Project no.TREN/06/FP6TR/S07.60148

FREIGHTWISE

Management Framework for Intelligent
Intermodal Transport

Integrated Project (IP)

Sustainable surface transport - Rebalancing and integrating different transport modes

Questionnaire for Freight transport industry, intermodal transport stakeholders

Centre for Research and Technology Hellas

Hellenic Institute of Transport

July 28, 2008

Introduction: The Freightwise Project

FREIGHTWISE is an Integrated Project of the 6th Framework Programme (FP6) addressing the Priority 3: "Re-balancing and integrating different transport modes".

Under the heading of the FREIGHTWISE FRAMEWORK – FWF – the project intends to develop a generic system architecture for intermodal transport management based on previous European and national efforts.

It will do this, in order to support the modal shift of cargo flows from road to intermodal transport using road in combination with short sea shipping, inland waterways and rail. The project aims to achieve this objective by means of improved management and facilitation of information access and exchange between large and small, public and private stakeholders across all business sectors and transport modes.

FREIGHTWISE's aim is also to support the Commission to formulate future legislation and to develop initiatives that can provide a platform, based on which the industry can develop management solutions thus helping to increase the competitiveness of intermodal transport.

Aim of the questionnaire

Currently, there is an increasing understanding of the power of an integrated architecture in servicing the stakeholders of an intermodal transport chain. The FREIGHTWISE architecture must be very well validated in order to ensure functional completeness and user acceptance.

The **assessment objectives** defined for the validation of the FWF are driven by the primary issues tackled by the reference model, the overall requirements that an effective architectural framework should serve and the needs of the project business cases. Thus, the assessment objectives for the FWF are:

A. <u>User acceptance</u>, by the full range of the intermodal freight transport stakeholders.

B. <u>Functional completeness</u>, in terms of roles, functions, information (messages/ attributes) and work processes.

C. <u>Simplicity</u>, as a contribution to the establishment of a simple and common conceptual model of the transport domain in the minds of transport stakeholders.

D. <u>Stability</u>, since FWF should last through changes in user needs, user requirements and technology.

E. <u>Independence</u>, as FWF should be independent of organisational issues as well as the physical realisation of the ITS solutions.

F. Contribution to <u>interoperability</u> between stakeholders and ICT solutions by means of well defined information exchange message-based interfaces.

G. Contribution to <u>harmonisation</u> across transport modes by providing co-modal architecture.

The aim of this questionnaire is to contribute to the overall validation of the FWF. The questionnaire is used as an instrument to gather the opinions of both internal and external bodies in a common template and structure. For this purpose, the respondents are invited to answer specific questions about the framework's completeness, extend of user acceptance, simplicity and practicality of the FWF.

The questionnaire is divided in the following sessions:

- *Session A*: Stakeholder ID. This session includes information about each stakeholder participating to the evaluation process.
- *Session B*: evaluation of FWF elements. Evaluation of the functional elements of FWF (Roles, Functions, Messages and Processes).
- *Session C*: overall evaluation of FWF. Overall evaluation of the Freightwise Framework in terms of simplicity, stability, adaptability over changes etc.

In Sessions B and C the interviewees are asked to rate a series of questions using a 5 to 1 scale, where 5 refers to the least satisfaction or importance ("not at all") and 1 to the complete satisfaction or importance ("completely").

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Session A: Stakeholder ID

Name of the Company:	
Address:	
Telephone/ Fax:	
Website:	
Country:	
Type of Company:	
Number of Business case:	
Name of interviewee:	
Title/Position in the Company:	
Telephone/ Fax:	
E-mail:	

Session B: Evaluation of FWF elements

Key elements of the FWF are the Roles, the Functions, the Processes as well as the Information Packages (messages) that have been identified by the framework. The main purpose of the FWF is to simplify the phases of planning, executing and following up a Transport Execution Plan between a Transport User and a Transport Service Provider, by means of integrated Information Packages and validated processes between the roles in the planning, execution and completion of freight transport.

The process viewpoint describes the overall processes that are taking place during the three main phases in Freightwise: Planning, Execution and Completion. It is depicted in the activity diagram below and shows the four Freightwise roles involved, the functions to be performed by each of the roles, as well as the exchange of information (by means of information packages) between the roles.
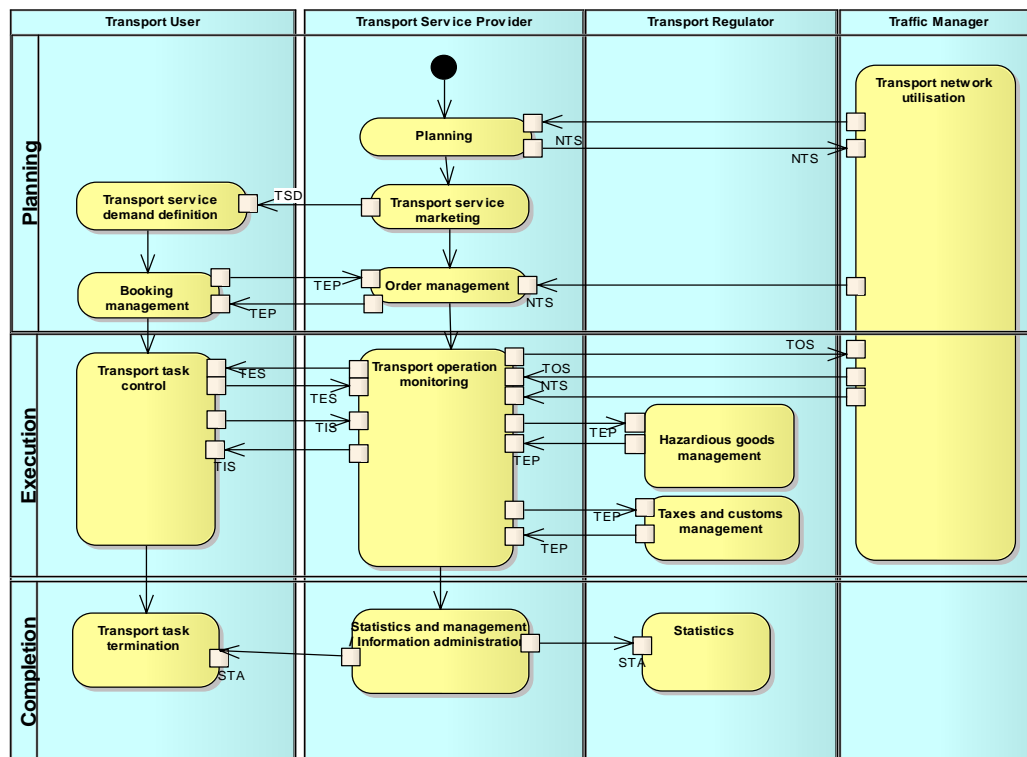

Figure 1: Process Diagram

Each stakeholder that takes part to the FWF validation should be able to identify its "role" and position in the diagram above (e.g. transport service provider participating in the transport execution phase).

The scope of this session is to evaluate the individual elements of the FWF through a series of questions. Each stakeholder will mainly validate the FWF elements and parameters that concern his involvement/ role in the transport chain. The first step is to "identify" its "position" and Role in the Process Diagram.

ROLES

*The 4 Superior **Roles** that have been identified by the FWF are the Transport User, Transport Service Provider, Transport Regulator and Traffic Manager. A stakeholder can play one or more Roles (a detailed description of each Role is provided in Annex I of this questionnaire).*

1. ***Stakeholders' coverage by FWF Roles:*** Do you believe that the identified Roles cover all stakeholders and their responsibilities of the intermodal transport sector? (A1)

Role	Rating				
	5	4	3	2	1
Transport User					
Transport Service Provider					
Transport Regulator					
Traffic Manager					

Indicate any Role that has not been included in the FWF or any other comment you might have:………………………………………………………………………………………………
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Please rate the importance of the factor "Stakeholder coverage by FWF Roles" in your decision to adopt and use FWF?

5	4	3	2	1

2. ***Simplicity of Roles:*** The FWF Roles have been selected to ensure flexibility and simplicity, and to enable the establishment of a generic framework architecture. To what extend do you believe that this goal has been achieved? (C1)

5	4	3	2	1

Please rate the importance of the factor "Simplicity of Roles" in your decision to adopt and use FWF?

5	4	3	2	1

3. ***Validity of roles across all modes:*** FWF addresses all transport modes aiming to cope with co-modal flexibility. Do you believe that FWF Roles are valid to all transport modes? (G2)

5	4	3	2	1

Please rate the importance of the factor "Validity of Roles across all modes" in your decision to adopt and use FWF?

5	4	3	2	1

FUNCTIONS

*The functional viewpoint in the Freightwise Framework describes the main **Functions** in intermodal transport chain. Closely related to these functions, are the responsibilities that the FWF Roles have. A detailed description of the FWF functions is provided in Annex II of this questionnaire.*

4. ***Transport chain activities coverage by FWF Functions:*** Please, rate the extent to which FWF sufficiently integrates and covers the transport and business activities in the intermodal freight transport. (B2)

	Rating				
	5	4	3	2	1
Transport Service Provider Functions					
Planning					
Transport service marketing					
Order Management					
Transport Operation Monitoring					
Statistics and management information administration					
Transport User Functions					
Transport Service Demand Definition					
Booking Management					
Transport Task Control					
Transport Task Termination					
Transport Regulator Functions					
Hazardous Goods Management					
Taxes and Customs Management					
Statistics					

Traffic Manager Functions					
Transport Network Utilisation					

Indicate any Function that has not been included in the FWF or any other comment you might have:

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Please rate the importance of the factor "Transport chain activities coverage by FWF Functions" in your decision to adopt and use FWF?

5	4	3	2	1

5. Do you have any requests for modifications or adaptations of the functions? If yes, please fill in the following table: (B5/B6 functions)

	Proposed changes	Proposed adaptations
1		
2		
3		
4		
5		

6. *Simplicity of Functions:* Do you believe that the FWF functions contribute to the overall simplicity, understanding and straightforwardness of FWF? (C2)

5	4	3	2	1

Please rate the importance of the factor "Simplicity of Functions" in your decision to adopt and use FWF?

5	4	3	2	1

INFORMATION PACKAGES (Messages)

The FWF information packages (messages) concern the information that is exchanged during the three main phases of co-modal transport as identified in Freightwise (namely: Planning, Execution and Completion). The standard templates of the FWF information packages are included in Annex III of this questionnaire.

7. ***Content coverage by FWF Information Packages:*** Rate the extent to which the attributes of the FWF Information Packages cover the contents (fields and attributes) of the messages currently interchanged between the various stakeholders of intermodal transport system. (B3)

Information Packages	Rating				
	5	4	3	2	1
Transport Service Description (TSD)					
Transport Execution Plan (TEP)					
Transport Execution Status (TES)					
Transport Item Status (TIS)					
Network and Traffic Status (NTS)					
Transport Operation Status (TOS)					

Indicate any field or attribute that has not been included in the FWF messages or any other comment you might have:

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…………………………………………………………………………………………………..
…………………………………………………………………………………………………..
…………………………………………………………………………………………………..

8. Do you have any requests for modifications or adaptations of the information packages? If yes please fill in the following table: (B5/B6 messages)

	Proposed changes	Proposed adaptations
1		
2		
3		
4		
5		

9. ***Sufficiency of the standardized format of messages****:* To what extent do the content and structure of the FWF standardised Information packages meet your needs and expectations? (A2)

5	4	3	2	1

Please rate the importance of the factor "Sufficiency of the standardized format of messages" in your decision to adopt and use FWF?

5	4	3	2	1

10. ***Simplicity of messages and interfaces:*** Rate the contribution of the structure and content of FWF messages and interfaces to the overall simplicity, understanding and straightforwardness of the Framework. (C3)

5	4	3	2	1

Please rate the importance of the factor "Simplicity of messages and interfaces" in your decision to adopt and use FWF.

5	4	3	2	1

11. ***Harmonization of messages serving co-modality:*** The harmonisation of the messages used by the various actors in co-modal transport strongly affects the current cooperation and transport chain control. Do you believe that the information packages (messages) proposed by FWF will improve the current situation? (G1)

5	4	3	2	1

Please rate the importance of the factor "Harmonization of messages serving co-modality" in your decision to adopt and use FWF.

5	4	3	2	1

PROCESSES

The FWF process viewpoint describes the overall processes that are taking place during the three main phases: Planning, Execution and Completion. The process viewpoint is depicted by means of activity diagrams, like Figure 1, and shows the four FWF Roles involved, the Functions to be performed by each Role as well as the exchange of Information during this interaction.

12. ***Information flows coverage by FWF Processes:*** Rate the extent to which the FWF processes cover the information flows in a real intermodal transport operation. (B4)

5	4	3	2	1

Indicate any Process that has not been included in the FWF or any other comment you might have:

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13. If you have any requests for changes, modifications or adaptations of the processes, please fill in the following table: (B5/B6 processes)

	Proposed changes	Proposed adaptations
1		
2		
3		
4		
5		

14. *Simplicity of Processes:* Rate the contribution of the current structure and content of FWF processes to the overall simplicity, understanding and straightforwardness of FWF. (C4)

5	4	3	2	1

Please rate the importance of the factor "Simplicity of Processes" in your decision to adopt and use FWF.

5	4	3	2	1

15. *Contribution of process templates to harmonization:* The processes of FWF are described on a high level to enable generalisation and independency from local procedures. The main objective of this approach is to enable the process descriptions to be used as a template for harmonisation and local customisation. Do you believe that this goal has been achieved? (G3)

5	4	3	2	1

Please rate the importance of the factor "Contribution of process templates to harmonization" in your decision to adopt and use FWF.

5	4	3	2	1

Session C: overall evaluation of FWF

The scope of this session is to make an overall evaluation of the Freightwise Framework further to the evaluation of its individual elements that took place in Session B. Some of the factors that will be evaluated are: the overall simplicity of the FWF and its elements, the stability over user needs and changes as well as the adaptability over changes.

16. *Time for framework understanding:* Rate the general effort and time required to understand and interpret the structure, elements and content of the FWF. (C5)

5	4	3	2	1

Please rate the importance of the factor "Time for framework understanding" in your decision to adopt and use FWF.

5	4	3	2	1

17. *Adaptability to intermodal transport business processes:* Do you believe that the FWF can be easily adapted to the business processes of the intermodal transport stakeholders? (A3)

5	4	3	2	1

Please rate the importance of the factor "Adaptability to intermodal transport business processes" in your decision to adopt and use FWF.

5	4	3	2	1

18. *Stability over Business Processes:* Do you believe that FWF can last through changes in business and transport processes of the various stakeholders? (D3)

5	4	3	2	1

Please rate the importance of the factor "Stability over Business Processes" in your decision to adopt and use FWF.

5	4	3	2	1

19. *Independence from organisational changes:* Do you believe that FWF can last through changes in the organisational structure of the intermodal transport stakeholders? (E1)

5	4	3	2	1

Please rate the importance of the factor "Independence from organisational changes" in your decision to adopt and use FWF.

5	4	3	2	1

20. *Facilitation of communication between stakeholders:* Do you believe that FWF facilitates the interoperability and cooperation between intermodal transport stakeholders? (F1)

5	4	3	2	1

Please rate the importance of the factor "Facilitation of communication between stakeholders" in your decision to adopt and use FWF.

5	4	3	2	1

21. *Contribution to standardization:* One of the aims of FWF is to create input for a European standard framework for the development and integration of ICT systems and modules in intermodal freight transport management. Do you believe that FWF can contribute to the achievement of this goal? (G4)

5	4	3	2	1

Please rate the importance of the factor "Contribution to standardization" in your decision to adopt and use FWF.

5	4	3	2	1

22. *Degree of satisfaction:* Rate your overall satisfaction on the usability, comprehensiveness and usefulness of the FWF: (A5)

Degree of satisfaction	Rating				
	5	4	3	2	1
Usability					
Comprehensiveness					
Usefulness					

Annex I: The FWF Roles

The 4 Superior **Roles** that have been identified by the FWF are the Transport User, Transport Service Provider, Transport Regulator and Traffic Manager.
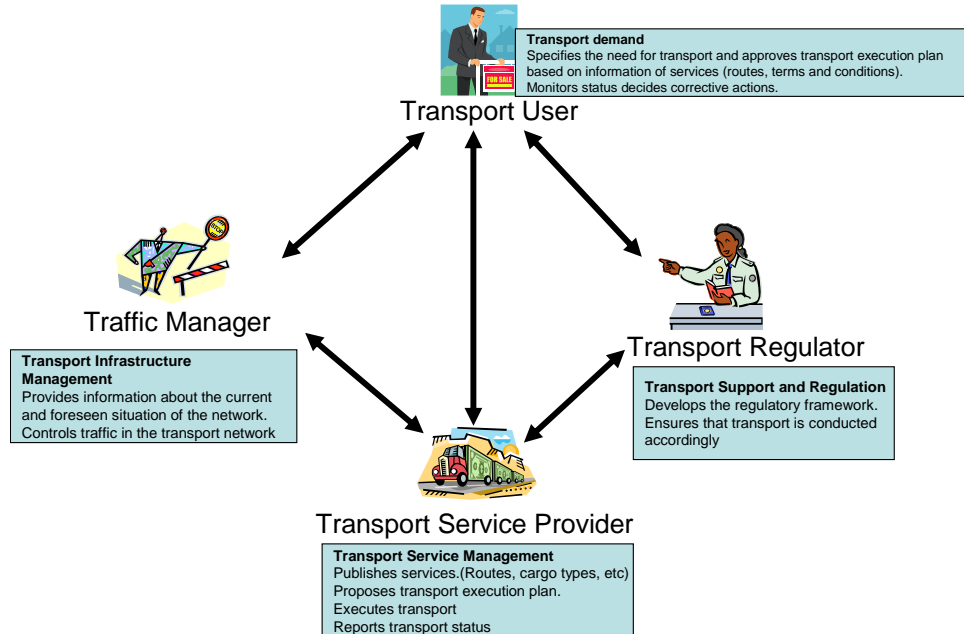

Figure 1 - The Freightwise Roles

- The *Transport User* is the role representing anyone that needs to have cargo transported. The Transport User also provides the Transport Service Provider with instructions and detailed information about the transport items to be transported.

- The *Transport Service Provider* is the role that ensures the transport of the cargo from the origin to the destination. This includes the management of the transport services and the operation of the transport means and handling equipment. A Transport Service Provider may also provide administrative services required for moving the cargo, such as cargo inspection.

- The *Traffic Manager* is the role that extracts all information available regarding the infrastructure (static or dynamic) related to planning and executing transport and makes this information available to the Transport User and the Transport Service Provider.

- The *Transport Regulator* is the role that receives all mandatory reporting (and checks if reporting has been carried out) in order to ensure that all transport services are completed according to existing rules and regulations.

It should be noted that a person or organisation may take on different roles.

Annex II: The FWF Functions

The functional viewpoint in the Freightwise Framework describes the main functions belonging to the sub-areas in the Reference Model. Closely related to these functions, within each sub-area, are the responsibilities that the Roles have. Only functions belonging to the subareas relevant to Freightwise (the green boxes in the Reference Model) are described.

Transport Service Provider Functions

a. Planning
Internal information about available transport means, transport handling equipment, crew, operators, workers etc. is taken into account during the planning. Information about the certificates and licences is used. The planning function also takes into account information about the transport infrastructure. This information is made available from the Traffic Manager by means of the Network and Traffic Status information package. Planning must also take into account laws and regulations that might have an influence on the transport services to be carried out. Finally, knowledge about existing transport services, the market and historical information are used.

b. Transport service marketing
Information about the planned services is made available to the market (i.e. to potential Transport Users). In Freightwise this is carried out by means of the Transport Service Description information package, where the Transport Service Providers publish information to attract business from Transport Users. The services are published in a standard way so that Internet search engines and/or potential Transport Users receive information about services in a standard way and thereby will be in a better position to select a service that meets their needs.

c. Order Management
This function includes negotiations and the development and up-dating of a Transport Execution Plan between the Transport Service Provider and the Transport User, which allows for the exchange of information between the Transport Service Provider and the Transport User. This information can relate to contract requirements and the requirements of regulatory authorities. This function also includes the receipt of information from a Traffic Manager regarding the status as well as historical information about the network or infrastructure by use of the NTS (Note: which stands for?) status information package.

d. Transport Operation Monitoring
The transport operation is monitored by keeping track of the driver, the transport means, load units and the goods (transport items). In Freightwise this information collection is carried out only by the Transport Service Provider, without any need for an exchange of information with another organisation and therefore is not included in the FWF. The Traffic Manager is providing the Transport Service Provider with information about the transport network, the traffic and the status of an individual transport means. The Transport Regulator also receives information about the Transport Execution Plan and is using the information as part of hazardous goods management and tax and customs management. The information from the monitoring functions is put together and made available to the Transport User by means of the Transport Execution Status and Transport Item Status information packages.

e. Statistics and management information administration

Required statistic information is collected, prepared and sent to the the relevant statistical authorities.

Transport User Functions

f. Transport Service Demand Definition

This function involves the Transport User defining the transport items that are to be transported, the time and date of collection and delivery, the origin and destination and the condition of the items during the transport (i.e. frozen, ambient temperature conditions etc.). This information is collated and forms the initial set of information in a possible Transport Execution Plan for this transport demand. The Transport User can also receive information, either by searching, or by direct input from the Transport Service Providers, about available Transport Services.

g. Booking Management

The Transport User interacts with the Transport Service Provider to make the Transport Execution Plan ready for execution. During the Booking Management function the Transport User provides the required information in the Transport Execution Plan in one or more steps.

h. Transport Task Control

The Transport Task Control function is based on the Transport Execution Plan that is being carried out. The progress of the transport task is compared to the plan. Progress in carrying out the plan is reported through the Transport Execution Status and the Transport Item Status information packages.

Formal documents are issued as indicated by the Transport Execution Plan and information exchange is also triggered by the plan.

i. Transport Task Termination

The transport task is terminated either on the basis of the Transport Execution Status or the Transport Item Status Information Packages. The task can be terminated because the Transport Execution Plan is fulfilled with or without exceptions or because the statuses are such that the Transport Execution Plan can never be completed.

Transport Regulator

j. Hazardous Goods Management

Information about the transport of dangerous cargo is received and managed. The Transport Regulator may declare the transport of the goods either in accordance with the current laws and regulations, or not. The information is submitted to other stakeholders according to predefined rules. Information about dangerous cargo must be managed.

k. Taxes and Customs Management

Requests for customs declarations are received and processed. This is based upon the Transport Execution Plan, which includes information on the transport items that are going to be transported and are required by customs. Customs clearances may be issued.

l. Statistics

Statistics is received from the Transport User and the Transport Service Provider. The information is managed according to the regulations for statistics.

Traffic Manager

m. Transport Network Utilisation

The utilisation of the transport network is based on information about the transport infrastructure itself, the current traffic conditions, the planned transport services, weather information and forecasts etc. During the phase of utilisation, the Network and Traffic Status and Transport Operation Status Information Packages areput together and made available to the Transport Service Provider.

Annex III: The FWF Processes

Annex IV: The FWF Information Packages (messages)