)

The consultation was organised based on focus groups representing each transport mode and the intermodal option. Focus groups were introduced to the concept of the project and the aim of the consultation in an introductory plenary session. Focus groups findings were presented in a closing plenary session. The consultation programme is presented in Annex I.

The synthesis of each focus group was based on experts' expertise and individual knowledge. Invited experts included operators, European and national policy makers, market actors, transport experts/researchers etc. An invitation to approximately 70 international experts was initially dispatched, followed by a second wave of invitations including another 45 experts. Finally, 30 (26 % response rate) took part in the consultation event. Invited experts are presented in Annex II.

Table 1: Innovation Cases

ROAD TRANSPORT			
Case 1.	Trucks-on-Train	Case 7.	ECMT Multilateral Road Transport Permit System
Case 2.	Road Pricing	Case 8.	Off-Peak Deliveries
Case 3.	Electronic Toll Collection	Case 9.	European Vehicle Emission Standards
Case 4.	Eurovignette Directive	Case 10.	Environmental Zones
Case 5.	EU International Road Transport Market Liberalization: Cabotage	Case 11.	ITS: Intelligent Truck Parking
Case 6.	Long & Heavy Vehicles (LHVs)	Case 12.	ITS: Variable Speed Limits
MARITIME TRANSPORT			
Case 1.	Reefer Containerisation	Case 7.	Lash Carrier
Case 2.	Mega Containerships	Case 8.	Cold Ironing
Case 3.	Strategic Alliances	Case 9.	Green Ports
Case 4.	Hub & Spoke	Case 10.	Indented Berth
Case 5.	Port State Control	Case 11.	Double Hulled Tankers
Case 6.	Italian International Ship Register	Case 12.	European Register of Shipping (EUROS)
RAIL TRANSPORT			
Case 1.	Modalohr	Case 7.	Betuwe Line
Case 2.	Commutor	Case 8.	Tri-Modal Platform
Case 3.	European Rail Traffic Management	Case 9.	Proximity of Freight Train Operator: TPCF
Case 4.	Plan of revitalization of the European rail freight	Case 10.	Eurotunnel Shuttle
Case 5.	Trans-Siberian railway freight	Case 11.	Rigid Freight Train
Case 6.	Froidcombi	Case 12.	Direct rail freight line between France and Russia (GEFCO)
INLAND WATERWAYS TRANSPORT			
Case 1.	Whale Tail Propulsion	Case 7.	Container-transport in Inland Shipping
Case 2.	Air Lubrication of Ships	Case 8.	European regulations to sanitize the inland shipping industry
Case 3.	Distrishipping	Case 9.	Shore Power
Case 4.	Proportional Freight Partitioning	Case 10.	Advising Tempomaat
Case 5.	Ro-Ro Shipping	Case 11.	Project Waterslag
Case 6.	River Information Services	Case 12.	Y-shaped hull, Scheldehuid
INTERMODAL TRANSPORT			
Case 1.	Bi-polar Short Sea Shipping	Case 7.	Internalisation of External Costs
Case 2.	Collaborative Distribution Centers	Case 8.	Integrated Management of Port Operations
Case 3.	PPP Schemes for Intermodal Freight Villages	Case 9.	ISO Standard Container
Case 4.	Image of Short Sea Shipping	Case 10.	Motorways of the Sea
Case 5.	Marco Polo programs	Case 11.	European Intermodal Loading Unit (EILU)
Case 6.	Integrated ICT for Intermodal Freight Transport	Case 12.	Intergraded Intermodal Companies

Focus groups were formed per mode and experts attending each group were assigned based on expert knowledge background, business sector and particular interest, so as to be able to address issues and present views on particular mode subjects. Each group was coordinated by the partner responsible for the specific mode and supported by a member of the University of the Aegean (task leader). The synthesis of the focus groups is presented in Table 2.

Table 2: Focus Groups

ROAD TRANSPORT FOCUS GROUP		
Coordinators		
	Aronietis Raimonds	University of Antwerp
	Eddy van de Voorde	University of Antwerp
	Amalia Polydoropoulou	University of the Aegean
Participants:		
No	Name	Company/Association
1	Billiet Marc	International Road Transport Union (IRU)
2	Calzetti Mauro	NUMBER 1 Logistics Group S.p.A.
3	Homminga Tjerk	LunchButler
4	Van den Bussche Mario	Volvo
5	Barbarino Sergio	Procter & Gamble
MARITIME TRANSPORT FOCUS GROUP		
Coordinators		
	Claudio Ferrari	University of Genoa
	Giulia Arduino	University of Genoa
	Nikos Litinas	University of the Aegean
Participants:		
No	Name	Company/Association
1	Alkis J. Corres	Member of the board of EENMA (Hellenic Shortsea Shpowners Association) and the Port of Piraeus
2	Heinz-Christoph Eichner	Gottwald Port Technology
3	Trevor D. Heaver	Prof. Emeritus University of British Columbia.
4	Takis Katsoulakos	Director of INLECOM
5	Emanuele Profice	Strategic Planning Department of the Port Authority of Genoa
RAIL TRANSPORT FOCUS GROUP		
Coordinators		
	Olivier Klein	CNRS-LET
	Florent Laroche	CNRS-LET
	Athena Roumboutsos	University of the Aegean
Participants:		
No	Name	Company/Association
1	Doomernik Jack	Lloyd's Register Rail
2	Paelinck Honoré	independant consultant
3	Pessano Mauro	Cross Rail
INLAND WATERWAYS TRANSPORT FOCUS GROUP		
Coordinators		
	Koos Frouws	Delft University of Technology
	Herbert Grootbod	Delft University of Technology
	Costas Panou	University of the Aegean
Participants:		
No	Name	Company/Association
1	Luc Calluy	Waterwegen en Zeekanaal
2	Rubens, Stijn	Compagnie Maritime d'Affrètement - Compagnie Générale Maritime (CMA-CGM)
3	Sorgeloos, Ralph	Porthus
4	De Schepper, Karin	Inland Navigation Europe (INE)

Table 2: Focus Groups …. *Continue*

INTERMODAL TRANSPORT FOCUS GROUP		
Coordinators		
	Seraphim Kapros	University of the Aegean
	Thierry Vanelslander	University of Antwerp
	Monica Grosso	University of Genoa
Participants:		
No	Name	Company/Association
1	Homminga Tjerk[1]	LunchButler
2	Indrek Ilves	Procter & Gamble
3	Eichner Heinz	GPT
4	Delhaas Bert	Independent Consultant
5	D'haeyer Jan	Shipit
6	Larsson Mathias	Volvo Logistics
7	Verrept Erik	Nike Logistics
8	Tony Struyf	TSC intermodal
9	Peter Wolters	European Intermodal Association

3. Consultation Findings

As described earlier, the consultation was conducted in focus groups reflecting each of the transport modes considered in the InnoSuTra project. Their individual reports are presented in Annex IV of the present document. Each group was presented with twelve (12) innovation cases both recent and historical. The consultation evolved around these cases and focused on the following:

- General discussion and understanding of cases, leading to additional input per case depending on the experts' own experience and knowledge (see 3.1 below).
- Innovations in transport have socio-economic impacts and may be evaluated based on these impacts. The experts were asked to assess the importance of these impacts for innovation uptake in transportation and specifically in the specific transport mode (see 3.2 below) discussed in their focus group.
- Innovation cases were presented in a template including the various aspects of the innovation process, such as barriers to adoption, networks and clusters required, organizational changes required etc. For each case presented and discussed, experts were asked to assign scores to the various innovation process factors (see 3.3 below).
- The selection of cases for further study and basically as cases to be used for work packages 3 and 4 (see 3.4 below).

While a standard procedure was pre-agreed based on the consultation agenda (see Annex I), all groups deviated to a greater or lesser extent, as issues evolved based on presented cases. This resulted in richer findings per mode that may be exploited in the following workpackages.

3.1 Innovation Cases: Experts' input

In each focus group, following a brief description of respective innovation cases, an in depth discussion was generated. Experts' comments and conclusions were included in the innovation case templates. These improved descriptions of the innovation cases form a separate sub-deliverable, which improves and updates the innovation cases prepared under WP2, task 1.

Focus group reports emphasize on case discussions (see Annex IV). The identification of support processes for each case is presented briefly. Key items discussed in all focus groups were

[1] Mr. Homminga shared his time in two groups based on his interest of cases.

elements contributing or leading to success or failure of the particular innovation case. Common elements were not identified within or between groups at this stage.

3.2 Innovation Impact Factors: Experts' Weighting

Innovation in surface transport bears multiple socio-economic impacts. These impacts are also listed in the innovation case description and, obviously, each innovation scores differently for each impact. The description of impacts as prepared in Task 2.1 is presented in Annex III. Experts were presented with the list of these impacts (Table 3) and asked to:

(i) Address their completeness and

(ii) Assess their relative weights.

Their mean average assessment per mode is presented in Table 4. Notably, assessments varied significantly amongst mode and within modes (Table 5a).

The exercise was easier to accomplish within smaller size groups. The Intermodal focus group tried an alternative approach, by assigning per impact factor the degree of importance in a 1 to 5 likert scale. The exercise was set at the beginning and the end of the focus group, indicating shifts in perceptions during the course of the group discussion. All other groups assessed weights as a final exercise.

Table 3: Proposed Innovation Impact Factors

Impact Factors	**Weights (%)**
Employment	
Congestion	
Co-operation	
Scale increase	
Extrapolability	
Chain Efficiency	
Environmental Effects	
European Competitiveness	
Business Acceptability	
Social Acceptability	
Total	**100%**

Table 4: Innovation Impact Factors: Experts' Average Assessment per Mode

Weights (%)

Impact Factors	Road			Maritime			Rail			Inland Waterways		
	Median	Averag	Stdev	Median	Averag	Stdev	Median	Averag	Stdev	Median	Averag	Stdev
Employment	10	10,4	8,3	0	6	8,2	0	5,0	8,7	7	7,5	4,9
Congestion	5	7	7,6	5	7	7,6	15	13,3	7,6	9,5	10,8	8,1
Co-operation	5	4,4	4,9	0	1,6	2,2	0	6,7	11,5	7,5	8,0	3,9
Scale increase	3	4,6	6,2	0	1	1,4	5	6,7	2,9	14	13,8	4,0
Extrapolability	5	5,2	4,8	0	0,6	1,3	0	3,3	5,8	2	2,8	1,5
Chain Efficiency	5	9,8	9,1	5	5	5,0	10	8,3	2,9	14,5	13,8	4,3
Environmental Effects	15	15,8	4,5	25	23	8,4	10	13,3	5,8	11,5	11,3	6,1
European Competitiveness	5	5,8	4,0	13	12,6	8,3	10	16,7	11,5	10	10,0	6,6
Business Acceptability	20	20,4	7,6	10	15	9,4	20	18,3	12,6	15	14,0	2,0
Social Acceptability	15	16,6	8,8	15	15,2	12,5	10	8,3	7,6	8	8,3	4,4
Competition				0	2	2,7						
Cost reduction / service improvement				5	11	16,7						
No of Participants	5			5			3			4		

The Maritime Focus Group, as shown in Table 4, considered the impact of two additional factors, namely:

1. Competition, and
2. Cost reduction/ service improvement

However, these two factors could amplify the "Business Acceptability" factor and be introduced under this heading.

The validity of the average weights assigned varies from rail (the least significant – 3 participants) to intermodal (the most significant – 9 participants) based on the number of group participants consulted in each focus group. As shown in Table 5a, weights per impact factor vary significantly within focus groups, expressing the varying backgrounds and consequently the different importance placed by each expert. Interestingly enough (see table 5b), repeating the exercise at the end of the focus group, while leading to shifts in experts' assessments', the discussion did not lead to any consensus or convergence of the differing views.

Business acceptability scores relatively high for all modes, followed by social acceptability and environmental effects. This finding is important for the project as it is in support of the project approach / "*reality fit*". Rail and Inland Waterways (IWW) also identify "Congestion" and "Scale increase" as an equally important factor.

While this may be said addressing the overall mean average per transport mode, Table 5a shows a significant variance in opinions within groups. Nonetheless, with few exceptions, "co-operation" and "extrapolability" did not receive much attention.

Based on experts' discussion of differences (see Annex IV), differences stem from the key item experts believe to be important in achieving business development and cost reduction (hence the importance assigned to business acceptability).

For example in the **Rail** focus group, one expert considered "co-operation" as the a key item so as to address the interoperability issues between national rail systems; another expert consider "chain efficiency" and "scale increase", while a third supported that rail industry stands to gain by promoting its environmental friendly image and hence supported "environmental effects". Meanwhile, "social acceptability" scored relatively low, as all experts believed that rail is already socially acceptable.

The later point of consensus in the Rail focus group bears significance in interpreting all findings. Experts' assessments are greatly influenced by their personal experience and the history/profile of the mode they are involved with. For example, the Rail focus group considers "social acceptability" as important in general. However, when asked to assess relative weights, "social acceptability" scores relative low in comparison to importance assigned to other impact factors.

Likewise, in the **IWW** focus group one expert considered that business development is achieved through improved use of transport infrastructure and therefore "congestion" was the supported impact; a second expert saw business development through "scale increase" as economies of scale may be achieved; another considered "chain efficiency" as important to decrease costs and, through this improve business and finally, the fourth expert considered "competitiveness" as the key factor to achieve improved business results.

Experts' comments, as presented above, followed by the respective interpretations lead to the estimate that the basic impacts valued are:

- Business acceptability and
- Social acceptability.

Table 5a: Innovation Impact Factors: Experts' Assessment per Mode *Weights (%)*

	Road					Maritime					Rail			Inland Waterways			
Participant No	1	2	3	4	5	1	2	3	4	5	1	2	3	1	2	3	4
Employment	0	10	5	20	17	0	0	0	15	15	15	0	0	14	7	2	7
Congestion	20	0	5	5	5	0	0	5	15	15	15	20	5	20	4	4	15
Co-operation	0	0	5	5	12	0	0	0	4	4	20	0	0	6	9	13	4
Scale increase	0	15	0	5	3	0	0	0	3	2	5	10	5	12	18	16	9
Extrapolability	0	10	10	5	1	0	0	0	3	0	0	0	10	2	2	5	2
Chain Efficiency	0	5	20	5	19	0	0	5	10	10	10	10	5	8	16	18	13
Environmental Effects	20	15	15	20	9	25	30	30	10	20	10	10	20	17	5	7	16
European Competitiveness	0	5	10	5	9	25	15	5	5	13	10	30	10	2	11	9	18
Business Acceptability	30	25	20	10	17	25	25	5	10	10	5	20	30	15	15	15	11
Social Acceptability	30	15	10	20	8	25	30	5	15	1	10	0	15	4	13	11	5
Competition						0	0	5	5	0							
Cost reduction / service improve.						0	0	40	5	10							
TL	100%																

Table 5b: Innovation Impact Factors: Experts' Assessment in Intermodal Focus Group *Scale 1 to 5*

	Ex-ante Estimates									Post Estimates								Shift						
Participant No	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9	1	2	4	5	6	8	9
Employment	4	3	3	3	4	4	4	2	3	5	3		2	3	1		2	2	1	0	-1	-1	-3	0	-1
Congestion	5	5	5	4	4	5	4	3	5	5	5		5	4	4		2	3	0	0	1	0	-1	-1	-2
Co-operation	4	4	5	4	4	5	4	5	5	3	4		4	5	1		2	5	-1	0	0	1	-4	-3	0
Scale increase	4	4	3	3	3	4	4	3	3	3	3		3	5	2		4	2	-1	-1	0	2	-2	1	-1
Extrapolability	3	3	4	3	3	3	3	3	3	3	3		1	4	1		4	4	0	0	-2	1	-2	1	1
Chain Efficiency	3	4	4	4	4	4	5	3	4	4	4		5	5			5	4	1	0	1	1	-4	2	0
Environmental Effects	4	4	4	4	3	5	4	3	5	5	5		3	4	5		4	3	1	1	-1	1	0	1	-2
European Competitiveness	3	2	2	3	1	1	1	2	1	4	4		3	3	1		1	1	1	2	0	2	0	-1	0
Business Acceptability	4	3	3	4	4	4	4	4	3	4	4		5	5	3		2	5	0	1	1	1	-1	-2	2
Social Acceptability	4	4	4	4	4	2	2	4	3	4	3		1	2	2		1	4	0	-1	-3	-2	0	-3	1
Competition	4	3	3	3	4	4	4	2	3	5	3		2	3	1		2	2	1	0	-1	0	-3	0	-1
Cost reduction / service improvement	5	5	5	4	4	5	4	3	5	5	5		5	4	4		2	3	0	0	0	-1	-1	-1	-2

All other impacts, as presented in the list are considered as key factors or "means" in achieving the above stated principal goals and impacts. In this approach, values in Table 5a may be presented under two headings (see Table 5c), where with few exceptions business and social acceptability is equally weighted.

Table 5c: Summation of Assessed Weights *Weights (%)*

	Road					Maritime					Rail			Inland Waterways			
Participant No	1	2	3	4	5	1	2	3	4	5	1	2	3	1	2	3	4
Overall Social Acceptability	**70**	**50**	**50**	**75**	**52**	**50**	**60**	**40**	**62**	**55**	**70**	**30**	**50**	**63**	**40**	**42**	**49**
Social Acceptability (generic)	30	15	10	20	8	25	30	5	15	1	10	0	15	4	13	11	5
Employment	0	10	5	20	17	0	0	0	15	15	15	0	0	14	7	2	7
Congestion	20	0	5	5	5	0	0	5	15	15	15	20	5	20	4	4	15
Co-operation	0	0	5	5	12	0	0	0	4	4	20	0	0	6	9	13	4
Extrapolability	0	10	10	5	1	0	0	0	3	0	0	0	10	2	2	5	2
Environmental Effects	20	15	15	20	9	25	30	30	10	20	10	10	20	17	5	7	16
Overall Business Acceptability	**30**	**50**	**50**	**25**	**48**	**50**	**40**	**60**	**38**	**45**	**30**	**70**	**50**	**37**	**60**	**58**	**51**
Business Acceptability (Generic)	30	25	20	10	17	25	25	5	10	10	5	20	30	15	15	15	11
Competition						0	0	5	5	0							
Cost reduction / service improve.						0	0	40	5	10							
Scale increase	0	15	0	5	3	0	0	0	3	2	5	10	5	12	18	16	9
Chain Efficiency	0	5	20	5	19	0	0	5	10	10	10	10	5	8	16	18	13
European Competitiveness	0	5	10	5	9	25	15	5	5	13	10	30	10	2	11	9	18

3.3 Innovation Cases: Experts' Scores

In general, following the description of each case and the discussion generated on its application and applicability, limitations/barriers to implementation and/or adoption, elements that may enhance and support the adoption of each specific case, experts were asked to complete the scorecard as described in the innovation templates. Scoring varied according to individual estimates and priorities. Scoring per mode and case is presented in Annex V.

Averages have no statistical significance and therefore are not generally reported on here. However, there were two exceptions: the IWW focus group and the Maritime focus group the former produced an overall assessment (scoring) per case based on experts' opinions and the latter amalgamating individual scores to reach consensus (see ANNEX V - Maritime Focus Group Report).

In general, scores, as presented in Annex V, cannot be averaged or discussed as overall assessments. Their values lies in the justification of assessments as registered in the focus group reports. In addition, no clear relation may be identified between selected cases (see section 3.4) and scores.

3.4 Selected Cases for Further Studying

Experts per focus group (i.e. per mode) were asked to select:

- Two successful innovation cases
- Two not-yet-successful or failed cases, and
- One intermediate case

Selected cases are presented per mode/focus group.

3.4.1 Road Selected Cases

The selected cases for road transport are as follows:

Successful Cases

Case 5: EU International road transport market liberalization: Cabotage

Road cabotage transport is governed by Council Regulation No 3118/93 which lays down the conditions under which non-resident carriers may operate national road haulage services within a Member State.
Cabotage resulted in a shift of specialisation and created a more competitive market with improved results for the consumer and the operator:

- Small companies, serving cities and smaller areas
- Large European Carriers

Case 12: ITS: Variable speed limits in Sweden

Variable speed limit means that the speed limit is temporarily lowered by means of road signs when certain conditions occur. The speed limits are based on traffic and/or weather condition. Variable Speed limits may increase flows up to 10-15% or even higher and reduce occurrence of start-stop traffic.

Not-Yet-Successful or Failure Cases

Case 4: Eurovignette Directive

The Directive harmonises levy systems - vehicle taxes, tolls and charges relating to the use of road infrastructure - and establishes fair mechanisms for charging infrastructure costs to hauliers.The Directive covers vehicle taxes, tolls and user charges imposed on vehicles intended for the carriage of goods by road and having a maximum permissible gross laden weight of not less than 12 tonnes. From 2012 onwards Directive 2006/38/EC will apply to vehicles weighing between 3.5 and 12 tonnes.

The notion of Eurovignette was introduced in 1999, while the Council adopted Directive 2006/38/EC - the so-called 'Eurovignette Directive' - amending Directive 1999/62/EC on the charging of heavy goods vehicles for the use of certain infrastructure.

Two basic issues were identified with respect to this case:

- Whether it's reasonable to apply road tax, tolls and Eurovignette, and
- Whether "congestion" should be considered an internal or external cost.

Case 7: Introduction of three loaded trips limit in ECMT multilateral road transport permit system
ECMT licences can only be used for transport operations after a laden trip between the country of registration and another ECMT member country and then vehicles can only make three laden trips before they must return to the country of registration, either laden or unladen.

ECMT is a trade facilitator, but its implementation is extremely complicated. Every country has a limited quota of truck level permits and electronic documents are not matured in all 43 countries.

Intermediate Cases

Case 6: Introduction of LHVs (Long and Heavy Vehicles)

The current regulation permits trucks of maximum 16.5 m (1 point of articulation) or 18.75 m (1 or 2 points) in length, 40 tonnes in weight and 4 m in height to circulate across European borders. For intermodal traffic, 44 t is the current maximum. It is proposed to increase the limits allowed by the legislation in order to allow the use of bigger and/or heavier vehicles in and between adjacent and consenting Member States.

The objective is to decrease the empty kilometres, but there are numerous barriers to adoption including manufacturing, driver training, potential of road accidents etc.

Case 11: ITS: Intelligent Truck Parking

EU regulations oblige truck drivers to take regular breaks. Intelligent parking management systems for freight transport contribute to a more balanced and efficient use of truck parking and service areas by supporting the optimal use of free parking spaces.

There is a strong need of secure parking areas, and there is a scarcity of those across EU. A data interface is required in order to create an information system for slot allocation and booking. The parking areas should be secured and booking capability must be available. Parking areas should be supported by services.

3.4.2 Maritime Selected Cases

The selected cases for maritime transport are as follows:

Successful Cases

Case 1: Reefer containerization

The reefer containerisation concerns the growing percentage of perishable cargo moved in reefer containers (positioned both in containerships and in specialised reefer vessels) and the growing containerships' capacity dedicated to reefer containers.

This case has been evaluated as a case of success to analyse in depth. An important aspect is the complexity of the cold chain, and the role of the actors that can control it through its integration. Thus the role of the incubator becomes very relevant in the spread process of this innovation. The extrapolability of this innovation has been considered quite difficult to achieve due to the high costs to transfer reefer containers in other transport modes such as train and truck. The main impacts are economic and logistical for the shipping companies rather than social.

Case 5: Port state control

Port State Control (PSC) is the inspection of foreign ships in national ports by PSC officers (inspectors) in order to verify that the competency of the master and officers onboard, the condition of the ship and its equipment comply with the requirements of international regulations and conventions (e.g. SOLAS, MARPOL, STCW, etc.) and that the vessel is manned and operated in compliance with applicable international law.
The barriers to adoption have been evaluated as inexistent due to the fact that this system is compulsory. The experts have suggested to analyse this case in depth as it has shown positive impacts on ports in the last years. It has been underlined that the main benefits are social and environmental and not monetary.

Not-Yet-Successful or Failure Cases

Case 10: Green ports (focused on cold ironing)

The concept of green port is difficult to be defined, but in general it uses the applicable laws and regulations as a baseline for its environmental performance. Further, it is considered a port that not only meets all the environmental standards in its daily operations, but also has a long-term plan for continuously improving its environmental performance.

This case has not been considered as a single innovation but it includes a set of measures that can represent an innovative approach to port management. Among this set of new measures, the experts have recommended focusing on the positive impacts of cold ironing on the port environment. Indeed, they have evaluated cold ironing as one of the possible new energetic solutions applied to port areas for making them "green". Experts suggested to analyze this case in depth as it refers to a very innovative concept which can be potentially developed in many European and international ports.

Case 9: Indented berth

In literature, the indented berth is a revolutionary concept among container terminal facilities: it is a particular berth capable of serving ships from both sides. As many as nine cranes can operate on the ship in the slip at one time. Operating cranes on both sides of the ship introduces the potential of collision of cranes and boxes over the ship. This requires a reliable collision avoidance system.

Many aspects that make this innovative case not yet a success have been discussed such as difficulties for bunker operations of vessel, expensive quay wall and necessity for more equipment. It is considered a unique case, developed quite recently, and therefore set under the category of "not yet a success". In addition, its full impacts can not be evaluated at its current stage of development. The experts have suggested that this case be analyzed in depth, in order to investigate if the extrapolability in other ports may be high or it will remain the only case at global level.

Intermediate Cases

Case 2: Mega containerships

Mega containerships are classified in literature as the containerships yielding with more than eight thousand containers or twenty-foot equivalent unit (TEU).

This case has been evaluated as not well defined as success or not yet a success. This is due to the fact that the initial growth of this type of ships at the end of the 1990's has become slower in the last years, probably as a consequence of the current economic crisis involving also the shipping industry which has led to oversupply. Moreover the order book for this type of vessel is currently under discussion with the shipyards. The main impacts are economic and logistical for the shipping companies rather than social.

3.4.3 Rail Selected Cases

The selected cases for rail transport are as follows:

Successful Cases

Case 3: ERTMS

European rail network is fragmented into several national networks that are incompatible between them. To promote continuous and efficient railways in the European area, the European Union has supported since the 1990s a program of research on a new tool: the ERTMS. ERTMS (European Rail Traffic Management) is a system of monitoring of rail traffic destined to replace the 27 rail signaling systems in service in Europe.

The case was considered as a real innovation by the experts. The case is principally a technical and political success but the system is expensive.

Case 5: Trans-Siberian railway freight

Regarding the growth of freight traffic during the last two decades between Asia and Europe, the Trans-Siberian experiencing has recently known a new interest from rail operators. Faster than shipping and cheaper than air, it presents a large number of advantages despite the technical and organizational difficulties that may occur.

This is an interesting case for interoperability, which is the basic problem between national railway systems and a major barrier to rail freight transportation.

Not-Yet-Successful or Failure Cases

Case 1: The MODALOHR

MODALOHR has the particularity to be at the same time a technical innovation and an organizational one. It's a low-floor articulated railway wagon, adapted for transhipment of standard semi-trailers from road to rail. MODALOHR is not only able to carry on complete trucks but also simple semi-trailers without any specific condition. The driver loads on his truck by himself in about 40 minutes in theory and travels on the train to its destination.

The innovation was an attempt to allow for easy and independent transhipment. While a technical success, the innovation was an economic failure.

Case 7: Betuwe Line

In June 2007, the 160 kilometres of a dedicated freight line – the "Betuwe Line" (double track freight railway) - opened between The Netherlands (Port of Rotterdam) and Germany. The objective was to improve the share of rail transport between Rotterdam and Germany as in 2000, only 15 % of freight transport was conducted by rail, 44 % by road and 41 % by inland waterways. Rail speed is approximately 120 km/h. The line, at the end of 2007 (before the economic crisis), operated around 100 trains/day.

This innovation case was chosen as it was highly interesting to analyse on the one hand the impact of the financial and economic crisis on the split of traffic between modes and, on the other to compare actual usage to forecasts. Notably, this is a large freight rail infrastructure designed for approximately 160 trains per day.

Intermediate Cases

Case 4: European freight revitalization plan

To stop the decline of rail freight in Europe at the end of the 1980s, the European commission decided, in the beginning of the 1990s, to help this sector and revitalize it by European directives.

The main objectives followed by the European Commission were to create an integrated European railway area. To reach this goal, the European Commission chose to liberalize rail transport, introduce competition between operators and support investments in infrastructure (subsidies).

This is an interesting case but its matter is too large. The recommendation of the experts is to study this case through the freight European corridors. The success of this policy initiative is a major element for the European rail freight competitiveness.

Case 10: Eurotunnel Shuttle

Eurotunnel shuttle is a shuttle service for HGV and cars between Calais / Coquelles and Folkestone (UK) managed by the private French-British Company Eurotunnel which has the concession of the use of the tunnel infrastructure for 99 years. It goes through the Channel Tunnel with a "ferroutage service" with HGV and passenger cars in between, carried in closed wagons (HGV are carried on semi-open wagons with a separate passengers carriage (Club car) for the drivers.

The Eurotunnel shuttle case is interesting in a feedback perspective after many years of operation, and also in the future with the development of Eurotunnel as a freight train operator in Europe.

3.4.4 Inland Waterways Selected Cases

The focus group based decisions on the importance of future study and went forward in combining innovation cases. Hence, the following were proposed.

Successful Cases

Case 13 – new: Information Technology in the inland navigation industry

River Information Services (RIS) is part of Information Technology (IT). More innovations in the implementation of IT could be valuable to study for future innovation processes. For this reason, a new innovation was chosen; "Information Technology in the inland navigation industry". This innovation could include RIS, inland ECDIS, and advising "Tempomaat". Case no. 6 (RIS) and no. 10 (advising Tempomaat) will be combined in a new innovative case.

Case 14 – new: Container transport in the inland navigation industry

Case no. 7 introduction of container transport in inland navigation industry is believed to be too limited. There have been a lot of developments and innovation in this sector it will be valuable to study all these innovations. This case is extended to a new innovative case "container transport in the inland navigation industry". Container transport is still growing and will be used in the future. These developments are recent and believed to be suitable cases to study.

Not-Yet-Successful or Failure Cases

Case 2: Air lubrication of ships in the inland navigation industry

Technological cases should definitely be studied. Technological innovations will influence the industry in the future. Knowing how to manage an innovation process with a technological innovation could result in a more efficient innovation process. Case no.2 "Air lubrication of ships in the inland navigation industry" is selected for further study.

Case 15 – new: Utilization of the available capacity on small inland waterways

Case no. 11 "Project waterslag" and no. 3 "Distrishipping" will be combined and extended into a new innovative case. There have been a lot of developments and projects that can be summarized

in one innovative case “utilization of the available capacity on small inland waterways”. Study of these processes could be very valuable because these innovations are recent and in the future it is expected that they will be further developed.

Intermediate Cases

Case12: Y-shaped hull, Scheldehuid

The development of this innovation has already taken a long time. It could be very interesting to know why it is still not implemented. Case no. 12 “Y-shaped hull, Scheldehuid” will be studied. This innovation is already introduced and growing. For this reason, this innovation is representative of technological innovation at this moment, it is valuable to study and improve the efficiency of the technological innovation process.

3.4.5 Intermodal Selected Cases

Based on focus group discussion and coordinators’ judgement, the following cases are considered for further study.

Successful Cases

Case 3: PPP Freight Villages combined with Case 2: Collaborative Distribution Centers

According to the focus group, the spatial organization of logistics activities through the development of freight villages is expected to continue with intensive rates in the future. It is considered as a significant innovation, progressing through various new funding and business models. Although it is known from the sixties, the concept of Freight Villages continually progresses as far as development models are concerned. Moreover, it has been only recently inserted in the political agenda of the European Commission (2007 - before it was dealing with initiatives at the regional level); this is expected to give more impetus to their development.

Collaborative Distribution Centers can be mainly implemented in small cities, where the number of retailers and the respective quantities of goods delivery are manageable. In medium and big cities, implementation barriers are higher. In bigger cities, the establishment of general Freight Villages, based on 3rd Parties’ integrated organizations along the chains, can offer the appropriate solutions. In all cases, the logistics management spatially organized on the basis of Freight Villages is a real innovation; it requires close coordination between transport actors, production and commerce actors and local governments; from this viewpoint, specificities are not enough to distinguish this type of logistics infrastructure and business model (collaborative) from the general Freight Village case. Similarities are much more important than particularities from the general objectives and implementation perspective.

Case 6: Integrated ICT

ICT is a very promising tool, essentially for the improvement of intermodal transport operations where a variety of actors are involved. On the one hand, there are successful cases where large companies invest in large systems. On the other hand, a lot of attempts to develop a framework architecture, tailor-cut to the needs of intermodal transport, have failed so far. Although the adoption is limited to a relatively small number of networks (perception of the focus group), considering the positive impact from the implementation of such systems, ICT is considered as a challenging opportunity. It is considered as a success case and the question is whether and how ICT can be further diffused.

Not-Yet-Successful or Failure Cases

Case 7: Internalization of external costs

The internalization of external cost is a brilliant concept not only because it contains the social dimension of transport but also because it is a wonderful instrument for the rationalization of the transport system. However, the concept application has failed in practice (no sensitive impact on modal split for the last decade) due to the lack of an appropriate and common assessment method and the diversity of national policies as well.

Case 11: EILU - European Intermodal Loading Unit

The willingness of the industry (particularly the operators) to contribute to the standardization process “had reduced in recent years”. It further observed that the current situation was that of “container and swap body manufacturers being asked more and more to produce equipment to individual owner specifications”. Hence, “the manufacturers were no longer interested to invest time and money in the preparation of standards” “In addition, standard equipment is most likely to be produced outside Europe.” Without “public support” (money and resources) it was unlikely that an EILU standard would be produced”. Without such a standard, the EILU could not be developed and operated.

Intermediate Case

New Case: Short Sea Shipping

Short distance maritime transport long exists; it is not an innovation per se. On the contrary, the initiative to adapt SSS to new added value logistics requirements and to increase the SSS service quality is an innovation. The impact from such an evolution would be of crucial importance for the European maritime transport system (changes in modal split, sustainability etc). A lot of efforts have been made at the transport policy level and a lot of progress is actually stated as far as the service level of SSS is concerned. After 15 years of steadily increasing importance of SSS in the policy agenda, it is not yet known if the result in the practice is positive; considering the technical and business specificities of the mode, between launching policy measures and assessing results, a lot of time is needed. The case of SSS needs more time in order to be definitively assessed. The focus group does consider the promotion of SSS as an innovation; however, for the time being the group does not consider it neither as a success nor as a failure case. It is worth monitoring this case with great interest.

Bi-polar SSS (Case 1) does not imply additional or alternative organizational procedures. The establishment of such services exclusively depends on the existence of a critical demand between two zones. In cases where economic viability is guaranteed, the market actors have already covered the needs. As a sub-case, it does not really justify a distinct innovative case.

Finally, the case of Motorways of the Sea (case 10) cannot easily be isolated from the general SSS discussion. Hence, European SSS (case 4), Motorways of the Sea (case 10), the Marco Polo program (Case 5) as well as Bi-polar SSS Services (case 1), where considered undistinguishable by the experts and considered in total an intermediate case.

3.4.6 Summary of Selected Cases

Selected cases per mode are summarized in table 6. Based on existing innovation cases presented, five new cases were produced for further study. These new cases concern Inland Waterways (3 cases) and Intermodal transport (2 cases). The Road focus group selected an additional case as an “intermediate” success to be studied.

Notably, while innovation cases were prepared in Task 1.1 representing (i) technological (ii) organizational/ managerial (iii) cultural innovations and (iv) policy initiatives with an effort to

represent both success and failure cases, cases selected for further study by the focus groups did not follow any such constraint.

In this context, table 7 reflects initial estimates of success or failure (or not-yet-success) cases and their respective selection. In addition, the category (technological, organizational/managerial, cultural innovation or policy initiative) under which each case was assigned is noted.

It is interesting to note that:

- Two (2) of the ten (10) Success Cases selected were initially considered as "failures".
- Four (4) of the eight (8) Not-yet-success/failure selected cases were initially considered as "success". The other two selected cases did not have an initial assignment.
- Four (4) of the intermediate selected cases were initially considered as a success.

This definitely signifies a differentiation in the perception of "success" and "failure" assigned by the project team and the experts, which might possibly be traced backed to the importance placed on "business affordability" and business related impacts as presented in section 3.2 of this document and the intention of the project to examine the spread of innovations across the sectors and the relevance of the barriers to that spread that may be able to be removed by policy actions where these are justified by the wider socio-economic benefits.

Table 6: Selected Cases Summary

	Road	Maritime	Rail	IWW	Intermodal
Success	Case 5: EU International road transport market liberalization: Cabotage	Case 1: Reefer containerization	Case 3: ERTMS	**New Case**: Information Technology in the inland navigation industry	**New Case**: Freight Villages
	Case 12: ITS: Variable speed limits in Sweden	Case 5: Port state control	Case 5: Trans-Siberian railway freight	**New Case**: Container transport in the inland navigation industry	Case 6: Integrated ICT
Not-Yet-Successful or Failure Cases	Case 4: Eurovignette Directive	Case 9: Green ports (focused on cold ironing)	Case 1: The MODALOHR	Case 2: Air lubrication of ships in the inland navigation industry	Case 7: Internalization of external costs
	Case 7: Three loaded trips limit in ECMT multilateral road transport permit system	Case 10: Indented berth	Case 7: Betuwe Line	**New Case**: Utilization of the available capacity on small inland waterways	Case 11: EILU - European Intermodal Loading Unit
Intermediate Case	Case 6: Introduction of LHVs (Long and Heavy Vehicles)	Case 2: Mega containerships	Case 10: Eurotunnel Shuttle	Case12: Y-shaped hull, Scheldehuid	**New Case**: Short Sea Shipping
	Case 11: ITS: Intelligent Truck Parking		Case 4: European freight revitalization plan		

Considering the category (type) of innovation cases selected:

- The Road focus group selected four (4) policy initiatives, one (1) technological and one (1) characterized by a mix of technological, managerial and cultural innovation cases.

- The Maritime focus group selected two (2) technological, two (2) cultural and one (1) managerial innovation cases.
- Most cases selected by the Rail focus group were a mix of technological and managerial innovation, while two case also concerned the additional element of cultural innovation and one considered a policy initiative in addition.
- The Inland Waterways focus group selected two (2) technological, two (2) managerial and one a mix of managerial and cultural innovation cases.
- Finally, the Intermodal group selected two (2) policy initiatives, one (1) technological and two (2) managerial and cultural innovation cases.

Finally, the assessment versus type of innovation has as follows:

- Success cases selected concern three (3) technological innovation, one managerial innovation, one cultural innovation, one policy initiative, two (2) cases with a mix of managerial and cultural innovation and two (2) cases with a mix of technological, managerial and cultural innovation.
- Not-yet-Success / failure selected cases concern four (4) policy initiatives, two (2) managerial innovations, one cultural, one technological and, finally, two (2) technological and managerial innovations.

Table 7: Comparison of ex ante and post consultation estimates of success and failure

	Road	Maritime	Rail	IWW	Intermodal
Success	Case 5 Initial Char.: **S**[2] Policy Initiative	Case 1 Initial Char.: **S** Technological Innovation	Case 3 Initial Char.: **S** Technological/ managerial/ Cultural Innovation	**New Case**: IT (ext. of RIS) Initial Char.: **S** Managerial/ Cultural Innovation	**New Case**: (Case 2 &3) Initial Char.: **S** Managerial/ Cultural Innovation
	Case 12 Initial Char.: **F**[3] Technological Innovation	Case 5 Initial Char.: **S** Cultural Innovation	Case 5 Initial Char.: **S** Technological/ managerial Innovation	**New Case**: (ext. of Case 7) Initial Char.: **S** Managerial Innovation	Case 6 Initial Char.: **F** Technological Innovation
Not-Yet-Successful or Failure Cases	Case 4: Initial Char.: **S** Policy Initiative	Case 9 Initial Char.: **S** Cultural Innovation	Case 1 Initial Char.: **S** Technological/ managerial Innovation	Case 2 Initial Char.: n.a. Technological Innovation	Case 7 Initial Char.: **F** Policy Initiative
	Case 7: Initial Char.: **F** Policy Initiative	Case 10 Initial Char.: **F** Managerial innovation	Case 7 Initial Char.: **S** Technological/ managerial Innovation	**New Case**: Initial Char.: n.a. Managerial innovation	Case 11 Initial Char.: **S** Policy Initiative

[2] S: Success
[3] F: Failure

Intermediate Case	Case 6 Initial Char.: **F** Policy Initiative	Case 2 Initial Char.: **S** Technological Innovation	Case 10 Initial Char.: **S** Technological/ managerial Innovation	Case12 Initial Char.: **S** Technological Innovation	**New Case** (cases 1, 4, 5& 10) Initial Char.: n.a Managerial/ Cultural Innovation & Policy Initiative
	Case 11: Initial Char.: **F** Technological & Managerial Innovation		Case 4 Initial Char.: **S** Managerial/ Cultural Innovation & Policy initiative		

- Intermediate selected cases concern one policy initiative, two (2) technological innovations, two (2) technological and managerial innovation cases and, finally, two (2) cases which concerned managerial and cultural innovation accompanied by policy initiative.

Notably, while all types of innovations are present in the above assessment, technology innovations prevail in the success cases, policy initiatives in the not-yet-success/failure cases and technology-based in the intermediate cases. This unconstrained overall result in the selection of cases in fact underlines and justifies the scope of the present project and its "reality fit" as it suggests the unfavorable outcome of policy initiatives in support of innovation.

3.5 New Innovation Cases

Experts in focus groups were given the opportunity to suggest other innovation cases which were not included in the presented set of innovations per focus group/mode.

The Inland Waterways and Intermodal focus groups considered the re-structuring or extension of the presented innovation cases as presented in the selected cases (see section 3.4.6 above).

The Rail focus group discussed the importance of innovations which lead to improvement of efficiency in terms of TEUs transferred in the unit of time, if not an increase in average speed, such as the importance of increasing the length of a train or its height. The latter constitutes a major drawback for the Betuwe Line.

The Maritime focus group considered that innovation cases were limited and, following a detailed discussion it was agreed that the following cases/areas may be considered:

- New engines - fuels (LNG, Fuel cells. Hybrid Technology)
- CO_2 Capture
- Hull paint
- Human Resource Management/Crew management (VISIPS, Columbia, Captain/Chief Engineer same person)

Further information on the above is presented in the respective section of ANNEX IV.

4. Conclusions

The 1st Consultation of the InnoSuTra Project achieved its objectives and identified additional issues that should be considered in the process of project implementation. More specifically, per objectives, the findings are as follows:

Project *"Reality Fit"*

The most important elements of any innovation to succeed in market take-up, in the opinion of the external experts, are:

- Business acceptability and
- Social acceptability.

Other impact factors included in the analysis may, generally, be considered as sub-categories of these main groupings.

In addition, the categorization of innovation cases as technological, managerial/operational and cultural and policy initiatives was considered acceptable. However, as anticipated, many technological innovations, in most cases, have an impact on or require accompanying managerial and/or cultural innovations.

Selection of success and failures cases of innovation for WP3 and WP4, respectively

The consultation accomplished this objective and moreover selected 6 “intermediate” cases to assist in interpretation of the processes and indentify the link between success and failure.

Technology innovations prevail in the success cases, policy initiatives in the not-yet-success/failure cases and technology-based innovations in the intermediate cases. This unconstrained overall result in the selection of cases underlines and justifies the scope of the present project and its “reality fit” as it suggests the unfavorable outcome of policy initiatives in support of innovation. Moreover, this point was noted in the preliminary implementation report (PIR).

When considering selected cases per mode, there is a significant differentiation in type of innovation selected. As initial development of cases was based on an equal representation of all categorizations, further study may identify mode – related interpretations.

Influence of the *support processes* on the efficiency of the innovation process

The consultation revealed particularities in the development of support processes, though experts’ views were significantly influenced by their individual background. Elements concerning each case were registered and discussed and are of great value for further study, in WP3 and WP4, as foreseen in the InnoSuTra Project.

Finally, as the process of consultation is a profoundly qualitative process and given the background of the experts (all acknowledged in their particular business areas) more time was needed for focus groups to reach consensus. This will be considered in the organisation of the 2nd consultation.

ANNEX I: Consultation Event Programme

CONSULTATION

13 APRIL 2010

UNIVERSITY OF ANTWERP, PRINSSTRAAT 13, 2000 ANTWERP

PROGRAM

08:30 **Welcome**

08:45 **Consultation: Objectives, Procedure & Organisation**

Athena Roumboutsos, University of the Aegean

08:50 **InnoSuTra Methodology**

Thierry Vanelslander, University of Antwerp

Is the methodology suitable?

Which are the respective positive and which the negative aspects?

09:05 **Focus Groups Initiation**

09:15 **Cases &Scoring of cases**

10:00 **Impact Scoreboard**

11:00 **Networking Break**

11:30 **Qualitative Discussion & in depth Discussion of differences**

12:15 **Lunch Break**

13:00 **Qualitative Discussion & in depth Discussion of differences**

Continue Per case analysis

13:45 **Select cases**

2 success cases // 2 failure (or-not-yet success) cases // 1 “middle” case

14:00 **General “Future” Questions**

15:00 **Networking Break**

15:30 **Plenary Session**

Presentation of findings // identification of differences//Open Discussion

16:30 **Closing and Networking Reception**

ANNEX II: List of Invited Participants

	NAME	COMPANY/ ASSOCIATION
1	Bologna Sergio	Progetrasporti Associati
2	Adamantiades M.	UN - Directorate for Transport of the ECE
3	Adams Kris	DP World
4	Ambrogio Livio	Ambrogio SpA
5	Anomeritis Mr.	Chair of the Port of Piraeus
6	Anselmo Maurizio	Terminal San Giorgio Genova
7	Arduino Giulia	University of Genoa
8	Ballis A.	NTUA
9	Barbarino Sergio	Procter & Gamble
10	Barnes Simon	IGD
11	Beaumont Jacques	INRETS projet INNOFRET
12	Bervoets Gert	Essers
13	Billiet Marc	International Road Transport Union
14	Blomme Jan	Port of Antwerp
15	Boeve Wando	ECT
16	Burgelmans Luc	Porthus
17	Burnham June	School of Health and Social Sciences
18	Calluy Luc	Waterwegen & Zeekanaal
19	Calzetti Mauro	NUMBER 1 Logistics Group S.p.A.
20	Carstam Bertil	B Consoy
21	Cascos Carlos	Compania Transmediterranea SA
22	Cerup-Simonsen Bo	AP Moeller-Maersk
23	Chalkias Bill	Attikes Diadromes
24	Christiaens Leen	Flemish Ministry of Mobility and Public Works - Logistics
25	Colle Rudy	UIRR
26	Corres Alkis John	Memeber of the Board of the Port of Piraeus
27	Costa Stefano	T-Link di Navigazione
28	Cruysse Bart Van der	INTERCONTAINER
29	De Baere Christ	Volvo Logistics
30	De Schepper Karin	Inland Navigation Europe
31	De Wilde Geert	Polytra
32	Decock Davy	Delhaize
33	Delhaas Bert	
34	D'haeyer Jan	Shipit
35	Doomernik Jack	Lloyd's Register Rail
36	Ferrandino Paolo	Assoporti
37	Frigo Raffaele	Interporto Verona
38	Gariboldi Alessandro	CEMAT
39	Giorgi Andrea	Maersk Line
40	Gonsalvez D	Zaragoza Logistics Centre
41	Graham Nick	Wincanton
42	Heaver Trevor	University of British Columbia
43	Herman Journee	Port of Amsterdam
44	Hiel Martine	TCT Willebroek
45	Hoet Ilse	
46	Homminga Tjerk	LunchButler
47	Hosni Tarek	NONATRANS
48	Julien Michel	Predit
49	Juriado Rein	European Commission
50	Katsoulakos Panayotis	INLECOM Ltd
51	Kayikci Yasanur	Graz University of Technology
52	Krebs Heiko	Kombiverkehr
53	Lannoo Dirk	Katoen Natie

54	Lazzeri Piero	Fedespedi
55	Lockefeer Dennie	DP World
56	Maurel Olivier	SNCF
57	Merlo Luigi	Port of Genova
58	Mievis Annick	Colruyt
59	Mijland Joop	CMA-CGM
60	Navarre Marie-José	
61	Olesen Dennis	APM Terminals
62	Paelinck Honoré	independant consultant
63	Paelman Peggy	Distri-Log
64	Paindestre Isabelle	XPEDYS
65	Papandreou C.	Olympia Odos
66	Paul Wauters	Inter Ferry Boats
67	Pauwels Tom	University of Antwerp
68	Perez Eva	Valencia Ports Foundation
69	Pessano Mauro	Cross Rail
70	Petit René	Novatrans
71	Petitmengin Denis	Novatrans
72	Pirenne Marc	Euroports
73	Poinssot A.	SNCF
74	Princz-Jakovics Tibor	TeRRaCe Ltd.
75	Profice Emanuele	Port Authority of Genova
76	Reynaud Christian	NESTEAR
77	Roels Roger	DP World
78	Ruthenschroeer A	Metro
79	Saenz Arostegui Juan	Acciona Trasmediterranea
80	Salini Patrice	independant consultant
81	Savy Michel	Professeur à l'université Paris XII et à l'Ecole Nationale des Ponts et Chaussées
82	Scheyvaerts Tom	Pricewaterhouse Coopers
83	Simoncelli E.	Hupac
84	Siorris A.	Cargo Handling Athens International Airport
85	Sonnabend Peter	DHL
86	Sorgheloos Ralph	
87	Spirito Pietro	Interporto Bologna
88	Spirito Pietro	Interporto Bologna
89	Steele Steve	Transport for London
90	Struyf Tony	TSF
91	Thierfelder Felicitas	Kuehne Nagel
92	Toubol Armand	SNCF
93	Trant Gerry	Nautical Enterprise Centre Ltd
94	Tremeac Yann	consultant TLA
95	Turner Brian	UK Department for Transport
96	Van de Bossche Philippe	
97	Van de Bussche Mario	Volvo
98	Van de Putte Peter	Maatschappij Linkerscheldeoever
99	Van Doninck Kurt	Nike
100	Van Himste Danny	DHL
101	Van Litsenborg Ronny	Janssens Pharmaceutica
102	Van Meel Guido	Port of Antwerp
103	Van Nispen Jan	Economics Department Flemish Government
104	Varvates N.	Chair of SSS Greek Association
105	Verbeke Filip	nv De Scheepvaart/VOKA
106	Verbruggen Johan	SPK
107	Waglen Bjorn	Samskip

108	Walker-Palin Julian	Asda
109	Walter Robert	APM Terminals
110	Willems Ingrid	Wolters Kluwer
111	Wolters Peter	European Intermodal Association
112	Zielens Alain	Avelgem Container Terminal
113	Ziliaskopoulos A.	Greek Railways
114	Zimmerman Robert-Jan	Mercurius Shipping Group
115	Zwijnenburg Bastiaan	LRD

Annex III: Definition of Innovation Impact Scoring Concepts

Employment

Score	Indicators
1	If calculations show that employment in the logistics and derived sectors **decreases by more than 5%**.
2	If calculations show that employment in the logistics and derived sectors **decreases by 0 to 5%**.
3	If calculations show that employment in the logistics and derived sectors **remains stable**.
4	If calculations show that employment in the logistics and derived sectors **increases by 0 to 5%**.
5	If calculations show that employment in the logistics and derived sectors **increases by more than 5%**.

Congestion 1

Score	Indicators
1	If the number of kilometres driven by vans and lorries **increases by more than 5%**, or if the number of kilometres driven by lorries and vans during peak hours **increases by more than 2%**.
2	If the number of kilometres driven by vans and lorries **increases by 0 to 5%**, or if the number of kilometres driven by lorries and vans during peak hours **increases by 0 to 2%**.
3	If the number of kilometres driven by vans and lorries **remains stable**, or if the number of kilometres driven by lorries and vans during peak hours **remains stable**.
4	If the number of kilometres driven by vans and lorries **decreases by 0 to 5%**, or if the number of kilometres driven by lorries and vans during peak hours **decreases by 0 to 2%**.
5	If the number of kilometres driven by vans and lorries **decreases by more than 5%**, or if the number of kilometres driven by lorries and vans during peak hours **decreases by more than 2%**.

Congestion 2

Score	Indicators
1	If total congestion costs **increase by more than 2%**.
2	If total congestion costs **increase by 0 to 2%**.
3	If total congestion costs **remain stable**.
4	If total congestion costs **decrease by 0 to 2%**.
5	If total congestion costs **decrease by more than 2%**.

Collaboration

Score	Indicators
1	If the number of cross-company or cross–sector collaboration projects **decreases and** if the volume of clustered goods within transport and logistics **decreases**.
2	If the number of cross-company or cross–sector collaboration projects **decreases or** if the volume of clustered goods within transport and logistics **decreases**.
3	If the number of cross-company or cross–sector collaboration projects **remains stable and** if the volume of clustered goods within transport and logistics **decreases**.
4	If the number of cross-company or cross–sector collaboration projects **increases or** if the volume of clustered goods within transport and logistics **increases**.
5	If the number of cross-company or cross–sector collaboration projects **increases and** if the volume of clustered goods within transport and logistics **increases**.

Scale increase

Score	Indicators
1	If the number of companies within the logistics sector or within a specific niche of that sector **decreases by more than 5%**, or if the average price of logistics services **increases by more than 5%**.
2	If the number of companies within the logistics sector or within a specific niche of that sector **decreases by 0 to 5%**, or if the average price of logistics services **increases by 0 to 5%**.
3	If the number of companies within the logistics sector or within a specific niche of that sector **remains stable**, or if the average price of logistics services **remains stable**.
4	If the number of companies within the logistics sector or within a specific niche of that sector **increases by 0 to 5%**, or if the average price of logistics services **decreases by 0 to 5%**.
5	If the number of companies within the logistics sector or within a specific niche of that sector **increases by more than 5%**, or if the average price of logistics services **decreases by more than 5%**.

Extrapolability to other sectors – Spin-off's*

Score	Indicators *
1	If the cost-benefit balance of extrapolation is **negative** and variance is **high**.
2	If the cost-benefit balance of extrapolation is **negative** and variance is **small**.
3	If the cost-benefit balance of extrapolation is **0** and variance is **small**, or the cost-benefit balance is **positive**, but with **high variance**, where the worst scenario is negative.
4	If the cost-benefit balance of extrapolation is **positive** and variance is **high**, where the worst scenario is positive
5	If the cost-benefit balance of extrapolation is **positive** and variance is **small**.

Logistics chain efficiency

Score	Indicators
1	If the logistics company productivity **decreases and** the ratio waste / total production **increases**.
2	If the logistics company productivity **decreases or** the ratio waste / total production **increases**.
3	If the logistics company productivity **remains stable** and the ratio waste / total production **remains stable**.
4	If the logistics company productivity **increases or at least remains stable**, and the ratio waste / total production increases or at least remains stable, whereby both together cannot remain equal.
5	If the logistics company productivity **increases** and the ratio waste / total production **decreases**.

Emissions

Score	Indicators
1	If of the following parameters, there is an **increase stronger than the increase in transport output in more than 2 parameters**, or **less than 2 have positive evolution**. - CO_2 - Commodity usage (water, steel, …) - Total mass needed for (re)processing goods and services - Greenhouse gasses - Fine dust - Energy use per user - Ground and water pollution - Land sacrificed per capita to transport and/or logistics - Noise problems according to noise regulations - Investment decrease in ecological technologies - Ratio of total number of possible recyclable goods / recycled goods Decrease of the use of recyclable goods - Waste ratio: all waste / total production - Average lifetime of goods or services…
2	If of the above parameters, there is an **increase stronger than the increase in transport output in 0 to 2 parameters**, or **less than 3 have positive evolution**.
3	If of the following parameters, there is an **increase stronger than the increase in transport output in 0 to 14 parameters**, and **4 to 6 have positive evolution**.
4	If of the following parameters, there is an **increase stronger than the increase in transport output in 0 to 14 parameters**, and **7 to 10 have positive evolution**.
5	If of the following parameters, there is an **increase stronger than the increase in transport output in 0 to 14 parameters**, and **11 to 14 have positive evolution**.

European competitiveness

To what extent can the innovation be used to increase European competitiveness worldwide?

1 = little, 5 = high

Business acceptability

To what extent is the innovation acceptable to business users?

1 = little, 5 = high

Social acceptability

To what extent is the innovation acceptable to business users?

1 = little, 5 = high

Annex IV: Focus Group Reports

IV.1 Road Focus Group Report

MINUTES OF THE FIRST CONSULTATION EVENET
University of Antwerp
April 13, 2010

FOCUS GROUP: ROAD TRANSPORT

Session Coordinators: Aronietis Raimonds
Eddy van de Voorde
Amalia Polydoropoulou

Participants:

No	Name	Company
1	Billiet Marc	International Road Transport Union (IRU)
2	Calzetti Mauro	NUMBER 1 Logistics Group S.p.A.
3	Homminga Tjerk	LunchButler
4	Van den Bussche Mario	Volvo
5	Barbarino Sergio	Procter & Gamble

Quotes of the Day:

"There is no innovation without crisis." i.e. innovations are created as ways to solve problems.

"The innovation removes barriers."

"When business acceptability is high you have all the rest." referring to the impacts of innovation.

"We cannot have a unanimous agreement between countries, unions, businesses and co-operations."

Case No 1: Trucks-on-train: Switzerland

This case study was considered a failure from part of the experts mainly because of low degree of utilization, while for others a success.

However it should be noted that there is a significant difference in the point of view of business actors and the society. The acceptability from the business side is low, as well as with regards to its effect on the EU competiveness. According to the experts, by putting both the truck and the truck driver on the train (in a separate passenger cart) doesn't decrease the transport cost, while it generates environmental problems to the neighbouring countries.

On the other hand, this case is considered to be a success from a welfare point of view and has been applied in many corridors, such as in Genoa-Barcelona (Truck-on-Ferry), since it reduces the volume of truck road transport.

It is important to impose road taxes at the same time so that you encourage the adoption of alternative modes used such as Trucks-on-Train.

Case No 2: Road pricing in Germany: LKW-Maut

The focus group didn't have a solid opinion regarding the barriers to adoption. A part of the experts consider that there are no barriers, while the other part considers cost a barrier and raised the question, why the pricing should apply only to the road network. In addition, a discussion took place, regarding the land scale of this measure and whether it should be limited to the highways.

The toll collection is boned on Galileo and forces the road operators to use Galileo. Galileo is being developed for the last 15 years.

This policy measure can be extended easily and has a large adoption.

Case No 3: Method of electronic toll collection

This innovation is a success. However, the main drawback is related to the interoperability issue between the member states. This is caused because of monopolies of payment methods blocking the market. Thus EU has failed because they have promoted interoperability but it has not been implemented. The member states stated that they wanted ETCs to be of national interests, and thus not allowing for a single system to be developed/ implemented.

However, it is imperative that the payment method should become an easy process for the user. As of European Electronic Toll Service (EETS) 2004 there is an Interoperability Directive.

Barriers are very high, and especially legal barriers need to be facilitated.

Case No 4: Eurovignette directive

There was a discussion that perhaps it is too early to assess the impact of the Eurovignette directive yet. The notion of Eurovignette was introduced in 1999, while the Council adopted Directive 2006/38/EC - the so-called 'Eurovignette Directive' - amending Directive 1999/62/EC on the charging of heavy goods vehicles for the use of certain infrastructure.

This case should be discussed in co-operation with Case 3.

- Huge Barriers
- Incubator: Discussion form the treaty of Rome (1957)
- User pays? Or the Polluter pays?
- Current member states do not apply EUROVIGNETTE; No member EU use it
- EUROVIGNETTE is a charge and not a TAX
- Little support across the operators except of environmentalists
- Reduce road transport employment (significantly)
- EUROVIGNETTE is linked to the truck and not to the use of the truck
- SLOVAKIA, FRANCE, GERMANY, HUNGARY: Time 'difference', time-based system 1 day -> 1 year
- Differentiation of rates up to 50%

There was a discussion that trucks use only 10% of road. However, trucks contribute to a large extent of congestion. You either impose road taxes or there is no reason to have both road taxes plus Eurovignette.

There was an argument that congestion is NOT an external cost and there is a decision of a court case in Swiss that decided that congestion is an internal cost. There was also a strong argumentation against this based on the principles of transportation economics. There are four

basic external costs, that users impose-create to the others (congestion, infrastructure, accidents, pollution).

Case No 5: EU International road transport market liberalization: cabotage

This case is a success.

Cabotage resulted to a Shift of specialism

- Small companies, serving cities and smaller areas
- Large EUROPEAN Carriers

The consumer gained big time. From a customer point of view (VOLVO) – as a producer of goods, always cabotage is better, because it is more competitive. It achieves road efficiency and reduction of time.

Need to notify in some countries, before starting cabotage (BE, FR). Although EURO-CABOTAGE is a reality, third country-cabotage will never become one!

Case No 6: Introduction of LHVs (Long and Heavy Vehicles)

This innovation is a middle case. Not a failure but not yet a success.

- The goal is to extend the freedom to private service and try to decrease the empty kilometers
- There are 7 companies producing trucks, and they need to agree on producing LHVs
- There should be a decision among groups on the support of LHVs in order to promote them further
- Adoption rate is a failure (so far)
- LHVs need specialized drivers
- Society as a whole need to accept them (fear of accidents)
- Need to guarantee efficiency (% of truck load). If they cannot be efficient, then what?
- It is not the aim to replace the current standards, but to have a new type of vehicle for the cases they are needed and are more efficient.

Case No 7: Introduction of three loaded trips limit in ECMT multilateral road transport permit system

This case is a failure.

- ECMT is a trade facilitator, but not everybody is happy with that
- Its implementation is extremely complicated
- Every country has a limited quota of truck level permits
- Electronic documents ->not matured - 43 countries
- Aim is the reduction of the number of cowboy drivers
- EU is seen as a single market but this thing has never succeeded

Example:

- A Belarusian driver needs to ask permission from the Belgian Government
- Required a 3rd country drivers certificate to make sure that they work on the same condition & pays taxes to the Belgian government
- ECMP permit you not to have such certificate

In the Netherlands, there was an increase in the number of haulers during the economical crisis. Drivers were laid off and then bought a truck (with a loan) and started working as subcontractors of previous company.

There is a shortage of professional drivers. It would be great if there existed companies that trained professional drivers and then operators could just use them!

Case No 8: Off-peak deliveries (PIEK programme, Netherlands)

The discussion showed that it is not clear if this is a success or a failure case.

The implementation of the PIEK programme required the social sector dialogue agreement between drivers and trade unions & employers

PIEK requires the off-peak opening hours of the stores. This requires different working arrangements among workers, depending on the type of stores. In some cases, delivery can happen without personnel

This system can be applied in the ports.

In order to be widely implemented, it is necessary that a successful pilot exists and then is promoted.

Case No 9: European vehicle emission standards

The innovation requires organizational changes in terms of the company's fleet. In particular, truck companies have to adopt fleet engine technology, in order to comply with the standards. However, there are only 5 manufacturers of trucks and in the EU, the companies need to have a technical capability to change. The acceptance of the companies is also required, as well as it should be stressed that there is a dependency on the customer side.

- Need for organizational changes
- Truck companies have to adapt their fleet
- In EU you need to have a technical capability to change
- Implementation barrier: the acceptance of the companies to have trucks with such engine technologies
- Its final success depends on the customers

Case No 10: Environmental zones

The following questions were raised during this case study:
How you check compliance to an innovation?
How can you check if people really comply?
How do the haulers deal with this?

The barriers to adoption are very high and the EU umbrella is needed in order to make the innovation more transparent. Low emission zones don't work without parallel measures of road charging. Legislation can stimulate innovations!

In Italy, for reducing the number of trucks, they have enforced full truck load, in order to reduce the number of trucks in environmental zones.

- EURO 5 (hybrid vehicles, gas, etc.)
- CAPACITY 8%

They oblige the logistic organization to reduce the number of trucks. They are interested in reducing primarily the congestion, then the pollution. Examples are

- ECOCITY
- CITYPORT

It should be noted that in order to assure compliance, the local authority is a partner in the venture of the environmental zones. Such innovation promotes new ways of logistics structures and permits new, smaller parties to break the existing system.

Case No 11: ITS: Intelligent Truck Parking

This is a middle case of innovation. Not enough data to state if it is a success or a failure. A data interface is required in order to create an information system for slot allocation and booking. The parking areas should be secured and booking capability must be available. Location and availability of parking spaces is an issue. Where a lot trucks park there should be “a good restaurant close” (in Italy).

Data Interface -> to create information system for slot allocation and booking.
There is a system called TRANSPARC, which makes reservations for trucks.
Easy Way Parking ->Intelligent Parking
The is a strong need of secure parking areas, and there is a scarcity of those across EU.

Case No 12: ITS: Variable speed limits in Sweden

This innovation is a Success. The innovation has been applied in a few countries with equal success, however the Swedish case was chosen of data availability. Need to change the way this case is described. Variable Speed limits may increase flows up to 10-15% or even higher and reduce occurrence of start-stop traffic. The Kennedy Tunnel, in Antwerp, is a very successful implementation. The only barrier that appeared was the need to change the law about signing, because of differences in regional & federal rules.

Summary Conclusions
The focus group resulted to the following cases:

- Success cases: Number 5 and 12
- Failure cases: Number 4 and 7
- Middle cases: Number 6 and 11?

It should be noted that the two success cases are related to capacity optimization, while the two failure cases are related to organizational and policy initiatives hard to implement across EU.

There were also two new innovation cases proposed for further exploration.

IV.2 Maritime Focus Group Report

MINUTES OF THE FIRST CONSULTATION EVENET
University of Antwerp
April 13, 2010

FOCUS GROUP: MARITIME

The report is structured along the lines of the Consultation Agenda.

1. Cases & Scoring of cases

Each case was presented and each expert completed the 12 scoring leaflets.

2. Register new ideas for innovation cases and complete scores

A discussion concerning the representation of innovations for the whole maritime industry was opened. Two experts expressed the view that innovations in the shipping industry include a wide range of innovations and not merely technological aspects as they suggested/perceive as innovations. After detailed discussion it was agreed that the following cases/areas may be considered:

- New engines - fuels (LNG, Fuel cells. Hybrid Technology)
- CO_2 Capture
- Hull paint
- Human Resource Management/Crew management (VISIPS, Columbia, Captain/Chief Engineer same person)

However, since detailed descriptions for these cases were not available, it was not possible to score them. Experts were asked to send to the consortium the required material in order to examine the possibility of including them in subsequent consideration.
The following link was send by one expert:

http://www.eskema.eu/defaultinfo.aspx?areaid=17&index=4
Bellow the conclusions from the above link for new engine fuels and Shipping Management Systems are presented:

- **Conclusions - New engines - fuels (LNG, Fuel cells. Hybrid Technology)**

Fossil fuels will continue to be the predominant source of power for the majority of the shipping industry until this fuel becomes in short supply which is likely to be 30-50 years.

However, the majority of ships used for short sea trades could use Liquid Natural Gas (LNG) in 5-10 years time. LNG is much more environmentally friendly than conventional fossil fuels. Renewable energy sources (such as biofuels) are unlikely to provide sufficient power to operate ships' main engines. Fuel cells (already used in some submarines) may be a possibility for new ships in the very long term, although they are currently too limited in range to offer a viable solution. Nuclear propulsion may be a potential solution in the very long term if all safety and environmental concerns can be sufficiently minimized.

The low-speed diesel engine remains the dominant prime mover for ships, representing about 70% of installed power. Increasing ship size favors the large two-stroke low speed diesels, whereas demand for more flexible and smokeless operation in the cruise business favors the 4-stroke engines. During the last decade, diesel engine manufacturers have made steady progress with:

- increasing the performance of the engines (specific fuel consumption)
- ensuring improved levels of safety and reliability for the different types of applications on vessels
- reducing emissions especially NOx

Gas Turbines have some important advantages over conventional diesel engines such as their high power-to-weight ratio and the higher-efficiency gas turbines (compared to the conventional gas turbines currently used in ships) now becoming available have the capability to substantially reduce the fuel consumption of a ship.

Interest in the application of various configurations of hybrid drive propulsion systems (which use a combination of electrical and mechanical drives for propulsion) is increasing due to the need to reduce costs and to minimize exhaust gases. A new EU project HYMAR is aimed at investigating an "optimized and fully integrated" marine hybrid-electric drive.

All electric ships are anticipated to provide significant advantages in speed, maneuverability and in hull space utilization and are expected to deliver significant improvements in efficiency and fuel consumption. Such systems are becoming standard on cruise ships for these reasons. The main barriers to introduction of these systems across the range of marine vessels are the size and weight limitations of the electric machines and prime movers. Improvements in technologies used are therefore required before general usage is achieved.

Considerable interest has been generated in the potential use of wind power to assist with the propulsion for ships. Methods used include the use of a large sail tied to the ship and large rotors/masts fitted on deck which gather the wind and generate a driving force in the direction of travel of the vessel. The long-haul bulk trades have been identified as the most appropriate application for wind-assisted propulsion because these vessels run more or less in a north south direction in parallel with the globe's principal wind systems. Fuel savings of between 5% and 20 % have been quoted.

Substantially improved environmental performance will be required in the future from ships which could be achieved my improved ways to control the combustion process in diesel engines, alternative fuels, hybrid systems and possibly increased use of wind assisted power.

Conclusions – Management Systems

Integrated Platform Management Systems have formed part of the overall fit for naval vessels for several years and are becoming standard fit in vessels of the RN (for example, the Type 45 Destroyer), Canadian, French, German, Norwegian, Swedish and US Navies. Such systems are now being fitted to commercial seagoing vessels particularly to high-end commercial vessels. IPMSs are suitable for a wide range of applications including cruise liners, FPSO's, research vessels and tanker. These systems bring all shipboard control and monitoring subsystems together into a single system enabling operators on the bridge or at local positions to have a complete overview of the situation. The fitting of an IPMS with its increased automation and distributed information display facilities can provide an opportunity to minimize the crew members required to operate such vessels.

There are now a number of proprietary systems becoming available on the market from the major marine system/equipment suppliers. These systems, which use distributed architectures, are often scalable to suit the size and role of a vessel and meet the full range of shipboard control and monitoring requirements from the simplest to the most complex. Such systems allow for easy expansion to increase functionality and to cater for additional subsystems.

References:

1. IPMS Integrated Platform Management System, Logimatic/Rockwell Automation Information Leaflet
2. IPMS Integrated Platform Management System L-3 Communications Leaflet, LDN007a_June 2006, available at http://www.l-3com.com/productsservices/docoutput.aspx?id=1026

3. Impact Scoreboard

Firstly the impact scoreboard has been shared and each impact has been explained to the experts. The participants, after considerable discussion, have assigned consensus weights to each impact. It should be noted that two of them have suggested two further items, namely “competition” and “cost reduction / service improvement”, while the others chose to score only the last four items (Environmental Effects, European Competitiveness, Business Acceptability, Social Acceptability) considering the remaining items as already included in these four.

The impacts that have been considered more present and significant in maritime innovation are “environmental effects”, “business acceptability” and “social acceptability”.

However, if we consider the two new impacts suggested by the experts as part of “social acceptability” and “business acceptability” than the weight given to each impact changes. Thus, environmental effects lost importance in comparison to business and social acceptability whose weight increases.

The results are reported in the following table (the two new impacts are evidenced in blue).

IMPACT	Weight (percentage)
Employment	6 %
Congestion	7 %
Co-operation	2 %
Scale increase	1 %
Extrapolability	1 %
Chain Efficiency	5 %
Environmental Effects	23 %
European Competitiveness	13 %
Business Acceptability	15 %
Social Acceptability	15 %
Competition	2 %
Cost reduction / service improvement	11 %
	100%

4. Qualitative discussion and in depth discussion of differences (per case)

In this section the scores registered in section 1 have been shown and commented in a discussion panel in order to reach a consensus and then re-scored.

The resulting consensus scores for each innovative maritime case are the following:

	Reefer Containe-rization	Mega Contain erships	Strategic alliances	Hub & Spoke	Port State Control	Italian Intern. Ship Register	Lash carrier	Cold ironing	Green Ports	Indented berth	Double-hulled tankers	European Shipping Register (EUROS)
scores 0-10	Final score											
Barriers to adoption	6	8	1	7	4	7	8	7	5	8	8	9
Adoption Rate and Spread	6	5	8	4	5	6	7	4	3	2	3	2
Implementation Barriers	8	8	4	7	5	5	8	7	6	7	3	5
scores 0-10	Final score											
Incubator / originator	6	6	n.a.	7	4	4	7	5	6	8	7	5
Support cluster/network	8	8	8	9	4	3	7	3	3	3	1	0
Organisational changes required	8	9	8	10	6	3	7	8	7	6	2	4
scores 1-5	Final score											
Employment	1	1	1	3	3	3	1	1	2	1	2	2
Congestion	1	4	2	3	2	1	2	1	2	4	1	1
Co-operation	3	4	5	3	3	1	3	1	2	1	1	2
Scale increase	3	5	4	4	3	1	3	2	2	1	1	1
Extrapolability	2	3	4	4	3	3	2	3	3	1	1	2
Chain Efficiency	4	3	4	5	2	2	3	3	2	3	1	1
Environmental Effects	2	3	3	3	3	2	1	4	5	1	4	2
European Competitiveness	2	2	3	3	3	3	1	2	2	2	1	3
Business Acceptability	4	4	4	4	3	3	3	3	3	4	3	2
Social Acceptability	2	2	1	2	4	3	4	4	5	3	4	3

5. Selected Cases

In the final part of the workshop, there has been a discussion concerning the final choice of 5 maritime innovative cases to analyze in depth in the following months. These cases are:

- “Reefer containerization” and “Port state control” as cases of “successful innovations”
- “Mega containerships” as a case difficult to define as a “success” or “not yet a success”
- “Green ports (focused on cold ironing)” and “indented berth” classifiable as “not yet a success”.

In addition, the following three of the new innovative cases which have been suggested by the experts as recent innovative cases, still in the adopting stage, could be analyzed in the final phases of the project:

- Crew management and training programs for maritime crew
- New ships LNG-fueled
- New hull paints against biofouling.

Finally the following descriptive templates were modified according to the experts’ suggestions.

6. Profile of the experts

We would like to underline the lack of private companies acting in the shipping and port industry in our workshop, as the majority of the experts participating at our workshop belong to private or public consultant enterprises, with the exception of one professor and one member of the Port Authority of Genoa. In particular the experts have the following profiles:

- Alkis J. Corres, Member of the board of EENMA (Hellenic Shortsea Shpowners Association, Port of Piraeus).
- Heinz-Christoph Eichner, Gottwald Port Technology, a subsidiary of Demag Cranes AG. Founded more than 100 years ago, the company manufactures state-of-the-art equipment for efficient cargo-handling in ports and terminals under the "Gottwald" brand name.
- Trevor D. Heaver, Professor Emeritus at the Operations and Logistics Division of the University of British Columbia.
- Takis Katsoulakos, Director of INLECOM, a UK based company providing consultancy services and software applications, in collaboration with an international network of partners, to ship operators, ports, and other stakeholders including investment banks and national institutions.
- Emanuele Profice, Strategic Planning Department of the Port Authority of Genoa.

IV.3 Rail Focus Group Report

Minutes of the first consultation event
University of Antwerp
April 13, 2010
Focus group: Rail Transport

Focus group participants:
Coordinators:

- Coordinator; Olivier Klein (University of Lyon 2)
- Recorder; Florent Laroche (University of Lyon 2)
- Mediator; Athena Roumboutsos (University of the Aegean)

Participants:

- J. Doomernik (Lloyd's Registrer)
- H. Paelinck
- M. Pessano (Crossrail)

The meeting was divided in two parts:

- Morning: Cases presentation and vote by the experts
- Afternoon: debate on the vote and selection of the projects.

Case 1. Modalohr:
Expert advices:
The experts returned an uncertain opinion on the future of this innovation.
From a technical point of view, it is a success. The service is reliable and the quasi-totality of trucks can be loaded. Nevertheless, on the economic plan, the Modalohr system can be seen as a failure. Because the system is essentially operating with subsidies, the experts returned a negative opinion on its opportunities to develop somewhere else in Europe, (France is the only country to have put into practice this system).

Result: selected. It's interesting to study how this system, considered by some people as a failure, was able to develop in France.

Case 2. Commutor:
Expert advices:
The experts showed a particular interest for this case. It is the classic example of a technical innovation, developed by engineers' offices, which we tried to transplant to the market. The idea was good but its implementation impossible, the investments being too important.
For the experts, this case shows that the main engine of an innovation is not its technical character but its political and economic character.

Result: not selected because too old (difficult to find back the incubators).

Case 3. European Rail Traffic Management (ERTMS):
Expert advices:
The experts considered this case as being a big innovation for the railway sector. Uniting the signaling systems that exist in Europe would be a first step towards a interoperable and integrated

European railway network. However, several challenges are to be overcome according to the experts:

- Political: many States are reluctant to change their signaling system for political and strategic reasons.

- Economic: the implementation of this new system is made, at first, besides the already existing national system. This situation implies the management and the maintenance of two different signaling systems during the transition period between the old and the new system (double costs).

- Technical: the technology is not achieved yet. Three levels of ERTMS are planned, only the levels 1 and 2 are operational currently. The level 3 is still in development.

So, the success of ERTMS is not acquired yet and if the experts qualify themselves as seduced by this project, only a strong European policy will allow, according to them, to assure the development of the system.

Result : selected

Case 4. Plan of revitalization of the European rail freight:
Expert advices:
The experts have been interested by this case. According to them, European policy for the railway freight has been a key element of its revival these last years, in Europe. The efforts realized by the EU for an integration of markets and interoperability between the different networks contributed to the restoration of the cross-border freight in Europe.
The experts expressed the wish to continue this study through the analysis of a precise policy of the revitalization plan: the implementation of freight corridors in Europe.

Result: selected. The analysis of the implementation of these corridors is interesting for several reasons. On the one hand, they are a synthesis of different European policies implemented in the railway sector these last decades (free-market economy, separation between the historic operator and the administrator of infrastructure, privatization of the companies, etc.) and on the other hand, they require the implementation of common technical standards defended by the EU such as ERTMS, harmonization of the rolling system, standard gauge, etc.

Case 5. Trans-Siberian railway freight:
Expert advices:
The case called out to the experts. It is a logistic innovation and a good example of cooperation in the railway sector. The experts showed interest in the process which allowed this first exchange of goods between China and EU via the rail only.

Result: project selected to permit an analysis of the implementation process of this first Eurasian freight railway service.

Case 6. Froidcombi:
Expert advice:
There were debates about the innovative nature of this case. On a technical plan, experts haven't seen innovation in terms of railway treatment of refrigerated goods. However, they recognized an innovative aspect on the marketing plan through the "CO2 approach" advocated by the company.
But they considered this initiative too "French" (related to the Grenelle Environment) to have an European interest.

Result: not selected

Case 7. Betuwe Line:
Expert advices:

There were debates on its innovative character and usefulness. Experts have declared unanimously that the line does not constitute a real innovation, even if it has been created only for freight and has been equipped with ERTMS technology (version 1 and 2).
The interest of experts has focused on the usefulness of the line and its cost / benefit ratio.
Result: selected. The experts are interested in this case because of the paradox between the heavy investment granted for the creation of the line and the real benefit of the line.

Case 8. Tri-Modal Platform:
Expert advices:
There were debates on the innovative character of this logistics platform. The experts noticed that European ports clustered generally, like this platform, at least three modes (rail, road and sea).
According to them, if this case seems to be an innovation in France, it has already been done elsewhere in Europe.

Result: not selected

Case 9. Proximity of Freight Train Operator:
Expert advices:
This case is according to the experts a typical French case. The regional rail operators already exist in Germany. Furthermore, experts have noticed a lack of key information in the treatment of the case, making its understanding difficult.

Result : not selected

Case 10. Eurotunnel Shuttle:
Expert Advices:
The experts have been interested in the innovative character of the shuttle service which has been set up between France and England for the trucks transport in the tunnel.
However, they noticed some confusion in the case description between the innovative character of these shuttles and the use of the tunnel made by the different European railway operators to transport cargo or passengers on long distances (small innovation).
Result: the case is selected but it is necessary, according to experts, to make the difference between the specific service tunnel and operators who rent the slots from the Tunnel Manager.

Case 11. Rigid Freight Train:
Expert advices:
The case description does not contain enough information to allow a debate on this innovation.

Result: not selected

Case 12. Direct rail freight line between France and Russia:
Expert advices:
There were debates on the innovative character of this case.
Of course, the management line raises problems for interoperability between different networks and takes up logistical challenges. However, we can not call it an innovation as it is the case for the Trans-Siberian railway whose transcontinental dimension is fundamental.
As a result, the case has not been selected. The experts prefer, in a similar approach, to continue the analysis of the first Eurasian freight train rather than the line between France and Russia.

Summary and conclusion:

The focus group suggested to continue the analysis of the following cases:
Case 1 – Modalohr
Case 3 – ERTMS

Case 4 – Plan of revitalization of the European rail freight
Case 5 – Trans-Siberian railway freight
Case 7 – Betuwe Line
Case 10 – Eurotunnel Shuttle

The group didn't choose to evaluate each of these innovations on criteria of success or failure. These criteria can be very variable on the time and in different economic and political situations. The debate is still open on this classification for most of the cases. Indeed, the experts preferred to think in terms of advantages and disadvantages to estimate the potential success of the treated cases.
However, experts have identified main factors of successful innovation: degree of political will regarding innovation and market receptivity.

According to them, the success of a technical innovation is not dependent on the success of its process but of the political will which comes with and particularly the interest of key players in the sector.

IV.4 IWW Focus Group Report

Minutes of the first consultation event
University of Antwerp
April 13, 2010
Focus group: Inland Waterways

Coordinators:

- Coordinator; Frouws, Koos (Delft University of Technology)
- Mediator; Panou, Costas (University of the Aegean)
- Recorder; Grootbod, Herbert (Delft University of Technology)

Participants:

1. Calluy, Luc represents the Belgium company "Waterwegen en Zeekanaal". This company operates in Flanders waterways, in one of the most extensive and dense waterway network of the world.
2. Rubens, Stijn represents "Compagnie Maritime d'Affrètement - Compagnie Générale Maritime" (CMA-CGM). CMA-CGM is the world's third largest container shipping company and is ranked number one in France. The group today offers a complete range of activities including shipping, handling facilities in port as well as logistics on land. Its main objective is to offer customers all over the world a proactive, innovative service which reconciles quality and high performance with protection of the environment.
3. Sorgeloos, Ralph represents "Porthus". Porthus uses innovative technologies to allow its customers to interact and conduct business with multiple trade partners using its networked Global Trade Mngt. platform. Porthus develops, hosts and manages software applications on this central multi-enterprise platform.
4. De Schepper, Karin represents the Inland Navigation Europe (INE). INE is a membership organization that works across Europe aiming at increased mobility by promoting freight traffic on the inland waterway network. The association links waterway freight promotion bodies and national waterway managers. Created in 2000 with support from the European Commission, INE is an independent organization with no commercial interests.

Presentation of cases

The focus group started with a general presentation of the selected innovative cases in the inland navigation to inform the focus group about the cases to be considered. Some comments have been raised during this presentation.

The description of case no.3 of the Delft University of Technology, "Distrishipping", was believed to be incomplete. The main objective of "Distrishipping" was to develop a sailing warehouse (a dedicated barge). Equipment on board of this barge is able to automatic replace pallets onboard, for this reason order picking can be performed while the freight is being transported. The moment of decision to order goods for a supermarket distribution centre can be postponed. This dedicated barge transports palletized goods, some other projects are still dealing with the development of transporting palletized goods.

The innovative case no. 11 identified by the Delft University of Technology, project "Waterslag", is one of the projects dealing with the optimal utilization of the small inland waterways. However, there are more projects dealing with optimal utilization of the available capacity on small inland waterways (e.g. innovative inland navigation-INLANAV). Including more projects serving the same main goal can increase the ability to learn more about the success and failure factors.

The description of case no. 6 of the Delft University of Technology, River Information System can be extended. The system is not operational at this moment according to the participants. Small projects have been started in the public sector. The participants are missing the link to the benefits of the system for the clients (e.g. track and trace). The investment costs of implementing the River

Information System (RIS) include antennas onboard and on shore. RIS is seen as an opportunity by some of the actors in the inland navigation sector and some see it as a threat to the privacy.

An addition on case no. 9, shore power for the inland navigation sector; shore power is also used in Flanders.

In depth discussion

After a short introduction to the innovative cases in the inland navigation sector the scorecards should be filled out. The filled out scorecards should be input for an in-depth discussion on all the differences in the mentioned scorecards. The participants tried to fill out the first scorecard about innovative case no. 1, whale tail propulsion. After filling out this single scorecard it was clear that the knowledge about the innovative cases of some participants was not sufficient to complete the scorecard. Proceeding in this manner would have taken too much time, the quality time to discuss with these experts would have been lost. For this reason we decided to stop scoring the innovative cases and start in-depth discussing the innovative cases. The discussion was based on the subjects on the scorecard.

Case no. 1 Whale tail propulsion

The adoption barriers were believed to be; technical barrier, investment barrier and the consideration of companies to implement other innovative solutions with the same advantages. The participants believe that implementation of the whale tail propulsion will not be difficult. The incubator of the whale tail propulsion is very important because adoption of the new propulsion type will only be realized if the advantages of the system are proven.

Case no. 2 Air lubrication

The participants believe that the research costs of air lubrication for ships is high, for this reason the investment costs will be high. The payback period of this high investment is very short because of the great advantages of the system (20% fuel consumption reduction). The greatest barrier for adoption is the development of an air lubrication system that operates in a correct manner. The innovation is not yet ready for the market. Air lubrication is believed to be a promising innovation according to the participants.

Case no. 3 Distrishipping

In 2005 a pilot project in the transport of palletized goods is started. This project is terminated and never implemented. A dedicated barge was developed that should operate as a sailing warehouse. During the sailing track pallets were automatically replaced, order picking could be performed while the freight is transported. The moment of decision of the supermarket distribution centre about an order could be postponed. The system to automatically shift the freight was installed, but was too sophisticated and did not operate in a successful manner. The participants in the project will identify this project as failed.

This first project triggered the start of many simplified projects related to the transportation of palletized goods. These simplified projects should be included in the analyses because the first project was a failure but simplified projects could be a success.

Case no. 4 Proportional freight partitioning

This regulation is implemented in 1933, this is believed to be too old for a qualitative study. Required information to study this process will be hard to find and it will be hard to identify reliable information. These regulations were implemented to regulate the inland navigation industry. Regulations implemented now are aiming at supporting the inland navigation industry and not regulate the inland navigation industry.

Case no. 5 Ro-Ro inland shipping in the Western part of the Netherlands

Ro-Ro shipping in the inland navigation sector is believed to be developed to reduce congestion in road transport and to reduce the environmental impact of road transport. It is believed to be a

solution for the congestion and environmental problems. The participants believe that this is not an innovation but a case specific solution. Ro-Ro shipping is believed to be more reliable than road transport, especially in the Western part of the Netherlands. There are a lot of opportunities for Ro-Ro shipping in the inland navigation sector.

Case no. 6 River Information Service

Extensive standardized information exchange between all the actors in the inland navigation industry is required according to the participants in the focus group because of the ability to decrease the labor intensity of the operation of the inland navigation industry (e.g. a cargo manifest can be created one time and shifted to all the transporters). The administrative chain could be more efficient when using this standardized information.

Information is identified by the inland navigation industry as a very valuable asset and is protected. A huge barrier is the risk averse in the inland navigation industry to exchange information with the other actors in the logistical chain, they don't trust each other. One of the participants' beliefs that the system should be imposed to standardize the information and increase the competitiveness of the industry compared to the road transport. The system used in road transport could be used in the inland navigation industry to exchange important information.

An open platform is required where all stakeholders are included to supply and receive information. The main questions to answer for further development of the system are;

- What should be done to create added value for the costumers?
- What are the legal constrains?
- What conditions need to be fulfilled to implement RIS?

The participants of the focus group believe that the culture of the inland navigation industry should be changed to implement such a system. They believe that for every change in Information Technology (IT) the culture should be changed. This innovation could be very valuable to study because of all the borders, the intercompany process and the cultural shift.

Case no. 7 Introduction of container transport in the inland navigation sector

The scope of this innovative case is believed to be too limited according to the participants of the focus group meeting. There has been developed a lot and still there has to be developed a lot in the container transport. In the former hub & spoke system the port was the hub, now the hub is moving inland.

According to the participants the waiting time in ports of barges is a huge barrier while there is enough capacity to handle the barges. The capacity to handle container barges in ports is not fully utilized because of high handling fees and the willingness of deep sea ports to stimulate the inland navigation industry. The container transport is still growing and for this reason the hinterland transport of containers is growing as well. The community and the government will not allow adjustments of the road infrastructure, for this reason the container transport on inland waterways will increase in the future.

Case no. 8 European regulation to reorganize the inland navigation sector

These regulations are quite old. Regulations for the inland navigation industry don't have the aim to regulate the industry anymore. Regulations implemented these days are being supportive measures to stimulate the inland navigation industry.

Case no. 9 Shore power (cold ironing)

This innovation is believed to be implemented because the government stimulates this innovation to prohibit the use of onboard generators at locations where cold ironing is possible.

Case no. 10 Advising Tempomaat

Could be a very interesting system to analyze together with the innovation; River Information Service.

Case no. 11 Project "Waterslag"

Project "Waterslag" aims at shifting the transport from road to inland waterways. One of the advantages is that the road congestion problem will be reduced. Less congestion for road transport results in an increase in reliability and less lost hours. The companies investing in this project are investing in benefits for the road transport. This is believed to be a huge implementation barrier unless compensated by means of reasonable revenues.

A scale increase is necessary in the small barges industry because of the difficulties in exploitation the small barges. An implementation barrier is the low competitiveness of small barges compared to the road transport because of the low freight rates in the road transport. For this reason coupling barges is studied in some other projects.

Project Innovative Inland Navigation (INLANAV) is based on project "Waterslag". "Waterslag" aimed at transportation of containers. At this moment a barge is converted related to this new project to transport palletized goods. Other projects are started to study transport of other type of goods.

Case no. 12 Y-shaped hull, "Scheldehuid"

The advantages of the new hull type are clear; direct private benefit because of an increased tank size, allowed because of the increased strength in the case of a collision. The larger tanks lead to less expensive and less time consuming cargo operations. This innovation is believed to be successful.

Scoring the innovation impact

Scoring on the importance of the impact of innovations is asked to all the participants individually. After filling out the different scores a discussion is started on all the extreme values.

Participant	1	2	3	4
Employment	14	7	2	7
Congestion	20	4	4	15
Co-operation	6	9	13	4
Scale increase	12	18	16	9
Extrapolability	2	2	5	2
Chain Efficiency	8	16	18	13
Environmental Effects	18	5	7	16
European Competitiveness	2	11	9	18
Business Acceptability	16	15	15	11
Social Acceptability	4	13	11	5
100%	100	100	100	100

Table 1: Scoring of innovative impact in inland navigation

Participant 1

Congestion is a very important impact according to participant no. 1. If the congestion problem will not be solved than the road infrastructure in Europe will be overused and silted. If these problems

are not solved no one will be able to use the European infrastructure in an efficient manner. A decrease of the congestion problem in Europe will reduce the cost price of transport and increase the competitiveness.

The impact of an innovation on extrapolability is of low importance. An innovation should aim at improving the business and not improving other industries or businesses. Competitiveness is a side effect of other impacts, improving the business will improve the competitiveness as well.

Participant 2

The impact of the innovation on scale increase is the most important. If the scale is increased the possibility raises that economies of scale can be achieved, for this reason the cost price of a product/process/service can decrease.

Unlike participant no. 1 congestion impact is rated with a low importance. Congestion should be a driver to innovate. Innovation should be aimed on improving the business (products or processes), the problem of congestion will be solved automatically if the company will work more efficient. Congestion and environmental problems should be dealt with by the government according to participant no. 2.

Participant 3

The impact of the innovation on chain efficiency is the most important impact. If the entire chain is more efficient the cost price of the product/process/service will decrease and the chain will be more competitive than other chains. A successful innovation should be labor destructive, less labor results in lower cost prices.

Congestion impact is of low importance. Congestion should be a driver to innovate other things. The result of an innovation should be improvement of the business and a decrease of the congestion problem will be a side effect.

Participant 4

The impact of the innovation on competitiveness (including costs) is the most important. If the cost decrease, the competitiveness will increase and the position of the involved industry will strengthen. Sustainability of every industry is important to reduce the effects of transport to the environment. An improvement of the environment requires a decrease of the congestion problem.

Selection of innovative cases

Two innovative success cases, two innovative failure cases and one “middle” case should be selected for in depth study. To identify these cases it should be clear which cases are failures and which cases are successes. The identification of cases that are still in development or in the introduction phase of the innovation process can not be identified as a success or failure yet. Innovative cases can be seen as a failure while on the meantime companies are developing a follow up of this “failure”. To analyze the process of the innovation every innovation failed in some point and every innovation is a success in other points. Is an innovation a success if it is pushed by the government with regulation and for this reason implemented?

Policy innovations were terminated by all the participants at the start of the meeting. They think that these innovations are not recent enough. These innovations aimed at regulating the inland navigation industry while the industry at this moment is liberalized. For this reason studying the process of innovation in regulating the industry will not have any added value for future innovation. The aim of policy these days is to support the inland navigation industry, to strengthen the competitiveness of the industry, by means of e.g. River Information Services (information technology systems). For this reason case no. 4 (proportional freight partitioning), no. 8 (European regulations to reorganize the inland navigation industry) and no. 9 (cold ironing in the inland navigation industry) will not be studied any further.

Case no. 1 “Whale tail propulsion” will not be studied. Two of the three technological innovations will be studied, the other two innovative cases seem more interesting than whale tail propulsion. The reason why whale tail propulsion is not implemented is quite clear. If the reasons for not implementing an innovation are quite clear and simple than the result of the analyses will not educate us.

Case no.5 “Ro-Ro shipping in the inland navigation industry” is not selected to study. It is believed to be a case specific solution instead of an innovation. For this reason the innovation process is very limited and not valuable to study.

Because policy is aiming to support the inland navigation sector innovative cases in the support of the industry would like to be chosen. For future innovations this could be valuable. River Information Services (RIS) is part of Information Technology (IT). More innovations in the implementation of IT could be valuable to study for future innovation processes. For this reason a new innovation has been chosen; “Information Technology in the inland navigation industry”. This innovation could include RIS, inland ECDIS, and advising “Tempomaat”. Case no. 6 (RIS) and no. 10 (advising Tempomaat) will be combined in a new innovative case; “Information Technology in the inland navigation industry”.

Case no. 11 “Project waterslag” and no. 3 “Distrishipping” will be combined and extended into a new innovative case. There have been a lot of developments and projects that can be summarized in one innovative case “utilization of the available capacity on small inland waterways”. Study these processes could be very valuable because these innovations are recent and in the future it is expected that they will be further developed.

Case no. 7 introduction of container transport in inland navigation industry is believed to be too limited. There have been a lot of developments and innovation in this sector it will be valuable to study all these innovations. This case is extended to a new innovative case “container transport in the inland navigation industry”. Container transport is still growing and will be used in the future, these development are recent and believed to be suitable cases to study.

Technological cases should definitely be studied. Technological innovations will influence the industry in the future. Knowing how to manage an innovation process with a technological innovation could result in a more efficient innovation process. Case no.2 “Air lubrication of ships in the inland navigation industry” is selected for further study. The development of this innovation has already taken a long time. It could be very interesting to know why it is still not implemented.

Case no. 12 “Y-shaped hull, Scheldehuid” will be studied. This innovation is already introduced and growing. For this reason this innovation is representative of technological innovation at this moment, it is valuable to study and improve the efficiency of the technological innovation process.

Selected cases:

1. Air lubrication of barges
2. Y-shaped hull
3. Information Technology in the inland navigation industry
4. Container transport in the inland navigation industry
5. Utilization of the available capacity on small inland waterways

IV.5 Intermodal Focus Group Report

1st CONSULTATION MEETING – Antwerp April 2010

FOCUS GROUP ON INTERMODAL TRANSPORT

MINUTES

Coordinators		
	Seraphim Kapros	University of the Aegean
	Thierry Vanelslander	University of Antwerp
	Monica Grosso	University of Genoa
Participants:		
No	Name	Company/Association
1	Homminga Tjerk[4]	LunchButler
2	Indrek Ilves	Procter & Gamble
3	Eichner Heinz	GPT
4	Delhaas Bert	Independent Consultant
5	D'haeyer Jan	Shipit
6	Larsson Mathias	Volvo Logistics
7	Verrept Erik	Nike Logistics
8	Tony Struyf	TSC intermodal
9	Peter Wolters	European Intermodal Association

Case 1: Bipolar SSS

Introduction

This type of service must be perveived as a Ro-Ro "shuttle" continuous maritime transport service between two ports only; it is distinguished from traditional SSS service configurations, which serve a bigger number of ports along a geographically more extended round trip.

The initial hypothesis is that this type of service might exerce a more direct competition to road transport, compared to traditional SSS services. It consists in an alternative route between an origin and a destination, with a ship operating as a bridge between the respective zones and with road services for pre-haul and end-haul operations completing thechain. Ro-Ro techniques allow inunterrupted loading/unloading process without additional delays at ports. Therefore, distances and travel times are more comparable with road transport, compared to traditional SSS services, while the respective prices are competitive.

Barriers to adoption

There are not barriers to adoption neither from the shipper perspective nor from the operator point-of-view. It could be even more efficient for operators to establish such services if traffic demand is sufficient to justify the service viability. However, insurance and port service costs don't go down.

Implementation barriers

There are not specific implementation barriers; agreement from all parties involved is needed exactly as in case of traditional SSS services. The implementation is possible only if sufficient regular demand between two zones exists and if this demand is more or less equilibrated in the two ways.

Incubator

[4] Mr. Homminga shared his time in two groups based on his interest of cases.

Incubator is not necessary since the concept exists already. The major stakeholder needs to go for it.

Organizational changes
Bi-polar services are a case with all organizational characteristics of SSS; for SSS operators and users no big changes are needed

Conclusion
The focus group considers this type of service as a sub-case of SSS without real specific characteristics in the adoption and implementation process. Bi-polar SSS does not imply additional or alternative organizational procedures. The establishment of such services exclusively depends on the existence of a critical demand between two zones. In cases where economic viability is guaranteed, the market actors have already covered the needs. As a sub-case, it does not really justify a distinct innovative case.

Case 2: Collaborative distribution centre

Introduction
Compared to classic freight villages, collaborative distribution centers present two specificities: a) they focus exclusively on receivers' needs (instead of expeditors' or carriers' needs) and b) they completely separate the organization of distribution activities in activities outside the city and inside the city. Handling of goods at the Center is oriented to consolidation on the retailer basis.

Barrers to adoption
The radical organizational separation between long distance and short distance (within the city) flows creates a number of barriers to adoption, such as:

- Not all actors involved are interested in organizing the "last mile" logistics; it is the more costly part of the whole chain and it is difficult to undertake it. This, because consolidation of goods at the inter-urban level is organized at the regional basis, while consolidation at the city level is organized at the "retailer" basis, involving extended re-composition of shipments at the Center.
- For big forwarders and carriers who control the whole supply chains in more classic organizations, this type of services creates risks of lack of control
- Otherwise, for big carriers this creates the need for additional, dedicated services at the Center
- There are problems of information sharing in this type of organisation
- The risk management is difficult

Implementation barriers
This type of urban logistics services needs more organization upstream. The coordination of a large number of retailers is the key factor of success; if internal retailer problems are not solved, there is no solution.

Incubator
The implementation of this type of Centers needs the close coordination of local retailers and local government, the support of whom is a very crucial point.

Organizational changes
The establishment of this type of centres requires big organizational changes in the supply chain management.

Support cluster
Considering the above, it is necessary that all parties must work closely together.

Conclusion
This type of Logistics Centers can be mainly implemented in small cities, where the number of retailers and the respective quantities of goods delivery are manageable. In medium and big cities, implementation barriers are higher. In bigger cities, the establishment of general Freight Villages,

based on 3rd Parties' integrated organizations along the chains, can offer the appropriate solutions. In all cases, the logistics management spatially organized on the basis of Freight Villages is a real innovation; it requires close coordination between transport actors, production and commerce actors and local governments; from this viewpoint, specificities are not enough to distinguish this type of logistics infrastructure and business model (collaborative) from the general Freight Village case. Similarities are much more important than particularities from the general objective's and implementation perspective.

Case 3: PPP Freight village

Introduction

The concept of a Freight Village is related to the specialized zones offering space and "common" services to transport operators, logistics providers and shippers. Freight Villages develop various activities related to consolidation, warehousing, storage, handling operations, coordination of shipments, services to transport means, transport units and human resources, banking and other administrative services of cargo.

Freight Villages can generate "internal" and "external" effects. The internal effects refer to the advantages accruing for the users from sharing the total acquisition and operating costs of common facilities, equipment and services offered; that is without having to proceed in heavy and risky investments for building their own, fully private, logistics centre. Besides the above, Freight Villages also generate larger-scale or external (network) effects, such as traffic diversion and modal shift, land use reorganization, changes in local economy, employment, energy consumption and the environment.

Therefore, Freight Villages can be regarded as a blend of public facilities and business firms. Taking into account the mutual benefits for both business actors and the society, PPP methods are the most suitable for the development of Freight Villages.

Barriers to adoption

The most important barriers to adoption are possible problems in relations between public authorities and private actors. However, the PPP concept is well known as it already exists in other sectors.

Implementation barriers

A technical condition is that a Freight Village needs availability of sufficient land. In addition, regional land use plans must allow it. Important implementation constraints can occur depending on the public funds available and the subsequent investment risk for private parties interested. The involvement of banks can complicate the situation.

At the conception phase, motivations are strong since Freight Villages are often perceived as an element of prestige for both sides: a) for local authorities since Freight Village is perceived as an innovative and modern type of infrastructure, "visible" to the local society and b) for interested private transport market actors because, beyond the purely cost effectiveness advantages, their establishment in a Freight Village increases market visibility and strengthen brand name and positioning - it acts also as a marketing process.

Finally, implementation barriers can occur from conflicts between construction companies interested, since Freight Village is also an attractive real estate project.

However, a general statement is that implementation barriers can be large for individual organizations, but overall they are rather small.

Incubator

It is not necessary; the concept is known. However, there is not a unique and clear definition of a freight village. It is still a learning process with an increasing variety of business and funding models. The trend of logistics organization through Freight Villages is expected to continue.

Support cluster

History proves that support clusters are needed, considering the variety of actor types involved in the Freight Village development.

Conclusion

According to the focus group, the spatial organization of logistics activities through the development of freight villages is expected to continue with intensive rates in the future. It is considered a significant innovation, progressing through various new funding and business models. Although it is known from the sixties, the concept of Freight Villages continually progresses as far as development models are concerned. Moreover, it has been only recently inserted in the political agenda of the European Commission (2007 - before it was dealing with initiatives at the regional level); this is expected to give more impetus to their development.

Case 4: Image of SSS

Introduction

Although SSS represents a significant share of freight traffic in Europe, the long lasting perception for SSS is that of a low cost but low service quality transport mode. SSS is traditionally addressed to certain market segments (commodity types, O-Ds etc) but it seems difficult to extend its attractiveness to others. In the recent decade, important efforts have been made (European Transport Policy actions, national policies) to improve the image of SSS and extend its “influence” to more market segments. Do those efforts achieve their objective?

Barriers to adoption

Problems of public and private inter-relationships at many levels are important for the improvement of the image of SSS and, consequently, its attractiveness.
From transport economics perspectives, the size of flows is of critical importance for activating new –and added value- SSS services; only a critical demand might justify the economic viability of SSS services of increased quality (in terms of frequency of service and travel time).

Although the service quality level of SSS is in many cases significantly improved, the image has still to be built; this because of the “inertia” of shippers (customers) towards restructuring their supply chains and the insufficient diffusion of information. Underestimation of SSS progress is mainly problem of communication.

Adoption rate

The adoption rate is still low (exept for the traditional SSS users) but SS Promotion Centres (established in all Euroepan countries do a good job.

Implementation barriers

New SSS services are difficult to implement: they involve long term investments, facing to the inertia of shippers’ transport chain organizations. There is a gap of time between planning and implementing, with high investment risks. The implementation needs previously strong and long term engagement between shippers and operators, while shippers’ strategies are for shorter term engagements.

The particularity of SSS is that it is mainly considered as a maritime service but, in practice, it is a land transport alternative service. SSS presents the implementation constraints of a maritime service but it has to satisfy users' requirements of another nature. This is the challenge for future developments.

Incubator

Incubator is not really needed since SSS is an existing practice.

Conclusion
Short distance maritime transport long exists; it is not an innovation per se. On the contrary, the initiative to adapt SSS to new added value logistics requirements and to increase the SSS service quality is an innovation. The impact from such an evolution would be of crucial importance for the European maritime transport system (changes in modal split, sustainability etc). A lot of efforts have been made at the transport policy level and a lot of progress is actually stated as far as the service level of SSS is concerned. After 15 years of steadily increasing importance of SSS in the policy agenda, it is not yet known if the result in the practice is positive; considering the technical and business specificities of the mode, between launching policy measures and assessing results, a lot of time is needed. The case of SSS needs more time in order to be definitively assessed. The focus group does consider the promotion of SSS as an innovation; however, for the time being the group does not consider it neither as a success nor as a failure case. It is worth monitoring this case with great interest.

Case 5: Marco Polo

Introduction to the case
The promotion of intermodal transport is one of the main objectives of European Transport Policy, aiming at the reduction of transport externalities and the development of sustainable transport systems. Intermodal transport, to compete with road transport, should be organized on the basis of integrated door-to-door chains, using rail or sea transport for a significant part of the total chain and limiting road transport to the pre-haul and end-haul operations. This principle conducted to the development of the two main pillars of Intermodality: a) the combined Rail-Road transport and b) Short Sea Shipping (SSS). Intermodal chains will be more sustainable, and should be commercially more efficient than road-only transport, providing regular and high-quality alternatives to road transport and permitting a substantial modal shift of freight traffic from congested roads. Marco Polo I and II Programmes (2002-2006 and 2007-2013) are policy and financial tools developed by the EU in order to support the promotion of intermodal transport; they provide support for transport services.

Proposition of the focus group
The focus group agrees with numerous considerations of the relevant case template. However, a lot of issues of this case have been already discussed in the framework of the examination of the image of European SSS. The focus group considers that the Marco Polo issues cannot easily be isolated from the general SSS case; it proposed to merge this case with case 4 (SSS image) as well as Case no 10 (Motorways of the Sea).

Case 6: Integrated ICT

Introduction
Intermodal transport chains involve several stakeholders, and the establishment and management of such chains usually require a considerable amount of coordination and information exchange. Coordination and information exchange, as well as deviation and incident detection, can be automated or supported by means of ICT. Delays in one part of a chain may for example be detected and reported in time to enable corrective actions in the remaining chain. Openness and

interoperability between ICT solutions are prerequisites. A system framework architecture for the transport domain would ideally arrange for such solutions and create benefits for the transport business by promoting safety and increasing management efficiency.

Barriers to adoption
The reluctance of parties to share information is the main barrier to adoption and it is a high barrier. For that reason, a neutral operator is needed, in order to develop and manage an integrated information and communication system.

Adoption rate
Firm networks having fully adopted efficient and integrated ICT systems already exist. The spread of adoption of these practices cannot yet be assessed. Possibly, it is limited to well establish long term partnerships. For other cases, maybe no fully new network is needed, but rather a way to make people connect.

Implementation barriers
The reluctance of parties to share information is the main barrier.

Incubator
"Neutral" actors within the parties involved in supply chains are needed.

Organizational change
Organizational changes are of relative importance. The actors involved must add communicational procedures and increase flexibility in their way of operating. However, the adoption of ICT does not require fundamental organizational changes. Large companies invest themselves in large systems, essentially in case they are in dominant position in the power play with their partners.

Conclusion
ICT is a very promising tool, essentially for the improvement of intermodal transport operations where a variety of actors are involved. On the one hand, there are successful cases where large companies invest in large systems. On the other hand, a lot of attempts to develop a framework architecture, tailor-cut to the needs of intermodal transport, have failed so far. Although the adoption is limited to a relatively small number of networks (perception of the focus group), considering the positive impact from the implementation of such systems, ICT is considered as a challenging opportunity. It is considered as a success case and the question is whether and how ICT can be further diffused.

Case 7: Internalization of external costs

Introduction
The internalization of external cost is a policy principle aiming at balancing the effects of the free market and "fair competition" in the European transport market. If competition in prices remains completely free – neglecting the external social costs occurred by transport activities, road transport is expected to further increase dramatically. The internalization of external costs is a concept aiming at integrating the social impact of transport modes in pricing and place "fairness" at a different basis. In that way, the internalization of external transport cost becomes an instrument for the promotion of intermodal transport. However, results after 15 years of relevant policies are discouraging: road transport (which generates most of transport external cost) continues to increase its relative share compared to the other modes.

Barriers to adoption
The main barrier is the lack of a unite methodology for calculating external cost.
In addition, the internalization of external cost uses exclusively legal instruments. Legal frameworks significantly differ in the EU from country to country.

Adoption rates
The process of integrating internalization of external cost in national legislations was very fast. Implementation is low, due to political consequences and related aspects.

Implementation barriers
Governments are not decisive enough to break through.

Incubator
Just one incubator is crucial: government

Organizational changes
All systems need organizational changes, also at the administrative level.

Conclusion
The internalization of external cost is a brilliant concept not only because it contains the social dimension of transport but also because it is a wonderful instrument for the rationalization of the transport system. However, the concept application has failed in practice (no sensitive impact on modal split for the last decade) due to the lack of an appropriate and common assessment method and the diversity of national policies as well.

Case 8: Integrated Management of port operations

Introduction
Ports are extremely heterogeneous systems composed from a wide variety of industries directly dealing with ship operations, others providing support services and also some using the function of ports as transport nodes to manufacture their goods within the port area. In ports also exist community administrations, governmental and regional administration services such as customs, immigration and health services. Such complex systems require the involvement of different expertise and a good level of management to ensure communication and co-operation across disciplines (vertical) and industries (horizontal). Integrated management of port operations creates a common platform of understanding that contributes to the effective allocation of port activities in a holistic and consistent way. Meeting this challenging objective is important for the development of modern ports.

Regarding Adoption barriers, Adoption rate and Implementation barriers, the focus group confirmed almost all considerations presented in the relevant template with the case description.

Organizational changes
Not interfering in organization.

Conclusion
The case is based on the interoperability approach to port management, which aims at contributing to the optimization of port operations overcoming the heterogeneity of the port environment with a variety of stakeholders and different business cultures. This resulted in more effective management solution, minimizing costs and risks. The focus group agrees that the case is important from the viewpoint of innovation, however it considers that INNOSUTRA project should focus more on innovation at the supply chain level of management (such as ICT) than at the intermodal terminal level of management (such as ports).

Case 9: ISO container

The focus group considers that lessons from this very successful and long lasting case are easy to learn. Since this case could also be discussed in the "maritime transport" session, the focus group proposed to focus on more specific to intermodal transport cases.

Case 10: Motorways of the Sea

Since a lot of issues of this case have been already discussed in the framework of the examination of bipolar SSS services (Case 2) and image of European SSS (Case 4), the focus group considers that the case of Motorways of the Sea cannot easily be isolated from the general SSS discussion. It has been proposed to merge this case with Case 2 (bipolar SSS services), Case 4 (SSS image) and Case no 5 (Marco Polo), the latter being strongly interrelated with Motorways of the Sea.

Case 11: European intermodal loading unit

Introduction

The EILU was introduced partly to establish a common European standard and partly to encourage the market to develop its own informal standards. The European Commission proposal was first promulgated in the Promotion Programme for Short Sea Shipping (COM/2003/Final published on 7.4.2004. Consultations on the initial proposal led to considerable criticism and confusion about its interaction with the international (ISO) standard for containers. The Commission argued that its proposal was effectively for a standard applying to swap bodies for circulation within the EILU. The aim of these standards was the same as that of the EILU proposed standard, namely to ensure rigid sided, stackable swap bodies to enable rail and short sea shipping transport of them. TC 119 therefore concentrated its discussions on the need for safe handling and operation and the interoperability in all three surface transport modes.

Adoption rate

The adoption rate is low. EILU is used, but it is not spread! The market niche where it is largely adopted is inland navigation.

Barriers to implementation

The competition with other standards is the main barrier to implementation. In the maritime sector, implementation often requires to change ship.

Organizational changes

From the supply chain organization perspective, maybe it does not require important organizational changes. It depends however on the technical specificities of transport means, terminals and other components used. Answer is possible only case by case; it is not possible to extract a general rule.

Conclusion

The focus group shares the position of the relevant template. The willingness of the industry (particularly the operators) to contribute to the standardization process "had reduced in recent years". It further observed that the current situation was that of "container and swap body manufacturers being asked more and more to produce equipment to individual owner specifications". Hence, "the manufacturers were no longer interested to invest time and money in the preparation of standards" "In addition, standard equipment is most likely to be produced outside Europe." Without "public support" (money and resources) it was unlikely that an EILU standard would be produced". Without such a standard the EILU could not be developed and operated.

Case 12: Integrated intermodal companies

Considering the time limits of this session with nine (9) external participants, the focus group went briefly through the template describing this case. The participants shared most views of the template. The focus group recognizes the success of such integration practices, even if the better known examples concern very big companies with high investment potential. Taking into account the variety and diversity of relevant strategies and the long existence of similar practices in other sectors, the focus group proposed to give priority to other cases as far the final selection of success.

Selected Cases for further Study

Based on focus group discussion and coordinators' judgement, the following cases are considered for further study

Success cases

1. Freight Villages (case 3), where "Collaborative Distribution Centers" (case 2) will be considered as a sub-group.
2. Integrated ICT (case 6)

Not-Yet-Successful or Failure Cases

1. Internalization of external costs (case 7)
2. EILU - European Intermodal Loading Unit (case 11)

Intermediate Case

Cases referring to Short Sea Shipping, such as Image (case 4), Motorways of the Sea (case 10), the Marco Polo program (Case 5) as well as Bi-polar SSS Services (case 1), where considered undistinguishable by the experts and considered in total an intermediate case.

Annex IV: Innovation Cases: Experts' Scores

IV.1 Road Experts' Scores

	Experts	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
		Case 1				**Case 2**				**Case 3**				**Case 4 (F)**					**Case 5 (S)**					**Case 6 (M)**				
Success and Failure Issues																												
scores 0-10	Barriers to adoption	9	8	3	5	8	8	8	1	10	10	1	8	10	9	7	7	8	10	8	8	2	5	10	10	8	10	7
	Adoption Rate and Spread	9	7	6	6	9	8	1	8	10	9	8	8	10	8	7	10	8	10	9	5	10	8	10	9	8	2	9
	Implementation Barriers	9	10	5	6	10	9	5	8	10	9	3	8	10	10	7	4	9	10	10	8	2	6	10	10	8	10	8
Support Processes																												
scores 0-10	Incubator	8	7	7	7	5	6	5	10	10	9	8	10	10	9	5	8	6	5	8	5	0	5	10	10	8	10	6
	Support cluster/network	8	9	8	8	5	9	5	10	10	10	8	6	4	8	5	8	9	5	9	7	10	9	5	10	8	10	8
	Organisational changes required	8	9	7	8	8	7	5	10	10	9	8	8	10	9	10	5	9	1	9	8	10	8	8	8	2	7	7
Impacts																												
scores 1-5	Employment	2	2	2	1	1	2	1	1	1	1	3	2	4	2	1	1	3	4	4	3	5	3	10	10	8	10	6
	Congestion	3	4	4	4	1	1	3	1	5	3	4	3	1	2	1	1	1	1	4	1	2	2	5	10	8	10	8
	Co-operation	4	4	4	4	4	3	3	2	5	3	1	4	3	3	1	4	3	5	5	3	5	3	8	8	2	7	7
	Scale increase	4	4	3	4	3	3	2	1	5	3	5	4	2	4	2	5	2	5	5	4	5	3	10	10	8	10	6
	Extrapolability	5	4	3	5	3	4	4	5	5	3	4	3	1	4	2	5	3	5	4	3	5	4	5	10	8	10	8
	Chain Efficiency	5	3	3	4	3	3	5	4	5	4	4	4	1	2	1	5	2	5	5	5	5	5	8	8	2	7	7
	Environmental Effects	3	4	5	5	2	2	5	1	3	3	2	4	3	3	1	5	2	5	4	4	5	4	10	10	8	10	6
	European Competitiveness	4	3	4	5	2	2	4	3	4	4	2	4	1	3	2	5	2	5	5	3	5	5	5	10	8	10	8
	Business Acceptability	4	3	5	5	2	2	2	1	5	3	3	4	1	2	2	5	2	3	3	4	5	3	8	8	2	7	7
	Social Acceptability	4	5	3	5	4	3	1	5	5	3	3	4	3	3	1	5	4	3	4	5	5	2	10	10	8	10	6
Overall																												
1-5	Positive	1	3	4	5	2	3	1	3	5	4	4	4	1	3	1	1	2	3	4	3	5	3	5	5	5	4	4
	Negative	5	3	1	2	3	2	1	3	1	2	1	1	5	3	1	1	2	3	2	2	1	2	1	2	`	1	1

	Experts	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
		Case 7 (F)					**Case 8**					**Case 9**					**Case 10**					**Case 11 (M)**					**Case 12 (S)**				
Success and Failure Issues																															
scores 0-10	Barriers to adoption	8	5	8	8	8	5	7	7	8	6	8	8	6	8	6	5	8	7	8	6	5	5	5	5	3	10	8	6	7	3
	Adoption Rate and Spread	8	7	8	8	7	9	7	4	5	8	8	7	8	5	6	9	9	8	6	8	6	7	7	8	9	8	8	6	7	8
	Implementation Barriers	8	7	8	8	9	6	7	6	8	5	10	9	9	5	7	7	8	8	6	7	6	9	7	2	3	8	8	4	7	3
Support Processes																															
scores 0-10	Incubator	10	4	8	5	5	8	9	7	7	7	10	7	7	6	6	10	8	7	5	5	10	9	6	7	6	10	9	7	7	5
	Support cluster/network	6	5	9	8	6	8	9	7	7	8	7	6	7	6	5	8	9	8	7	8	10	10	9	8	6	6	8	6	2	5
	Organisational changes required	3	5	5	8	6	8	10	10	9	8	3	6	7	6	2	8	8	6	5	7	8	7	7	3	8	5	5	7	2	3
Impacts																															
scores 1-5	Employment	3	3	3	2	4	4	4	5	2	3	4	3	1	2	3	1	1	1	1	4	2	2	1	1	4	1	1	1	1	2
	Congestion	1	1	1	1	2	5	5	5	4	4	1	1	1	1	2	5	4	1	3	4	5	3	1	2	4	5	3	5	3	4
	Co-operation	2	3	2	2	3	5	5	4	4	3	5	4	1	1	2	5	5	3	3	3	5	5	3	3	4	1	2	2	1	2
	Scale increase	4	4	2	3	2	5	4	2	4	3	5	4	3	2	3	4	4	2	2	3	5	4	2	3	3	4	3	4	3	3
	Extrapolability	4	3	4	1	2	5	4	2	4	4	5	4	3	4	3	4	5	3	4	3	5	5	3	4	3	4	4	4	4	3
	Chain Efficiency	3	3	4	3	4	5	4	4	4	3	2	3	1	3	2	4	2	4	4	5	5	4	4	4	3	4	2	5	4	3
	Environmental Effects	3	2	2	3	2	5	5	4	4	4	5	5	5	4	4	4	4	5	4	5	5	3	2	4	3	5	4	4	3	5
	European Competitiveness	4	3	3	4	4	5	4	3	4	3	5	3	4	4	4	3	3	2	1	3	5	4	2	4	3	2	2	2	3	3
	Business Acceptability	3	3	3	3	3	5	3	4	4	5	4	3	4	4	3	2	2	4	4	3	5	5	4	4	4	1	2	4	4	4
	Social Acceptability	3	4	4	2	2	3	4	4	5	4	5	5	4	4	4	3	5	4	5	4	5	5	4	4	2	2	3	4	4	3
Overall																															
1-5	Positive	5	3	3	2	4	5	4	4	5	5	3	4	4	4	3	1	4	4	4	5	5	5	5	4	4	2	2	5	3	4
	Negative	1	3	2	2	1	1	3	1	1	1	2	2	1	1	2	4	2	1	1	1	1	1	1	1	1	3	1	1	1	1

IV.2 Maritime Experts' Scores

	Experts	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
		Case 1 (S)					**Case 2 (M)**					**Case 3**					**Case 4**					**Case 5 (S)**					**Case 6**				
Success and Failure Issues																															
scores 0-10	Barriers to adoption	6	6	8	8	2	6	2	8	7	10	1	3	3	1	3	5	8	5	7	7	1	10	5	0	2	7	6	7	7	6
	Adoption Rate and Spread	5	3	8	8	8	7	2	8	5	8	9	5	6	5	0	2	8	7	3	6	7	5	8	0	6	7	5	6	3	7
	Implementation Barriers	8	7	8	8	8	5	2	8	8	8	3	3	3	10	0	4	8	5	5	5	8	10	4	0	2	8	5	2	7	1
Support Processes																															
scores 0-10	Incubator	10	0	10	10	1	6	1	0	6	3		6	6	6	0	2	9	3	8	0	0	6	7	5		0	5	6		
	Support cluster/network	5	7	5	5	9	9	1	10	5	2	6	5	6	10	7	5	10	5	8	6	0	2	7	5	5	0	7	6		0
	Organisational changes required	10	6	9	9	5	8	9	8	8	9	8	7	3	6	7	8	8	7	6	8	6	7	6	5	7	3	5	2		1
Impacts																															
scores 1-5	Employment	3	2	1	1	1	1	3	3	4	3	1	4	1	1	1	3	2	3	3	2	3	4	4	1	2	4	1	5		2
	Congestion	5	2	1	1	1	1	4	4	4	3	2	2	3	3	4	4	1	3	2	3	1	1	2	1	3	1	1	1		2
	Co-operation	2	3	1	1	4	1	2	3	2	1	5	5	5	4	4	3	3	3	3	3	3	4	4	1	2	1	1	1		2
	Scale increase	4	3	2	2	2	2	2	5	4	4	3	5	5	2	3	4	3	4	4	3	4	1	4	1		1	1	2		
	Extrapolability	3	1	1	1	1	3	3	4	2	2	3	5	4	4	3	4	3	4	4	3	4	3	4	1		3	1	4		
	Chain Efficiency	4	3	3	3	5	3	4	4	3	5	4	5	4	4	4	4	4	4	5	3	3	1	3	1		2	1	3		
	Environmental Effects	1	2	2	2	3	2	4	4	3	2	1	3	2	4	2	3	3	3	3	2	5	1	5	1	3	2	1	4		
	European Competitiveness	2	2	1	1	3	2	4	2	2	1	3	1	2	4	3	3	3	3	1	4	3	1	4	1	5	3	1	4		4
	Business Acceptability	5	3	3	3	4	2	4	3	4	5	3	5	4	4	3	4	3	4	5	4	3	5	3	1	3	3	1	3		4
	Social Acceptability	1	2	2	2	2	3	2	3	1	1	3	1	2	4	1	2	3	3	1	3	5	5	5	1	3	3	1	4		3
Overall																															
1-5	Positive	3	3	1	1	4	2	4	3	4	3	3	4	3	4	4	4	3	3	3	0	4	3	4	1	3	3	1	4		4
	Negative	1	0	1	1	0	3	0	0	2	3	0	0	2	0	0	0	0	2	0	0			1					1		

	Experts	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
		Case 7					Case 8					Case 9 (F)					Case 10 (F)					Case 11					Case 12				
Success and Failure Issues																															
scores 0-10	Barriers to adoption	7	8	7	6	6	6	4	8	8	9	6	3	2	5	8	6	6	7	8	7	10	8	6	7	6	9	10	7	10	6
	Adoption Rate and Spread	5	5	2	2	0	5	8	2	2	1	5	4	1	3	3	2	1	1	5	7	0	3	0	7	6	0	0	1	8	0
	Implementation Barriers	3	9	8	7	2	6	5	7	5	9	7	3	7	6	8	4	6	8	8	4	0	8	0	1	5	9	10	4	2	0
Support Processes																															
scores 0-10	Incubator	1	8	3	7	0	1	8		4	5	0	8		5	10	0	3	8	7	1	8	9	1	7	7	8		5	6	0
	Support cluster/network	1	0	2	0	1	5	8	0	3	0	1	8	1	7	0	1	1	0	7	5	0	0	0	0	3	0	0	1	1	0
	Organisational changes required	6	1	3	2	1	6	7	8	7	9	6	8	7	7	8	1	7	9	4	5	0	7	0	0	3	5	10	5	1	1
Impacts																															
scores 1-5	Employment	3	1	2	3	1	1	1	1	2	1	1	1	2	3	3	2	1	3	1	3	1	3	1	1	2	1	3	4	1	3
	Congestion	3	2	2	1	1	1	1	1	2	1	1	1	1	4	1	4	3	5	1	3	1	1	1	1	1	1	1	1	1	1
	Co-operation	2	1	1	1	1	3	1	1	1	1	3	3	3	2	1	3	1	1	1	4	1	1	1	1	1	4	1	2	1	1
	Scale increase	3	2	1	2	1	3	2	1	1	1	3	3	2	2	1	3	1	4	1	4	1	1	1	1	3	1	1	1	1	1
	Extrapolability	3	2	1	2	1	3	3	3	3	1	3	3	4	4	3	2	3	3	3	4	3	1	1	1	1	1	1	2	1	3
	Chain Efficiency	3	2	2	1	3	3	3	1	3	3	1	1	3	4	1	3	4	1	1	3	1	1	1	1	2	1	1	3	1	1
	Environmental Effects	4	2	2	1	2	5	1	5	5	5	5	3	5	5	5	2	3	1	1	2	2	5	5	3	5	1	1	5	1	1
	European Competitiveness	3	1	1	1	1	3	4	1	2	1	2	2	3	2	1	2	1	1	2	2	1	1	3	1	1	3	2	4	1	3
	Business Acceptability	3	2	1	5	2	3	1	4	2	5	3	2	3	2	5	2	1	1	2	2	1	5	3	2	2	3	1	2	1	3
	Social Acceptability	4	2	2	1	3	4	4	5	4	3	5	3	5	5	5	3	1	1	2	3	2	5	5	3	5	3	2	4	1	3
Overall																															
1-5	Positive	3	1	1	3	1	4	4	4	3	5	3	3	3	4	4	2	2	1	2	3	1	4	3	2	4	2		3	1	2
	Negative			4				4		3					3			2								3		5	3		

IV.3 Rail Experts' Scores

	Experts	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
		Case 1(F)			**Case 2**			**Case 3(S)**			**Case 4**			**Case 5(S)**			**Case 6**		
Success and Failure Issues																			
scores 0-10	Barriers to adoption	9	10	10	9	9	9	10	10	10	10	10	10	8	9	3	8	3	0
	Adoption Rate and Spread	1	8	0	1	6	2	7	9	9	10	10	10	9	8	6	6	3	0
	Implementation Barriers	9	8	10	10	8	10	10	9	9	10	10	10	10	10	10	8	3	0
Support Processes																			
scores 0-10	Incubator	9	8	10	6	8	7	10	9	10	10	8	9	10	10	7	9	8	3
	Support cluster/network	8	10	4	8	10	4	10	10	10	8	8	9	10	9		9	3	0
	Organisational changes required	9	5	8	10	7	10	10	5	10	10	10	10	9	8	10	9	4	0
Impacts																			
scores 1-5	Employment	4	1	1	4	4	3	5	1	3	5	2	4	4	1	1	4	1	2
	Congestion	5	4	4	2	4	4	5	1	5	4	4	5	4	1	1	3	3	2
	Co-operation	5	3	3	5	4	1	5	4	5	5	3	5	5	3	3	5	1	1
	Scale increase	4	2	1	4	3	1	5	3	5	5	4	5	4	1	4	4	2	2
	Extrapolability	4	3	1	4	3	1	4	3	5	4	4	5	4	2	4	4	2	2
	Chain Efficiency	5	4	1	3	3	3	4	4	5	5	5	5	5	2	3	4	2	2
	Environmental Effects	5	2	4	5	3	4	5	1	5	5	4	5	3	1	1	5	5	1
	European Competitiveness	4	2	1	4	2	2	5	2	5	5	5	5	4	3	4	4	4	1
	Business Acceptability	4	4	1	2	2	1	5	4	4	5	5	4	3	3	4	3	3	5
	Social Acceptability	5	1	5	2	1	5	5	1	5	5	4	5	3	1	3	3	3	1
Overall																			
1-5	Positive	5	3		3	3		5	3	5	5	3	5	5	4	3	5	4	1
	Negative	1	3	5	1	3	3	1	3		1	3		1	2		1	2	

	Experts	1	2	3	1	2	3	1	2	3[5]	1	2	3	1	2	3[1]	1	2	3
		Case 7(F)			**Case 8**			**Case 9**			**Case 10(M)**			**Case 11**			**Case 12**		
Success and Failure Issues																			
scores 0-10	Barriers to adoption	10	10	6	9	6	0	6	7		5	7	10	3	9	0	3	9	0
	Adoption Rate and Spread	6	8	10	6	7	0	6	7		8	8	4	9	6	0	9	7	0
	Implementation Barriers	9	10	9	9	6	0	9	6		8	6	6	3	9	0	3	9	3
Support Processes																			
scores 0-10	Incubator	10	9	7	10	8	0	10	9		10	8	7	10	8		10	9	4
	Support cluster/network	9	10	6	9	9	0	9	8		6	7	3	9	7		9	9	3
	Organisational changes required	8	7	6	8	6	1	9	9		9	8	7	10	6		10	8	6
Impacts																			
scores 1-5	Employment	5	1	1	5	2	2	5	2		5	1	3	3	1		3	1	1
	Congestion	5	4	4	5	2	4	4	3		5	1	3	3	1		3	3	2
	Co-operation	4	3	3	4	3	3	4	4		3	4	3	4	2		4	3	4
	Scale increase	4	5	4	4	3	3	3	2		4	2	1	4	2		4	3	4
	Extrapolability	4	3	4	4	2	3	3	2		4	1	1	4	2		4	3	4
	Chain Efficiency	5	3	4	5	4	5	2	4		5	2	4	4	2		4	4	4
	Environmental Effects	5	4	4	5	3	4	4	3		5	1	4	4	3		4	4	4
	European Competitiveness	4	4	4	4	3	4	1	1		5	2	3	3	1	1	3	4	4
	Business Acceptability	2	4	1	2	3	5	3	4		5	3	1	4	4	1	4	2	4
	Social Acceptability	4	5	4	4	1	5	4	3		4	1	3	4	1		4	1	5
Overall																			
1-5	Positive	4	2	2	4	4	4	4	3		5	3	1	5	2		5	4	3
	Negative	1	4		1	2		1	1		1	2		1	4	2	1	1	2

[5] Not Innovative case

IV.4 Inland Waterways Experts' Scores

	Cases	Case 1	Case 2 (M)	Case 3 (M)	Case 4	Case 5	Case 6 (S)	Case 7 (S)	Case 8	Case 9	Case 10 (S)	Case 11 (M)	Case 12 (F)
Success and Failure Issues													
scores 0-10	Barriers to adoption	3	8	1	8		3	8	2	8	5	5	7
	Adoption Rate and Spread	0	0	1	6		3	4	8	4	6	5	4
	Implementation Barriers	8	3	1	9		6	8	8	3	8	3	2
Support Processes													
scores 0-10	Incubator	10	8	3	8		3	1	8	3	5	7	9
	Support cluster/network	10	10	9	9		8	9	9	8	7	9	9
	Organisational changes required	0	0	7	7		4	7	5	3	0	4	2
Impacts													
scores 1-5	Employment	2	2	1	5		1	4	2	2	1	1	2
	Congestion	1	1	5	1		1	4	1	1	1	3	1
	Co-operation	1	1	3	4		4	3	2	3	1	2	1
	Scale increase	1	1	5	1		1	5	1	1	1	4	3
	Extrapolability	3	3	2	1		1	1	1	3	3	1	2
	Chain Efficiency	1	1	3	1		5	4	1	2	4	4	1
	Environmental Effects	4	4	5	1		3	2	1	5	5	3	4
	European Competitiveness	3	3	3	3		4	3	5	5	4	2	3
	Business Acceptability	5	5	5	5		4	5	3	3	5	3	5
	Social Acceptability	5	5	5	5		5	5	5	5	5	2	5
Overall													
1-5	Positive	yes	yes	yes	yes		yes	yes	yes	yes	yes	yes	yes
	Negative												

IV.5 Intermodal Experts' Scores

	Experts	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9
		Case 1(M)									Case 2 (S)									Case 3 (S)								
Success and Failure Issues																												
scores 0-10	Barriers to adoption	8	9	8	9	2	6		8		7	8	9	7	6	10	8	8	7	8	7	7	6	8	8		9	9
	Adoption Rate and Spread	8	7	6	5	5	7		6	6	6	5	9	6	5	8	7	6	4	7	6	9	6	7	8		7	6
	Implementation Barriers	7	8	8	7	6	9		8	8	7	9	9	8	5	10	6	8	8	9	8	8	9	7	10		9	9
Support Processes																												
scores 0-10	Incubator	3	9	7	5	7	4		7	7	7	9	8	8	6	6	6	8	10	4	8	7	6	7	4		7	6
	Support cluster/network	10	8	9	8	7	10		8	9	8	9	9	9	7	9	7	6	7	8	9	8	9	9	10		8	8
	Organisational changes required	9	8	8	6	4	8		7	8	6	7	8	8	7	10	6	7	6	7	8	7	6	8	8		8	8
Impacts																												
scores 1-5	Employment										4	3	3	3	4	4	4	2	3									
	Congestion										5	5	5	4	4	5	4	3	5									
	Co-operation										4	4	5	4	4	5	4	5	5									
	Scale increase										4	4	3	3	3	4	4	3	3									
	Extrapolability										3	3	4	3	3	3	3	3	3									
	Chain Efficiency										3	4	4	4	4	4	5	3	4									
	Environmental Effects										4	4	4	4	3	5	4	3	5									
	European Competitiveness										3	2	2	3	1	1	1	2	1									
	Business Acceptability										4	3	3	4	4	4	4	4	3									
	Social Acceptability										4	4	4	4	4	2	2	4	3									
Overall																												
1-5	Positive										4	4	4	4	4	4	4	3	3									
	Negative																											

	Experts	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9
		Case 4 (M)									Case 5 (M)									Case 6 (S)								
Success and Failure Issues																												
scores 0-10	Barriers to adoption	8	9	9	3	8	4		7	8										8	9	9	9	10	10	8	9	8
	Adoption Rate and Spread	6	5	6	8	7	5		5	6										8	9	9	8	9	7	8	7	7
	Implementation Barriers	5	8	9	10	6	2		9	8										9	8	9	8	10	8	9	8	9
Support Processes																												
scores 0-10	Incubator	8	8	9	9	8	8		8	6										9	8	8	7	7	6	7	9	7
	Support cluster/network	9	8	9	10	7	10		9	8										8	8	9	9	8	10	8	9	7
	Organisational changes required	7	6	5	2	4	3		6	2										5	7	8	7	9	8	3	9	8
Impacts																												
scores 1-5	Employment																											
	Congestion																											
	Co-operation																											
	Scale increase																											
	Extrapolability																											
	Chain Efficiency																											
	Environmental Effects																											
	European Competitiveness																											
	Business Acceptability																											
	Social Acceptability																											
Overall																												
1-5	Positive																											
	Negative																											

	Experts	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9
		Case 7 (F)									**Case 8**									**Case 9**								
Success and Failure Issues																												
scores 0-10	Barriers to adoption	8	9	8	8	7	3		9	3	7	8	7	3	5	3		7	5	8		8	9	8		8	7	8
	Adoption Rate and Spread	3	7	5	2	2	10		3	2	7	6	8	4	5	5		7	5	8	8	8	9	9	8		9	8
	Implementation Barriers	8	7	9	8	8	9		9	10	7	7	7	6	5	4		7	7	8	8	8	9	10	8		8	9
Support Processes																												
scores 0-10	Incubator	8	7	8	7	8	2		6	3	6	7	9	8	8	7		8	6	8	9	7	7	8	5		8	8
	Support cluster/network	9	7	9	10	8	8		7	9	8	8	9	10	8	9		8	7	8	8	5	7	9	10		9	10
	Organisational changes required	6	7	8	9	8	9		9	1	7	8	8	2	8	8		7	6	7	9	9	7	8	8		7	8
Impacts																												
scores 1-5	Employment																											
	Congestion																											
	Co-operation																											
	Scale increase																											
	Extrapolability																											
	Chain Efficiency																											
	Environmental Effects																											
	European Competitiveness																											
	Business Acceptability																											
	Social Acceptability																											
Overall																												
1-5	Positive																											
	Negative																											

	Experts	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9
		Case 10 (M)									**Case 11 (F)**									**Case 12**								
Success and Failure Issues																												
scores 0-10	Barriers to adoption										8	8	9	7	10	8		9	9									
	Adoption Rate and Spread										8	4		5	5	4		3	3									
	Implementation Barriers										8	4	9	9	9	10	8	9	8									
Support Processes																												
scores 0-10	Incubator										7	7	6	7	7	5		8	7									
	Support cluster/network										8	6	7	7	6	8		8	9									
	Organisational changes required										7	6	9	9	3	3		7	4									
Impacts																												
scores 1-5	Employment																											
	Congestion																											
	Co-operation																											
	Scale increase																											
	Extrapolability																											
	Chain Efficiency																											
	Environmental Effects																											
	European Competitiveness																											
	Business Acceptability																											
	Social Acceptability																											
Overall																												
1-5	Positive																											
	Negative																											