



**PRIORITY 6
SUSTAINABLE SURFACE TRANSPORT**

MTCP

Maritime Transport Coordination Platform
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TERMS OF REFERENCE PORT DATA EXCHANGE SYSTEMS

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STUDY ON PORT DATA EXCHANGE SYSTEMS: Inventory of communication systems for administrative data in ports¹, between ports and between ports and port users in the EU and their compatibility with each other

I. Objectives of the study

To shift the growth in freight transport away from roads and onto other modes is a policy aim at European level. Short Sea Shipping is playing a lead role in this process. A number of initiatives have been launched to stimulate the use of Short Sea Shipping. One area that now needs to be addressed is that of finding ways to facilitate the flow of administrative information in ports, between ports and between ports and port users in the EU. Electronic communication of data is one way to speed up the necessary processing of administrative data involved in the sea-leg of intermodal transport.

Investigations and pilot operations made in the Marnet and BOPCom frameworks have demonstrated the utility of interport data interchange. The use of information and communication technology (Internet, Java) together with a low utilisation cost makes data interchange easy and useful. These two conclusions were not obvious before the realization of Marnet and BOPCom (EU Waterborne Research Projects, 1997 – 1999).

The purpose of this study is to make an inventory of the different administrative (non-commercial) information systems in use in EU ports, their compatibility with each other, and their compatibility in relation to the exchange of administrative data between ports and port users. The objectives of the study are:

- To examine existing communication systems² in and between seaports in the EU, for ship- and port-related administrative data, including statistical data³;
- To briefly describe these systems, their compatibility with each other and differences between them;
- To describe user interfaces that are needed to communicate with the port systems to forward administrative (non-commercial) data (such as the information required for a ship to arrive in and depart from a port, information to the Customs authorities, and statistical data);

¹ The study concerns seaports.

² The term communication system includes facilities for entry, storage, processing, and reporting of data as well as for electronic data exchange.

³ Addressing the support such systems give to the communication of officially required statistics reports.

- To assess whether these port information systems have a level of compatibility with each other allowing data interchanges (for example, through common message standards) and to what extent user interfaces need to be specialised to allow communication with systems in different ports;
- To conclude whether administrative information, including statistical information, can be forwarded in sufficiently uniform way between different EU ports and between ports and port users.

The ultimate aim of the study is to analyse the feasibility of a European wide single window solution for the mentioned types of communication.

II. Scope of the study

1) Functional scope

All data related to the visit of a vessel to a port are to be included:

- Firstly this concerns ship reporting obligations (e.g. pre-announcements, berthing requests, waste disposal, crew/personnel on board).
- Secondly it includes cargo reporting obligations (e.g. dangerous goods, cargo manifest summaries for Eurostat reporting, customs declarations).
- Thirdly it includes data exchange aimed at requesting, planning, and allocating nautical services (e.g. pilots, tugboats, mooring gangs, fire brigades, bunkering, power and water supply) - in some ports the latter category is provided by public entities

Communication of such data may take place between sea-side port users (e.g. vessels, ship's agents) and the port visited (e.g. port authorities, customs authorities, nautical service providers), or between ports. In some cases land-side port users (e.g. forwarders) are involved since they may communicate dangerous goods data to the authorities. Inclusion of such land-side communication is only required if administratively relevant.

2) Geographical scope

Only the largest EU ports are to be considered, meaning Category A ports, 1.5 million tons/year. This is a group of about 250 ports. A sample of approx. 50 ports will be established that will be used for the analysis. The selection will consider EU wide coverage as well as representation of port clusters⁴.

⁴ A cluster is a group of ports that has already implemented a single window solution or that already supports electronic data exchange between ports. In such a case we want at least a single port representing the cluster, not necessarily many ports within the cluster.

Since [Port@Net](#) in Finland is a prime example of an single window solution that has succeeded in integrating electronic data exchange facilities for a group of ports, it will be included in the analysis. We will include 1 or 2 other examples of attempts that have been made in that direction.

3) Study scope

Individual systems are to be described in short form, identifying key characteristics (name of the system, operator of the system, users of the system, functions supported by the system).

More detail is required regarding the interlinkage between systems (e.g. focus on interlinkage between the port community system, NCTS, and SafeSeaNet - not on the systems themselves).

Interlinkage between systems is to be studied as follows:

- Messages used for electronic data exchange (applied message standard⁵, use of the message).
- User interfaces for those instances where data exchange between a user and a systems takes place manually, e.g. to create an electronic message by manually entering the required information in a web form.

Focus will be on the functional aspects of the data exchange. Technical aspects do not need to be studied.

III. Expected results, conclusions

A final report will indicate the capacity for interoperability between port systems:

- Describing the present situation as to the different system topologies and interlinkages used;
- Identifying shortages in interlinkages found, especially in the area of data exchange between ports;
- Identifying problems on the road to a European wide single window solution;
- Identifying advantages and disadvantages of such a European wide single window solution for the actors involved;
- Suggesting ways in which the barriers to interoperability may be overcome and charting a path to follow, including any role for the EU in facilitating progress;

⁵ Sometimes we see that, although the same message standard is being used, discrepancies occur on a detailed level. This may be caused by semantic differences in the use of specific data elements. The current study does not provide this level of detail, although we are aware of its implications.

IV. Method

1) Preparation of the study activities:

- Set-up of a global functions directory that port systems should support
- Definition of an analysis grid and/or questionnaire to assess each port

2) Port sample selection:

- Analysis of clusters in Category A ports
- Selection of approx. 50 ports to be included in the sample

3) Port assessment / internet scan:

- Collection of information through port websites
- Assessment of the information received

4) Port assessment / questionnaire⁶:

- Distribution of questionnaire
- Assessment of the information received
- Follow-up of information received

5) Port assessment / [Port@Net](#):

- In depth analysis of [Port@Net](#)
- Analysis of 1-2 other single window platforms; currently we have identified:
 - Port Infolink in Rotterdam
 - Portel's solution for ports in Spain

6) Assessment of single window potential:

- Comparison of interchange formats used by port systems
- Identification of message formats that can facilitate interport communication

⁶ Due to the large number of ports to be analysed, site visits will be reduced as much as possible.

7) Coordination:

- Draft and final reporting
- Advice on potential roadmap (with alternatives) to improve interoperability
- EC meeting at mid-term and at the end of the study

V. Budget

Budget component	Total		Segwayah		Marintek		Port of Qijon		Planning
	# man-hrs / port	# ports	# man-days total	# ports	# man-days total	# ports	# man-days total	# ports	
1) Preparation of the study activities:									
Set-up of a global functions directory that port systems should support			2		2				June
Definition of an analysis grid and/or questionnaire to assess each port			2		2				
2) Port sample selection:									
Analysis of clusters in Category A ports			2		2				June
Selection of ports to be included in the sample			2		2				
3) Port assessment / internet scan:									
Collection of information through port websites	1.00	50	6.25	20	2.5	15	1.875	15	1.875
Assessment of the information received	1.00	50	6.25	20	2.5	15	1.875	15	1.875
4) Port assessment / questionnaire :									
Distribution of questionnaire			1		1				September/October
Assessment of the information received	2.00	50	12.5	20	5	15	3.75	15	3.75
Follow-up of information received	2.00	20	5	10	2	5	1.5	5	1.5
5) In depth single window assessment:									
In depth analysis of Port@Net			2				2		November
In depth analysis of 2nd alternative e.g. Port Infolink (Rotterdam)			2		2				
In depth analysis of 3rd alternative e.g. Portel (Spain)			2					2	
6) Assessment of single window potential:									
Comparison of interchange formats used by port systems			2		2				November
Identification of message formats that can facilitate interport communication			2		2				
7) Coordination:									
Draft and final reporting			10		8		1		1
Advice on potential roadmap (with alternatives) to improve interoperability			5		3		1		1
EC meeting at mid-term and at the end of the study			3		3				
TOTAL			67		41		13		13
Estimated average daily rate			713.95		713.95		713.95		713.95
Cost of man-days			47,834.65		29,271.95		9,281.35		9,281.35
Travel costs			2,250.00		750.00		750.00		750.00
Total costs			50,084.65		30,021.95		10,031.35		10,031.35
Correction			(84.65)		(21.95)		(31.35)		(31.35)
Total costs after correction			50,000.00		30,000.00		10,000.00		10,000.00

Total costs is € 50,000.00 including work and travels. Hourly rate as determined by MTCP contract + 20% overhead (same terms as in MTCP contract).

VI. Team

The study will be carried out by 3 organizations, as indicated in the budget table:

- 1) Sequoyah International Restructuring is leading the expert group on “Maritime market, operations, and logistics”. Sequoyah has been involved in analysing and designing port telematics systems for the past 10 years. Sequoyah is also active in the Ports Information Services workpackage in the MarNIS project. Their central location provides easy access to ports in Western Europe. Staff includes Mr. Frank Knoors and Mr. Frans Jonckheer. Sequoyah will also look into the Port Infolink system in the Port of Rotterdam.
- 2) Autoridad Portuaria de Gijón is participating in the expert group on “Maritime market, operations, and logistics”. Port of Gijon is involved in a large number of projects and studies in the area of port management and ICT, and has excellent access to Southern European ports in order to contribute to our assessment. Staff includes Mr. Humberto Moyano with a team of 5 professionals. Port of Gijon will also look into the single window application provided by Portel to a large group of Spanish ports.
- 3) Marintek, the Norwegian Marine Technology Research Institute is a research company specializing in maritime transport and logistics, including telematics applications. Marintek is also responsible for the Ports Information Services workpackage in the MarNIS project. As a result they can provide valuable input information on current communication systems used in ports. Their location in Northern Europe provides excellent access to ports in the Baltic. Staff includes Mr. Ørnulf Jan Rødseth. Marintek will also look into the [Port@Net](#) system in Finland.