INNOVATION PROCESSES IN SURFACE TRANSPORT

Contract No. TREN/FP7TR/234076"INNOSUTRA

Deliverable: D3 - Wrap-up of second consultation, as input to final application and policy recommendations

Project Start Date:	**January 1st 2010**	**End Date:**	**December 31st 2011**
Co-ordinator:	UA		
Deliverable No	D3		
WP No	WP2	WP Leader:	LCA
Due date:	M21		
Submission date:	24/11/2011		
Status of the deliverable:	Public		

Document summary information

Authors and contributors

Initials	Author	Organisation
AR	Athena Roumboutsos	UAegean
SK	Seraphim Kapros	UAegean
ML	Michael Lloyd	LCA Europe
KF	Koos Frouws	TUDelft
CF	Claudio Ferrari	UGenova
GA	Giulia Arduino	UGenova
LG	Laurent Guihery	CNRS
FL	Florent Laroche	CNRS
YC	Yves Crozet	CNRS
TV	Thierry Vanelslander	UA
RA	Raimonds Aronietis	UA

Revision history

Rev.	Who	Date	Comment
1	CF, GA	23/11/11	1st draft

Quality Control

	Name	Date
Checked by internal reviewer	Michael Lloyd + Heather Leggate	21/11/11
Checked by Task Leader	Claudio Ferrari	21/11/11, 23/11/11
Checked by WP Leader	Athena Roumboutsos	22/11/11, 23/11/11

Disclaimer

The content of the publication herein is the sole responsibility of the publishers and it does not necessarily represent the views expressed by the European Commission or its services.

While the information contained in the documents is believed to be accurate, the authors(s) or any other participant in the INNOSUTRA consortium make no warranty of any kind with regard to this material including, but not limited to the implied warranties of merchantability and fitness for a particular purpose.

Neither the INNOSUTRA Consortium nor any of its members, their officers, employees or agents shall be responsible or liable in negligence or otherwise howsoever in respect of any inaccuracy or omission herein.

Without derogating from the generality of the foregoing neither the INNOSUTRA Consortium nor any of its members, their officers, employees or agents shall be liable for any direct or indirect or consequential loss or damage caused by or arising from any information advice or inaccuracy or omission herein.

TABLE OF CONTENT

1. Introduction

The present document refers to the 2nd Consultation Workshop included in WorkPackage 2, Task 2.3, and constitutes part of the workpackage deliverable (D3).

The 2nd Consultation Workshop took place in Rome on October 14th, 2011 and was hosted by the Italian Transport Ministry. The task, while led by the University of the Genoa, was fully supported by all partners.

This document is structured in four sections. 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. Some conclusions are drawn at the end, in section 4. Support material and documentation are organised in Annexes.

2. Background

The **main objectives** of the 2nd Consultation meeting were to:

i. Present the results of the in-depth analysis of the cases selected during the 1st Consultation meeting
ii. Discuss with the expert the SI Scenario approach applied to the success cases and to the not-yet a success cases as well
iii. Draw some general results deriving from putting together the SI approach for the different types of innovations
iv. Select new innovative concepts and cases to be further analysed following the "Innosutra" methodology.

The Second Consultation meeting was based on **input from WP 5**, which included:

- The Preliminary Version of Deliverable D6 (Scenario framework for successful innovations)
- Description and analysis of innovation cases to be used as consultation material
- SI Scenario Approach applied to all the cases in-depth analysed in D6. As shown in Table 1, these presentations include (see Table 1):
    - Innovations in Road transport, prepared by UA (four cases including successful and not-yet successful)
    - Innovations in Rail transport, prepared by CNRS (four cases including successful and not-yet successful)
    - Innovation in Ports and Maritime transport, prepared by UGenova (five cases including successful and not-yet successful)
    - Innovations in Inland waterways transports, prepared by TUDelft (four cases including successful and not-yet successful)
    - Innovations in Intermodal transports, prepared by UAegean and LCA (six cases including successful and not-yet successful)

After an introductory presentation of the main objectives of the consultation meeting and of the SI Framework Approach, a discussion was organized based on the cases belonging to

each transport mode and the intermodal option. The consultation program is presented in Annex I.

Table 1: Innovation Cases in-depth analysed per transport mode and sub-sector, as selected and developed in the previous WPs

	Road	Maritime	Rail	IWW	Intermodal
Success Cases	EU International road transport market liberalization: Cabotage	Reefer Containerisation	Eurotunnel Shuttle	Information Technology in the inland navigation industry	Freight Villages
	ITS: Variable speed limits	Port State Control			Integrated Port Community System
					Short Sea Shipping: The SuperFast Ferry Case
Not-Yet-Successful or Failure Cases	Eurovignette Directive	Green ports (focused on cold ironing)		Air lubrication of ships in the inland navigation industry	Internalization of external costs
	Three loaded trips limit in ECMT multilateral road transport permit system	Indented berth			EILU - European Intermodal Loading Unit
					Motorways of the Sea: The case of East Mediterranean
Intermediate Cases		Mega containerships	ERTMS	Y-shaped hull, Scheldehuid	
			The MODALOHR	Utilization of the available capacity on small inland waterways	
			Betuwe Line		

The consultation findings were based on experts' expertise and individual knowledge. Invited experts included logistics operators, European and national policy makers, market actors, transport experts/researchers etc. (see Table 2). An invitation to approximately 80 international experts was initially sent, followed by a second wave of invitations including another 46 experts. The selection of experts included all persons belonging to the list of invitations of the First Experts Consultation Meeting and a new list of experts in order to fit the DoW where it's stated that "the selected group for the second expert meeting will preferably consist of the same expert in majority, leaving room however for some extra experts to join" (DoW, page 29). The e-mail invitations to the meeting included also materials for the discussion (D6); some experts that couldn't join the meeting presented

their observations and comments by mail or phone calls. Finally, 14 external experts took part in the consultation event. The complete list of invited experts is presented in Annex II.

Table 2: Profile of experts participating to the Second Consultation Meeting

No	NAME	COMPANY	BRIEF
1.	Andreola Marco	Rolls Royce	He works for Rolls Royce - Marine Division, following the technological and business development of LNG fuelled vessels and LNG supply chain (Europe, Mediterranean and Black Sea areas), tackling this new market and proposing solutions in compliance with the forthcoming IMO rules and EU Directives.
2.	Appetecchia Andrea	Isfort Spa	The Institute supports the development of the socio-economic and management know-how of the transport sector, through systematic and addressed training and research activities.
3.	Benacchio Marco	Autorità per le Garanzie nelle Comunicazioni (AGCOM)	AGCOM is the Italian National regulatory authority in charge of telecommunications and media network/services regulation. It applies at the national level European Commission legislation in the above mentioned fields.
4.	Delhaas Bert	Independent Consultant in Logistics	Broad global experience in general management, sales, marketing, logistics and consulting. Extensive business operations experience, project and budget management.
5.	Figari Massimo	University of Genoa	He is Associate Professor in Marine Engineering at University of Genoa, with the following research activities: propulsion system optimisation, propulsion control, simulation of propulsion systems.
6.	Kerstens Gert	DP World Intermodal	DP World is one of the largest marine terminal operators in the world. Its dedicated, experienced and professional team of nearly 30,000 people serves customers in some of the most dynamic economies in the world.
7.	Pazzaglia Paolo	Trenitalia	Trenitalia, the Ferrovie dello Stato Group's company for the transportation of passengers and the provision of logistics services for goods, is one of Europe's largest rail operators.
8.	Pessano Mauro	Captrain Italia	Founded in 1998, Captrain Italia (ex SNCF Fret Italia) is a Milan-based railway company. Capatrain Italia aims to provide a top range alternative on the European rail freight scene.
9.	Profice Emanuele	Port Authority of Genova	The port of Genoa, to facilitate the operations of the more than 7,000 ships that call on this port every year, supplies specialised services that satisfy all needs during loading and unloading operations for any type of cargo or ship.

10.	Sitia Stefano	Lanterna Alimentari Genova Spa	He is currently Head of Purchasing, Logistics & Planning in Lanterna Alimentari Genova SpA. This company produces and trades 20K tons of frozen bread and focaccia with 2 factories in Italy, and its customers are in the sectors of retail market and food service in Italy and in European and extra-European markets.
11.	Soekkha Hans	SHM Research	He is an independent consultant, used to deal with land modes of transport and also with air transport.
12.	Tiziano Elisabetta	APM Terminals	APM Terminals offers the global shipping community a geographically balanced, integrated Global Port, Terminal and Inland Services Network which includes 55 operating container facilities in 34 countries.
13.	van der Arend Gabby	RET	Public Transport Company in the region of Rotterdam. RET offers metro, light rail, tram, bus and ferry services in the Rotterdam metropolitan area. Over 600.000 passengers on a daily base.
14.	Verbeke Filip	Essencial	Focus on Supply Chain Intelligence: Supply Chain Mapping, Value Mapping, Upstream Value Mapping, Spend Analysis. Own software for doing this : X7X6, the supply chain radar.

3. Consultation Findings

As described earlier, the second consultation was conducted presenting to the experts the main results deriving from the in-depth analysis concerning the innovation cases defined at the end of the 1st expert consultation meeting held in Antwerp in April 2010.

In practice, each partner presented to all the experts the cases belonging to a particular transport mode or sector, analysed using the Systems' Innovation Framework Approach (SI), and then the experts commented and discussed the obtained results.

The consultation evolved around these cases and focused on the following:

- General discussion and understanding of cases analysed according to SI Framework Approach, leading to additional input per case depending on the experts' own experience and knowledge (see 3.1 below).
- The experts were asked to discuss the application of SI Framework, and the necessity to categorize and analyse the innovative cases apart from representing the various modes and feature success or "not-yet-success", in order to identify a common basis for the cross-study of findings and identification of success paths and policies (see 3.2 below).
- The experts were asked to discuss about the selection of new case studies (task 5.3). The previously identified success determinants will be applied to these new case studies (see 3.3 below).

3.1 Innovation Cases: General description and discussion

In front of all the experts, the detailed description of respective innovation cases and the SI methodology generated an in-depth discussion. Experts' comments and conclusions were included in the innovation cases' analysis contained in D6 (WP 5).

Hereby a brief description of the cases presented during the consultation meeting (see D6 for detailed analysis).

3.1.1 Road Selected Cases

The presented cases for road transport are as follows:

Successful Cases

Case 1: 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.

Conclusions from the SI Framework Approach:

- Positive combinations
  - A combination of the will to initiate (EC) and the support of the EU member states was crucial.
  - Positive impacts of interactions in the area of soft rules. The background of introduction of ECMT permit system and the liberalization of intra-Benelux cabotage has played a positive role for this innovation.
  - The agreement of policy making actors on timing.
- Negative combinations
  - The influence of the member states wishing to keep the cabotage markets closed in the initial stages.
  - Weak network conditions in the interactions between member states: different interpretations of the regulation.
  - Strong networks – the pressure from the industry organizations.
- Impact of policy intervention
  - Positive impacts for society. We observed reversible character of the policy innovations.
  - We observed interaction between different international policy levels: the ECMT and the EU.
- Alternative proposed policy interventions
  - In the initiation stage of this innovation, the soft rules had to be targeted from EC side.
  - Strong network problems. A gradual, well-timed implementation was crucial to overcome these problems.
  - To maximize the success conditions, the focus should definitely be put on tackling the fears stakeholders.

Case 2: ITS: Variable speed limits

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.

Conclusions from the SI Framework Approach:

- Positive combinations
  - The timing of the implementation.
  - Available funding has played an important role for success.

  - There was strong action in the soft rules area from the political level of the Flemish region with the support of the minister.
- Negative combinations
  - Structural changes in the Flemish administration have potentially negatively impacted the development of the VSL system.
  - Strong network conditions have been a barrier for the implementation of the VSL system in a place where it was needed most - on the Brussels ring road.
- Impact of policy intervention
  - The impacts of policy level on this innovation have been important only at the initiation phase.
- Alternative proposed policy interventions
  - Stimulating knowledge transfers is advisable.
  - To ensure the success high importance should be placed on political agreement between actors.
  - This innovation case shows that it is important to target soft rules in the initiation stage, because the political decision makers play a crucial role then.

Not-Yet-Successful or Failure Cases

Case 3: 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.
Conclusions from the SI Framework Approach:

- Positive combinations
  - Hard rules are the area of activity where the key conditions for success of the Eurovignette directive proposal needed to be established.
  - Targeting soft rules has had positive impact.
- Negative combinations
  - Strong networks were the reason for slow implementation and defined the form that it took when implemented.
- Impact of policy intervention
  - This policy resulted in behaviour change of the road transport operators – renewal of their fleets and routing choices.
- Alternative proposed policy interventions
  - Efficient tackling of strong network conditions is important for the success of a policy innovation.
  - A careful analysis of the impacts of the measures is important as the impact on the soft rules can be strong.
  - To maximise success conditions the focus should be placed on the capabilities of the member states to implement the innovation.

Case 4: 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.

Conclusions from the SI Framework Approach:

- Positive combinations
  - The soft rules had to be focussed on. The trigger for innovation were developments in the haulage market.
  - The weak network conditions was possibly the reason for the negative outcomes in this innovation case.
  - Strong networks have been beneficial for this policy innovation.
- Negative combinations
  - The level of negative interactions seems to be limited in this innovation case. The opposition was not strong enough to halt the innovation.
- Impact of policy intervention
  - Despite the successful adoption of this policy, the influence of the measures on the market seems to be negative.
- Alternative proposed policy interventions
  - The capabilities of the actors of this innovative process (ITF member countries) to enforce the legislation were not taken into account.

3.1.2 Rail Selected Cases

The selected cases for rail transport are as follows:

Intermediate Cases

Case 1: 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 expert, particularly a technical and political success although the system is expensive.
Conclusions from the SI Framework Approach:

- Positive combinations:
  - Good combination between EC and industrials : face to the national historic integrated operators, the EC and industrials were in quest of acknowledgement in the sector (interest to work together).
  - Same scenario for the new network managers (90's) : interest to compose with the EC to take their autonomy or independence from their historic firm.
- Negative combinations:
  - Between national operators and the other actors. Difficult for them to acknowledge:
    - That the industrials could develop themselves new rail systems
    - That the EC could define for them new rules and that they were not the only on their national network.

The ERTMS case shows the change of the rail culture in Europe : the historic operators which were all-powerful on their networks, are becoming European operators in a competition market where the EC defines the rules, the rail industrials innovate and the

network infrastructures which stay public and receive subsidies from EC and state members.

Case 2: The MODALOHR

MODALOHR has the particularity to be at the same time a technical innovation and an organizational one. It is 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.

Conclusions from the SI Framework Approach:

- Positive combinations:
  - Positive industrial team with the industrial conceiver and two lobbying specialists who allowed the development of the innovation. These specialists have brought their networks and their experience to sell the new concept.
  - Combination between the industrial team and the institutions is the main key element. The most important for the Modalohr lobby has been to convince the politics.
- Negative combinations:
  - Negative combination between transport actors, without policy intervention:
    - The presentation in 1995 of the project from Lohr industry at the SNCF is a failure.
    - There is during the development period a great mistrust between the SNCF and the road hauliers. It is a traditional antagonism in the French transport cultural.

Case 3: Betuwe Line

The 16 of June, 2007, 160 kilometers of dedicated freight lines (double tracks freight railway) were opened between The Netherlands (Port of Rotterdam) and Germany. The speed is around 120 km/h. The forecast/design was for approximately 160 trains per day or 37 million tonnes freight per year. After 10 months of operation (June 2007-April 2008), only 1000 freight trains were operated on this infrastructure, which means 3 trains / week.

Conclusions from the SI Framework Approach:

- Positive combinations:
  - The best has been the institutional combination between the Port of Rotterdam Authority, the Dutch Ministry of Transport and the EC. Each actor was interested to develop this line: the Port of Rotterdam to increase its hinterland by a massified transport and the EC to test its new system, ERTMS, and to support its rail transport policy in freight.
- Negative combinations:
  - A negative combination has been observed between the citizens and Keyrail which represented the institutional actors. A compromise has been found but it represents for Keyrail an important over-cost.

Successful Cases

Case 4: Eurotunnel

Eurotunnel (French-English company) which manages and operates the rail tunnel under the Manche between France and Great Britain. It allows to cross the Manche in 30 minutes from terminal to terminal for the hauliers against 90 minutes by sea from port to port which is, in despite of high prices, an effective comparative advantage for the tunnel.

Conclusions from the SI Framework Approach:

- Positive combinations:
  - The total independence of Eurotunnel from the public authorities has been for it an advantage to research the efficiency and the productivity.

- Today, Eurotunnel has a good position on the Transmanche market, a good experience in the rail sector (Europorte) and the capacity to become an important rail freight operator in France in competition with the SNCF.

- Negative combinations, the lack of public subsidies has had mainly two consequences:
  - Increase the ignorance from the public authorities (no financial dependence) for the tunnel, its integration in the local territory and its development.
  - Increase the financial difficulties of the Eurotunnel Society and its risks of failures (important debt).

3.1.3 Maritime Selected Cases

The presented cases for maritime transport are as follows:

Successful Cases

Case 1: Reefer containerisation

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. The main impacts are economic and logistical for the shipping companies rather than social.
According to the experts, the key factor of its success is in the intermodal application of this innovation.
Conclusions from the SI Framework Approach:
Positive combinations
– Strong network conditions: private global shipping companies supported by governments and EU in relation to environmental policies for reducing CO_2 emissions
– These public policies ensure strict compliance with international rules and regulation, stimulating further research in reefer technologies environmental-friendly
– Some interactive links with outside organisations and universities (e.g. the Wageningen University) contributed to the development of the innovation

Case 2: 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. It has been underlined by the experts that the main benefits are social and environmental and not monetary.
Conclusions from the SI Framework Approach:

- In the initiation phase the success linked to the European Commission, that obliged all the EU States and their Maritime Authorities to adhere to the Paris MoU and consequently to adopt the PSC regime
- In the development and implementation phases there is a more effective application of the social policies included in the Port State Control, due to the application of a New Inspection Regime of PSC started in 2011, aimed at reducing maritime accidents due to deficiencies affecting ships

Not-Yet-Successful or Failure Cases

Case 3: 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 not only on the positive impacts of cold ironing on the port environment, but also on other innovative measures such as LNG fuelled ships.
Conclusions from the SI Framework Approach:

- It is clear the role played by the legislation in California as its main ports have been forced to adopt new measures in order to reduce air and noise emissions at ports
- Another relevant element contributing to the success of cold ironing is the cost of electricity in Europe, higher than in Alaska and California. Also the cost of port infrastructure represents a barrier to the adoption of cold ironing
- The current level of pollution in Europe should incentivise the spread of Green Ports and cold ironing when considering their environmental benefits. If nothing will be done, air pollutants emitted from ships in the EU will exceed all combined land-based sources by 2020

Case 4: Indented berth

In literature, the indented berth is a revolutionary concept among container terminal facilities: it is a particular type of 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 lack of safety, expensive quay wall and necessity for more equipment. The experts have also suggested to investigate if the extrapolability in other ports may be possible or it will remain the only case at global level (the majority agreed with this latter hypothesis).
Conclusions from the SI Framework Approach:
• Negative combinations
– The choice of the port of Amsterdam, its competition with Rotterdam mainly due to lobbyist industry groups
– Infrastructural and Technical limits: safety; lower driving distances around indented locks; difficulties at time of starting and time of finishing with quay cranes; difficulties for bunker operation of vessel; expensive quay wall
– This innovation can be evaluated as a success if referred to the ship-berth operations but not if considering the efficiency of the terminal as a whole.

Intermediate Cases

Case 5: 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. However, the current order book shows a growing number of new mega vessels to materialise in the next 3-4 years: that is why the majority of the experts consider it a success.

Conclusions from the SI Framework Approach:

- Since Maersk launched the largest mega vessels (PS series) in 2006, the growth of vessels size has stopped
- Maersk is still the actual leader, followed by MSC and CMA CGM which dominate the order book 2011-2013
- Impacts on European Ports: huge investments even for hinterland connectivity versus economic benefits in receiving mega containerships
- Mega container flows represent a high risk, a future question is whether it will be concentrated or spread.

3.1.4 Inland Waterways Selected Cases

The following cases were presented.

Successful Cases

Case 1: Automatic Identification System 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.

Conclusions from the SI Framework Approach:

- The involvement of Knowledge institutes, Standardizing Bodies, users and Government funding is identified as having a positive impact on maturing process of the technology.
- Policy intervention in the standards issue phase is rational but leads to market distortions issues when standards are finally applied.

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.

Conclusions from the SI Framework Approach:

- While the technology is still at its development phase, research is speeded by the active participation of all actors (knowledge institutes, industrial cluster and the government as a funding agent).

Case 3: Utilization of the available capacity on small inland waterways

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.

Conclusions from the SI Framework Approach:

- The case could be representative of organizing the entire spectrum of actors in order to bring into the market technological, managerial, organizational and cultural change.
- Policy intervention could be "do nothing" for the next stage, allowing the market to move ahead exploiting first mover's advantage or "subsidizing" the (re) opening of the "small waterways". However, the business plan & feasibility study proved positive.

Intermediate Cases

Case 4: 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. 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.

Conclusions from the SI Framework Approach:

- For a commercial innovation to be successful a strong commitment of resources is needed.
- During the development phase the key to successful development is the cultivation of wide cooperation and risk-sharing between the firms involved.
- During the implementation phase it is important not to restrict the innovation to one market, but to explore the potential for the use of the innovation in other markets.
- As far as public policy intervention is concerned the availability of subsidy to develop the innovation is extremely important in the initiation phase.

3.1.5 Intermodal Selected Cases

The following cases have been presented at the consultation meeting.

Successful Cases

Case 1: ICT Case: Port Community System by Thessaloniki Port Authority

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 a challenging opportunity. It is considered as a success case and the question is whether and how ICT can be further diffused.

Conclusions from the SI Framework Approach:

• Importance of Initiator persistence
• Building of Capacities
• Networks
• Market Push
– Late Adopter
– Technology, managerial, operational & cultural change – Business unit

Case 2: Superfast Ferries

In 1995 Superfast Ferries (SF), a new Greek company headed by Pericles and Alexander Panagopoulos, introduced a pair of 27-knot Ropax ships on the 504nm Patras-Ancona route. Capable of carrying up to 120 trucks each, these ships were also able to complete a single trip in 20 hours, which meant that SF offered a regular daily service with the two Ropax.

Conclusions from the SI Framework Approach:
• Importance of Initiator capacities
• Networks
• Market Push at initial stages
– Initiator
– Technology, managerial, operational & cultural change – business unit.

Case 3: Freight Villages

According to the experts, 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.

Conclusions from the SI Framework Approach:
- The initiator is the actor who benefits the most
- Sharing of benefits or recognition of benefits leads to shared initiatives
– Mature process
– Managerial, Organisational, Cultural – Market.

Not-Yet-Successful or Failure Cases

Case 4: 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.

Conclusions from the SI Framework Approach:
- In this policy case the actual focus on both the actors and the 'infrastructure' cannot be said to have been different from the required focus.
- Instead it is necessary to examine in more detail the actions within the infrastructure to discern where an alternative approach by the Commission may have been more successful in achieving the necessary 'buy-in' from industry and government actors.
- For the above reasons it is not particularly useful to provide an standard SI diagrammatic illustration; it would require a further diagrammatic dimension to provide the relevant pictorial insight.
- However, as may be indicated there have been three distinct, historical temporal phases from the viewpoint of the economic analytical approaches used.

Case 5: 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.

Conclusions from the SI Framework Approach:

- This inadequate focus on the 'Third Parties' and the 'Knowledge Institutes' areas lost the Commission considerable time and hence commitment to the EILU standardisation process.
- Post the issue of the CEN mandate an effort was made to engage the 'Knowledge Institutes' via the EU RTD-funded Tellibox project. However, though the CEN mandate was eventually abandoned, the EILU policy initiative did perhaps stimulate a continuing debate on the need for an intermodal unit to be used widely across all surface modes.
- In the event it is likely that the 45' pallet-wide container may provide the ultimate solution.

Case 6: Motorways of the Sea in South East Europe

MoS is a policy initiative to promote intermodal transport and therefore make greater use of the sea. It also improves access to markets throughout Europe and bring relief to the over-stretched European road system. As a consequence, the EU Commission has recommended that MoS to be developed as a competitive alternative to land transport and that MoS be integrated into the Trans-European Transport Network (TEN-T) in 4 key corridors around European coasts: Baltic Sea, Western Europe, South-Eastern Europe and South-Western Europe

Conclusions from the SI Framework Approach:

• Policy Instruments should consider market particularities
• No Policy Intervention would have achieved better results
• Managerial, Organisational, Cultural Change – Market wide.

3.2 Innovation Cases: Discussion on SI Framework Approach and New Categorisation

After the presentation of all the innovative cases, a discussion on the SI Framework Approach started. The experts agree with the approach adopted as they found it very interesting and appropriate to put in evidence several aspects not emerging from other previous analysis of cases. The cases analysed apart from representing the various modes and feature success or "not-yet-success" have been also be distinguished by the following aspects (see D6):

I. The differing stages of Innovation deployment: Initiation; Development; Implementation.

This distinction of phases does not directly correspond with the phases described in the individual case analysis, as here the emphasis is on equal level of maturity rather than on the individual process of development in each case.

II. The Type of "Change" (innovation) they introduce. In this aspect, the cases studied may be grouped as: Purely Technology Innovation; Managerial, Organisational & Cultural Innovation; and Policy Initiative (they may be studied at various stages of deployment, may concern or introduce various types of innovation - technological, managerial, organisational, cultural - and, as policy initiatives, they seek to bring about change in the market).
III. The longitude of "Change" the case study focuses on: (Business) Unit Change, or Market Change .

This latter description is related to the number of actors directly involved in the decision process and does not relate to the magnitude or size of impact as is described by the characteristic of "incremental", "modular", or "radical".

While the phase of deployment reflects the innovation process, the type of change and the longitude of impact the innovation introduces, are considered key characteristics and the

cross-analysis of findings is developed based on this, as this forms a “common basis” of analysis.
Table 3 is a brief overview, based on the above new categorisation, of the cases analysed in WP5 and presented at the consultation meeting. This new categorization has been used to identify a common basis for the cross-study of findings and identification of success paths and policies, and it has been approved by the experts.

Table 3: New categorisation of cases according to the SI Framework Approach

I: Technology-Business Unit Change	**II. Technology -Market Change**
1. Reefer containerization 2. Air lubrication of ships in the inland navigation industry 3. Y-shaped hull, Scheldehuid	1. The Modalohr
III. Technological, Managerial, Organisational, Cultural –Business Change	**IV. Technological, Managerial, Organisational, Cultural - Market Change**
1. Green ports (focused on cold ironing) 2. Indented berth 3. MegaContainerships 4. Betuwe Line 5. Eurotunnel Shuttle 6. Integrated Port Community System 7. Short Sea Shipping: The SuperFast Ferry Case	1. ITS: Variable speed limits 2. ERTMS 3. ICT in the inland navigation industry 4. Utilization of the available capacity on small inland waterways 5. EILU - European Intermodal Loading Unit (Policy Initiatve)
V. Managerial, Organisation, Cultural - Market Change	**VI. Policy Initiatives (Managerial, Organisation, Cultural – Market Change)**
1. Freight Villages	1. EU International road transport market liberalization: Cabotage 2. Eurovignette Directive 3. Three loaded trips limit in ECMT multilateral road transport permit system 4. Port state control 5. Internalization of external costs 6. Motorways of the Sea: The case of East Mediterranean

3.3 New Innovation Cases

Experts were asked to express themselves on a number of new innovation cases to be analysed in the last months of the Innosutra project.
All the partners decided that the application of previously identified success determinants has to be done for new innovation cases belonging to macro-fields of EU research, with possible extensions and take-up an integrated approach on a general platform. The European Green Car Initiative (EGCI) as a general approach for green transport and alternative fuels presented such a basis. Under Logistics & Co-Modality, EGCI combines e-Freight and Green Corridors. Green corridors can be split up in three sub-elements as follows: green maritime fuels, green land combustion and green city logistics.

The Approach in new cases' selection was presented to all experts as including technological, managerial, organizational, cultural and market innovation aspects to be analysed.
An expert, Marco Andreola, suggested LNG fuelled ships as case to be included in the topic "Green Maritime Fuels" as he is directly involved in this field and is willing to support us.
Therefore, the selection of topics was finally determined as follows:

1. E-Freight
2. Green corridors including:
    a. Maritime Alternative Fuels (also known as "Green Maritime Fuels")
    b. City Logistics via electric vehicle fleets
    c. Advanced combustion and aftertreatment technologies in long-haul alternative-fuelled heavy duty vehicle fleets in the future.

4. Conclusions

The 2nd Consultation of the InnoSuTra Project was a profoundly qualitative process of consultation as achieved its objectives and identified additional issues that should be considered in the last phases of project implementation. More specifically, per objectives, the findings are as follows:

- The application of System Innovation Analysis used in the WP5 Analysis and the new categorization of innovation cases were considered acceptable and appropriate from the experts, as SI Approach is based on relations between actors and between actors and system factors influencing actors' behaviour. Although experts' opinions were significantly influenced by their individual background, aspects concerning each case were registered and discussed.

- The selection of new research fields to be dealt in the last phase of the project was supported by the experts, pointing out the importance to carry out the same comparative analysis by clustering cases adopted in WP5, with respect to: the type of innovation introduced (technological, managerial, organisational, cultural and either combinations) and, the wideness of impact (business or market).

- The experts gave some indications how to conclude the project, suggesting the importance of finding common paths among the innovation cases analysed, according to their new categorization, in order to identify Policy Interventions for successful adoption of innovation. For instance, positive correlations have been identified in relation to "Technology Innovations", requiring support during the initial stages in funding provided by the Public sector (Policy Intervention) or by the private sector or both. In some analysed cases, a positive policy intervention has been the support by public initiative to bring together actors (including particularly research institutes) required for the development of the concept and the uptake of the innovation when technically ready for market, while in other cases, it has been the provision of a public funding from innovation support budgets.

ANNEX I: Consultation Event Program

INNOVATION PROCESSES IN SURFACE TRANSPORT
SECOND CONSULTATION MEETING
14 OCTOBER 2011
SALA AUDITORIUM FS, VIALE DEL POLICLINICO 2, 00161 ROME

PROGRAM

9:30 – 10:30	Registration, Coffee Break & Networking
10:30 – 10:40	**Welcome Address**
	Claudio Ferrari, University of Genoa
10:40 – 10:55	**The InnoSuTra Project Presentation of the status of the project**
	Overview of Systems' Innovation (SI) InnoSuTra Approach
	Thierry Vanelslander, University of Antwerp
11:00 – 13:00	**Innovation in Surface Transport – Presentation of InnoSuTra Cases**
11:00 – 11:20	**Road Transport**, *University of Antwerp*
11:20 – 11:40	**Rail Transport**, *University of Lyon*
11:40 – 12:00	**Maritime Transport**, *University of Genoa*
12:00 – 12:20	**Inland Waterways**, *University of Delft*
12:20 – 13:00	**Intermodal Transport**, *University of the Aegean and LCA Europe*
13:00 – 14:00	Lunch break – Buffet Lunch
14:00 - 15:00	**Discussion of SI Scenario Approach by experts**
	Prefaced by *Athena Roumboutsos, University of the Aegean*
15:00 - 16:30	**Plenary Session - Conclusions**
	Presentation of Expert Consultation Results
	Discussion on new innovative cases (e-Freight, European Green Car Initiative) Closing and Networking Reception
16:30 - 18:00	**InnoSuTra Consortium Meeting**

ANNEX II: List of Invited Participants

	NAME	*COMPANY/ ASSOCIATION*
1	Adamantiades M.	UN - Directorate for Transport of the ECE
2	Adams Kris	DP World
3	Ambrogio Livio	Ambrogio SpA
4	Andreola Marco	Rolls Royce
5	Anomeritis Yiorgos	Chair of the Port of Piraeus
6	Anselmo Maurizio	Terminal San Giorgio Genova
7	Appetecchia Andrea	Isfort Spa
8	Ballis A.	NTUA
9	Barbarino Sergio	Procter & Gamble
10	Barnes Simon	IGD
11	Beaumont Jacques	INRETS projet INNOFRET
12	Benacchio Marco	AGCOM
13	Benevolo Francesco	RAM Spa
14	Bervoets Gert	Essers
15	Billiet Marc	International Road Transport Union
16	Blomme Jan	Port of Antwerp
17	Boeve Wando	ECT
18	Burgelmans Luc	Porthus
19	Burnham June	School of Health and Social Sciences
20	Calluy Luc	Waterwegen & Zeekanaal
21	Calzetti Mauro	NUMBER 1 Logistics Group S.p.A.
22	Carstam Bertil	B Consoy
23	Cascos Carlos	Compania Transmediterranea SA
24	Cerup-Simonsen Bo	AP Moeller-Maersk
25	Chalkias Bill	Attikes Diadromes
26	Christiaens Leen	Flemish Ministry of Mobility and Public Works - Logistics
27	Colle Rudy	UIRR
28	Corres Alkis John	Member of the Board of the Port of Piraeus
29	Costa Stefano	T-Link di Navigazione
30	Cruysse Bart Van der	INTERCONTAINER
31	D'Agostino Zeno	Interporto di Bologna
32	De Baere Christ	Volvo Logistics
33	De Schepper Karin	Inland Navigation Europe
34	De Wilde Geert	Polytra
35	Decock Davy	Delhaize

36	Delhaas Bert	Independent Consultant
37	D'haeyer Jan	Shipit
38	Doomernik Jack	Lloyd's Register Rail
39	Ferrandino Paolo	Assoporti
40	Figari Massimo	University of Genoa
41	Frigo Raffaele	Interporto Verona
42	Gariboldi Alessandro	CEMAT
43	Giachino Bartolomeo	President of Italian Council for Road Transport and Logistics
44	Giordano Rocco	Chief of the Scientific board of the Italian National Council for Road Transport and Logistics
45	Giorgi Andrea	Maersk Line
46	Gonsalvez D	Zaragoza Logistics Centre
47	Graham Nick	Wincanton
48	Grosso Monica	University of Genoa
49	Heaver Trevor	University of British Columbia
50	Herman Journee	Port of Amsterdam
51	Hiel Martine	TCT Willebroek
52	Hoet Ilse	
53	Homminga Tjerk	LunchButler
54	Hosni Tarek	NONATRANS
55	Julien Michel	Predit
56	Katsoulakos Panayotis	INLECOM Ltd
57	Kayikci Yasanur	Graz University of Technology
58	Kerstens Gert	DP World
59	Krebs Heiko	Kombiverkehr
60	Lannoo Dirk	Katoen Natie
61	Lazzeri Piero	Fedespedi
62	Lockefeer Dennie	DP World
63	Marcucci Edoardo	University of Roma 3
64	Mastretta Marco	ICS
65	Maurel Olivier	SNCF
66	Merlo Luigi	Port Authority of Genova
67	Mievis Annick	Colruyt
68	Mijland Joop	CMA-CGM
69	Navarre Marie-José	
70	Olesen Dennis	APM Terminals
71	Paelinck Honoré	independant consultant
72	Paelman Peggy	Distri-Log
73	Paindestre Isabelle	XPEDYS

74	Papandreou C.	Olympia Odos
75	Paul Wauters	Inter Ferry Boats
76	Pazzaglia Paolo	Trenitalia Cargo
77	Perez Eva	Valencia Ports Foundation
78	Pessano Mauro	Captrain
79	Petit René	Novatrans
80	Petitmengin Denis	Novatrans
81	Pirenne Marc	Euroports
82	Poinssot A.	SNCF
83	Princz-Jakovics Tibor	TeRRaCe Ltd.
84	Profice Emanuele	Port Authority of Genova
85	Reynaud Christian	NESTEAR
86	Roels Roger	DP World
87	Ruthenschroeer A	Metro
88	Saenz Arostegui Juan	Acciona Trasmediterranea
89	Salini Patrice	independant consultant
90	Savy Michel	Université Paris XII et à l'Ecole Nationale des Ponts et Chaussées
91	Scheyvaerts Tom	Pricewaterhouse Coopers
92	Simoncelli E.	Hupac
93	Siorris A.	Cargo Handling Athens International Airport
94	Sitia Stefano	Lanterna Alimentari Genova Spa
95	Soekkha Hans	SHM Research
96	Sonnabend Peter	DHL
97	Sorgheloos Ralph	Porthus
98	Steele Steve	Transport for London
99	Struyf Tony	TSF
100	Thierfelder Felicitas	Kuehne Nagel
101	Tiziano Elisabetta	APM Terminals
102	Toubol Armand	SNCF
103	Trant Gerry	Nautical Enterprise Centre Ltd
104	Tremeac Yann	consultant TLA
105	Turner Brian	UK Department for Transport
106	Van der Arend Gabby	RET
107	Van de Bossche Philippe	
108	Van de Bussche Mario	Volvo
109	Van de Putte Peter	Maatschappij Linkerscheldeoever
110	Van Doninck Kurt	Nike
111	Van Himste Danny	DHL
112	Van Litsenborg Ronny	Janssens Pharmaceutica

113	Van Meel Guido	Port of Antwerp
114	Van Nispen Jan	Economics Department Flemish Government
115	Varvates N.	Chair of SSS Greek Association
116	Verbeke Filip	Essencial
117	Verbruggen Johan	SPK
118	Waglen Bjorn	Samskip
119	Walker-Palin Julian	Asda
120	Walter Robert	APM Terminals
121	Willems Ingrid	Wolters Kluwer
122	Wolters Peter	European Intermodal Association
123	Zielens Alain	Avelgem Container Terminal
124	Ziliaskopoulos A.	Greek Railways
125	Zimmerman Robert-Jan	Mercurius Shipping Group
126	Zwijnenburg Bastiaan	LRD