



EUROPEAN COMMISSION - DG TREN – TRANSPORT & ENERGY

**SHORT SEA SHIPPING NETWORK
INFORMATION, BOOKING AND MANAGEMENT SYSTEM TO INTEGRATE
SHORT SEA SHIPPING IN THE INTERMODAL TRANSPORT CHAIN**

(PL97-2178-3SNET)

Final Report

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Public

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2 Executive Summary

The 3SNET project commenced in February 1998 and concluded in September 1999.

The objective of the project was to complete a demonstrator schedule display and cargo booking system for the shortsea market within Europe. **3SNET has achieved this objective** and a product now exists that can be taken to the commercial market and exploited once some essential enhancements are made that were identified during the validation.

Within the freight industry the short sea market has not yet needed to use electronic booking systems, whereas in the deep sea market most of the larger players have developed their own web sites and booking systems. The market is moving slowly in the direction of the Internet to exploit these services but is still at an early stage.

The short sea market needs such a product as 3SNET, as it is not expected that each operator – many of which are small companies - will wish to invest in its own bespoke system. This is where 3SNET fits into the commercial structure of the industry. It is a generic solution for all carriers in the short sea market and allows them to participate in electronic communication with customers at minimal investment.

Port Community systems (PCS) have been in operation within the main ports of Europe for many years, but their structure and presentation has predominantly been text based. Modern technology now encompasses the World Wide Web and visual Windows applications. Many sections of the freight industry are not ready to fully adopt this sophistication which other industries take for granted. Many carriers and agents still use telex and fax as their main means of communication with their customers. Some Port Community systems are expanding to incorporate more functionality and encompass a wider range of services that can include products such as 3SNET. Customers today are looking for single solutions to their operations and finding all services within one area is the way to move forward.

3SNET was introduced into the market and has been demonstrated widely to many parties; **it has been received very positively.** It is now only a matter of time before the industry catches up in technology terms and starts using products such as 3SNET to enable wider communication between customers and partners.

The foundation of a solid reliable system has been developed and now provides a platform to build in the phase 2 options discussed in the document. If 3SNET is to be successful, **further development will be required.** The trade will move forward at its own pace and the relevant new products must be developed and ready to use, having gone through rigorous testing in the interim. The investment in time and effort in these projects is very valuable and of benefit to the industry by showing the way forward. The short sea trade is very mature in operational terms but it is only just beginning to incorporate new communications systems, such as use of the Internet, into commercial activities.

The 3SNET project has researched and produced a product that is adaptable and can be integrated into the logistics marketplace when the time is right. Internet technology allows many sites to link to 3SNET and incorporate it into their own portfolio of services without the need to host and support the product themselves.

The project was delayed by three months due partly to the lack of connectivity in the industry outlined above. The ability to implement a project using the Internet and World Wide Web functionality among carriers and customers alike took much longer than envisaged. This confirms our findings when discussing 3SNET in the wider market place and the required changes in technology across the industry will take some time.

Internet Browsers are taken for granted and it is assumed that all companies are fully capable of using them on the World Wide Web. **The project findings during the validation process underline the need for the industry to move forward and to take full advantage of the benefits on offer from this technology**

3SNET is the perfect tool to assist new service providers, as well as existing lines. It can be used for both feeder and door-door operations as well as having the ability to handle intermodal connections. The system is designed to improve access to short-sea shipping and intermodal services and provides a simple, cost-effective booking system that is immediately available. The 3SNET system brings many unique benefits to both line and shipper including:

For the shipper:

- Ability to compare competing schedules
- Ability to automatically “make connections” between sea-sea or sea-intermodal services, thus extending the supply chain information available
- Zero cost at the point of delivery
- Simple electronic booking and bookings management system

For the lines:

- 3SNET can potentially reach a large market, thereby increasing awareness of short-sea shipping opportunities
- The system can highlight co-operative opportunities between lines to exploit new routes
- Schedules can be easily input using a familiar spreadsheet layout
- A built-in electronic booking and bookings management system is provided

It is the intention of the project team to take the 3SNET project through to full commercial development in due course. The speed of development will depend on the reaction of the industry to the product; even within the lifetime of this project the number of shipping lines using email and having www access has increased dramatically.

It is the intention of the developers to raise revenue from 3SNET by a combination of advertising on the website and possibly having a modest booking fee per transaction completed via 3SNET. Following the finalisation of the 3SNET project, the developers are expecting to carry out further commercialisation of the product, before offering it widely to the European transport industry.

3 Objectives of the Project

The overall objective of 3SNET was to take advantage of existing transport and telematics research **to develop practical and commercial initiatives to promote shortsea shipping**. In particular, the project should utilise the lessons derived from various earlier projects funded by the European Union, including some awarded in the first call of the 4th framework.

These earlier research programs were conducted independently. It was the goal of this project to bring lessons and products together to deliver a coherent package to the end users. This was done by inspection of pilots conducted within these earlier programs, delivering a composite view, checking that view within a team of industrial companies, and then producing the necessary additional software and systems to develop an effective package that is compatible with existing port community networks, and transport companies systems. The final modified system was then installed within the group of supporting partners for final piloting.

The subsidiary objectives were to -

Identify existing pilot projects

Identify, where possible, their results and coverage

Design alternative pilot projects with ports and lines etc. where there is a deficiency in the existing programs.

Design new pilot projects that can provide a continuity between WP1 and WP5 (Pilot modified systems). This allowed for the contribution made by this project to be objectively evaluated.

Outline the requirements of a composite system designed to embrace the contributions of the earlier projects and integrate effectively with existing commercial operations.

Circulate these requirements amongst the team and its sub-contractors in order to reach a firm view about the outline of any composite project, and in particular, the systems with which it must achieve compatibility, and the relative priority which was attributed to given objectives.

Develop a database of shortsea shipping services, based upon information supplied by the shipping lines.

Establish issues of legal responsibility introduced by an automated booking and reservation system.

Design and implement a demonstrator information server, and interface the MMI packages, on the basis of the above requirements and priorities.

Develop a pilot program.

Install system and communication links.

Use the system in a real time commercial environment.

Assess the results obtained during the validation stage, leading to proposals for future structuring, organisation and exploitation of the system.

4 Means used to achieve the objectives

The project was split into three stages. The first one, including two work packages, has focused on the definition of the system and the pilot.

The second stage, including two work packages, focused on the implementation of the pilot, through system design and then to cover the software design.

The last stage consists of the validation of the concepts implemented in the pilot and to define future requirements of the system.

The relationship between the various work packages is shown below;

4.1 Scientific and technical description of the project

Work package 1 – State of the art, pilot outline

Description of the Objectives

The objectives of the first work package were:

To evaluate and integrate the results of relevant existing research projects in transport and telematics in the commercial context of short sea shipping.

To develop a first outline of an information, booking and management system to integrate short sea shipping in the Intermodal transport chain.

Description of Activities and Technical Approach

The activities in this work package consisted of desktop research and contacts with leading experts and practitioners.

The work included three tasks.

Task 1: Analysis of results of research and pilot projects covering:

- function performed by the system
- compatibility with existing systems
- interconnectivity within the Intermodal chain and between networks
- system cost (initial recurring)
- commercial opportunities in short sea shipping
- cost savings provided by the system
- legal and regulatory barriers

Task 2: Testing of conclusions

The conclusion of the analysis in task 1 was tested with experts and practitioners, contacted through the networks of the 3SNET partners. This test aimed to verify that the conclusions can be extended to other situations that the project experience from which they were drawn, and in particular, that they are relevant to short sea shipping.

Task 3: Development of a first outline of a booking, information, and management system in short sea shipping

The results of the assessment of earlier research were integrated into a definition of requirements for a composite booking, information, and management system. The requirements can be structured by actor (shipper, shipping lines, land carrier, port operators, terminals) and type (functional, commercial and cost).

Work package 2 – Consultation and system design

Description of the Objectives

This work package cross checked the proposed system outline with end users (shippers), ports, shipping lines, the railway and network providers, developed databases required to enhance the system, and design the system.

The concept was to take existing research into telematics functions in the field of short sea shipping beyond the search for improvements in efficiency in existing functions and towards redeveloping the industry to be able to penetrate new markets in accordance with the objectives of EC combined transport policies.

The project proceeded towards the final design of a system that incorporated those elements of the earlier research projects that have been successfully piloted and those additional measures for which there is either industry interest and/or positive benefits.

The SHIRS (Shortsea Information and Reservations System) project has established such an interest and benefit from a short sea information, booking and reservation system, which effectively provides the 'gateway' for transport users to enter the freight industry electronically.

It is already clear from earlier research that short sea shipping suffers from being a fragmented industry and relatively difficult for third party transport providers to access. As a consequence, it was one of the key objectives of this proposal to develop an electronic booking system for cargo that is compatible with other telematics functions more familiar in port community networks. The BOPCOM project already specifies a booking module. However, informal consultation within the BOPCOM project made it clear that booking and reservation systems can only be effective if a comprehensive database of services is available to answer inquiries from shippers and forwarders.

A vital step was to create a short sea shipping database of services. No single source of information for up to date sailings of container and ro-ro ships within Europe exists. In contrast, for deep-sea services, sailings are advertised in the local press, and are now available monthly on the Electronic Shipping Guide (ESG) at www.shipguide.com. This guide is compiled largely by shipping lines contributing data on their sailings. The lines have an obvious interest in ensuring that the market is aware of the services being offered. This is most important because that commercial motivation provides the basis for sustainability without public subsidy.

The 3SNET project proposed to develop a shortsea version, based upon information supplied by the shipping lines as for the deep-sea ESG. This was the first step towards the establishment of an electronic market place.

This exercise would produce a rapid, useful and viable output from the study. It would provide a database from which shippers could choose the route they wish their cargo to follow and to identify the services which are available. It would also be open to forwarders to identify opportunities to place 'their' cargo on shortsea services. It would establish on a commercially sustainable basis the database on which a booking and reservation system could be developed.

Description of Activities and Technical Approach

Four different tasks made up the activities in this Work package. They were:

Task1: Gaps - an analysis of WP1.

A supplement to WP1 state of the art report provided a definitive user needs guide, including interface needs

Task 2: Existing systems

An analysis of the shortcomings of existing systems, based on interviews and experience of the whole team. It was most important to ensure that the reactions and experiences of the different ports and lines etc. are consistent, and that the wide range of companies involved can arrive at a consensus. We therefore circulated the output of WP1 amongst the team and its sub-contractors in order to reach a firm view about the outline of any composite project and in particular, the systems with which it must achieve compatibility, the relative priority which is attributed to given objectives. We believe that the transport industry consultation group within the team provides sufficient functional and geographical coverage as to provide a representative group for the European short sea industry. However, it was also vital to canvass views amongst shippers. We therefore conducted a further survey of shippers, receivers and forwarders to establish their view of our proposed consolidation and redesign of relevant telematics projects. This survey built upon the provisional conclusions of the SHIRS project.

Task 3: Database

Development of a database of all relevant shipping services, including the ability to link to Intermodal railway services. This included provision for updating the database. This database is available as an information tool.

Task 4: Legal issues

A supplement to user needs to define the legal framework in terms of responsibilities within a booking and reservation system. This drew on experience from Andrew Weir (BOLERO). A checklist of issues was taken into account in software and systems design.

Work package 3 – Design and implementation of a pilot info Centre

Description of the Objectives

This work package aimed to design and implement a demonstrator info server, to be accessed through the network implemented in work package 4, during validating of the concepts of an information, booking and management system conducted during work package 5.

This info server implemented the most significant functionalities identified during work package 1 and specified during work package 2, and the database contains a sufficient quantity of information to allow work package 5 to give significant results.

Description of Activities and Technical Approach

Five tasks were carried out during this Work package. They were:

Task1: Software requirements specification

From the specifications produced by work package 2, this task defined precisely the output from work package 3.

Task 2: Design and implementation of the database

The data analysis conducted in the first task was transformed into a physical structure.

Task 3: Design and implementation of access services to the database

The services provided by the info server can be divided into simple query services, complex query services, update services of the core of the data base, administration services, value added services, protected access to proprietary systems. Special care shall be taken concerning the access rights of any user category and any individual user.

Task 4: Info center integration and validation

Gradual testing of the info server was conducted. At the end of this task the info server can be considered an industrial product, usable by uninformed users.

Task 5 Integration with WP4

The last task of work package 3 was the full-scale verification of all interfaces between the info server, the client stations, and the other users' systems. This task was conducted in close co-operation with the leader of work package 4.

Work package 4 - Design of the pilot communication and mmi package

Description of the objectives

There were three key objectives in this Work package.

To establish the interfaces to connect the different Port Community Systems in the Atlantic coast of Europe, and with other Port Community Systems.

Establish the interfaces and provide connections with other European projects (Eurotrans PortNet, Marnet, and BopCom...).

Provide common information services for the customers (Shippers, Forwarders, Ship-Agents, Ship-Owners...) of each Port Community. These services, based on distributed databases, allow the users to decide the best route and will support tracking and tracing facilities in the future.

Description of Activities and Technical Approach

In order to carry out the work proposed for this WP, a software engineering approach will be followed. The five tasks of the approach were the following:

Task 1: Architecture definition and design

A study was carried out in order to analyse the technical requirements of the application, in base of the global requirements that have been developed in WP2. The main goals covered by this study were:

Identification of the model

Identification of the different components of the architecture

Interfaces and data flows between components

Identification of functionality's provided by standard products

Identification of modules to be developed

Task 2: Software evaluation and selection

For those functionality's that can be provided by commercial products, a market survey to find the appropriate software packages was done.

Task 3: Development of the supplementary software modules

Development and unity testing of the additional software packages (based on PC-Windows platforms). The integration of these modules with the commercial ones provided the whole solution.

Task 4: Integration and configuration

Configuration of the software packages and system characterisation for the Port Community. Integration of all the modules.

Task 5: Application testing

The final step of this Work package, prior to the demonstration phase (WP5) of the whole project.

Work package 5 - Pilot validation

Description of the Objectives

The results of the development work carried out in work packages 3 and 4 were used as the basis for proving interconnectivity between key players in the logistics chain. Through the participation of a range of ports stretching from Northern to Southern Europe, this work package created an electronic flow of information between modal operators in the short sea domain. The significant experience of 3SNET partners in deep-sea operations was applied to provide an equivalent infrastructure for short sea services.

The validation process focused on on-line display of available sailings and cargo booking facilities. Various EDI techniques were to be used through selected software; database services and value added network connections. The various players in the short sea/inter-modal logistics process were linked via appropriate media (VAN's, Internet, etc) using the significant experience of major ports such as London, Southampton, Bordeaux, etc and extending this to a range of short seaports.

The costs associated with this work package incorporate use of networks, hardware and help desk support, which are inherent parts of the validation process.

Description of Activities and Technical Approach

The work package was based on four key tasks. These were:

Task 1: Development of a pilot program

The first stage defined the detailed program for implementing the real time system. This was based on:

- Identification of all participants and their role in the transport chain
- Establishing their contribution to the validation process
- Defining the validation system architecture
- Writing a user manual allowing an experimental use of the system

Task 2: System installation and communication links

The second stage established communication links to end users and system installation. This included building in secure access levels, system configuration, testing and on-line training. The training was geared to the needs of the system validation including the means of recording usage and experiences.

Task 3: Real time operation of the system

In the third stage of the work package, the system was used in a real time commercial environment. This proved the information flows and transaction process identified in work packages 1 & 2 by giving users access to an on-line database and booking. A range of software and communications was addressed at this stage with users working in an operational environment to book and monitor real traffic. Where possible, fully electronic procedures were utilised, although some manual procedures may be necessary.

Throughout the third stage, a central help desk provided telephone and on-line support to users. Any calls to this help desk were logged and form part of the final validation. A full report of this validation process was compiled, based on the experiences of all the participants.

Task 4: System assessment and exploitation plan

The last stage of work package 5 was a comprehensive assessment of the results obtained during the validation stage.

Work package 6 – Co-ordination

Description of the Objectives

This work package covered such activities as:

- Management of the steering committee
- Management of the users committee
- Co-ordination of the project tasks
- Administrative and financial permanence
- Control of planning's and reports
- Quality assurance
- Project reviews
- Reports

Description of Activities and Technical Approach

The project organisation was compliant with international standards such as DoD-STD-2167A and ISO-9000-1, adapted to its context.

5 RESULTS

5.1 Work package 1

The main objective of this 'state-of-the-art' report was to define the critical success factors which were needed to set up a shortsea management information, booking and management system.

The 'state-of-the-art' is based on a critical survey of systems in the field of transport that are already operational or are in an advanced stage of development. In particular, an assessment was undertaken of the outcomes of relevant European Telematics research projects, and of existing transport-related IT tools offered by public and private companies, both based on EDI and Internet technologies.

The requirements for a shortsea management information, booking and management system were set against a vision on a "Virtual Intermodal Transport Market".

Finally, five recommendations are formulated regarding the overall approach in setting up a shortsea management information system via Internet Technology (i.e. the preliminary 'European Virtual Shortsea Market').

First recommendation:

A shortsea umbrella web site (i.e. the 'European Virtual Shortsea Market') had to be established with links to the web sites and/or information systems of local ports, shipping lines and other logistics operators in the ports.

Second recommendation

A standard shortsea sailing software package to be developed in order collect and consult sailing schedule information. This software package to be built into the shortsea umbrella web site.

Third recommendation

Additional functions (such as space reservations and bookings) remain a corporate matter and are available on the web sites and/or information systems of the private operators. The umbrella web site provides convenient means for contacting these corporate functions (for instance by hyperlinks and automatic e-mail).

Fourth recommendation

Shipping agents should be appointed for the updating of the sailing information. If they are not able to update this information by themselves, an intermediary could be appointed within every member state or port.

Fifth recommendation

Port community networks and port authorities are crucial local partners in setting up a 'European Virtual Shortsea Market'. In the first development phase they can perform the role of information brokers, i.e. keeping track of the members of the shortsea network (many of whom will already be among their own customers) overseeing security and assuring the reliability of the information that is provided. In a second development phase, the functionality of the shortsea network can be extended by linking it to the applications already provided by port community systems.

The execution of these five recommendations means at the same time a top-down approach (= setting up of a shortsea umbrella web site) and a bottom-up approach (= linkage of the private web sites with the local port web site). This means in concerto that the private web sites are directly connected to the local web site and indirectly to the shortsea umbrella web site.

In order to successfully implement, a shortsea management information system (i.e. the preliminary 'European Virtual Shortsea Market') three actions should be undertaken:

First: The development of a “rule book” which outlines the legal issues and functions of the shortsea information, booking and management system.

Second: The above mentioned recommendations and the rulebook have to be adopted by the European Commission in future shortsea policy guidelines or regulations.

Third: A pilot action within the 3NET consortium in close collaboration with the BOPCOM partners has to be set-up with a selected number of public and private actors.

5.2 Work package 2

Introduction

The results of this work package describe the requirements of each element of the transport chain for the 3SNET system. This report should be read in association with the **SHIRS** report, which is referenced at the end of this document.

User requirements are also described in the diagram at the end of Appendix 1.

The philosophy of the 3SNET project was described in the proposal. However, briefly, it is intended to eventually create an 'electronic market place' for the sale and purchase of freight transport services within the transport chain, initially for intra European unit load freight. The means of conducting transactions will simultaneously create the databases which actors within the chain require to manage their own businesses. Service providers will have a strong incentive to ensure their shipping (or rail) schedules are included in the databases, to attract new business. The 3SNET approach therefore brought together sales, marketing and information technology functions into a single package, improving the efficiency of the transport market and individual enterprises participating.

It is hoped that the system will encourage operators to introduce new shipping services into the market through providing a platform for marketing (e.g. new shipping services between regional ports).

The 3SNET project was based upon the assumption that within the freight transport market, the two principal actors are:

The shipper, who strikes a deal with the transport contractor, based on an origin and a destination, a time of arrival and departure, the type of equipment required and a tariff.

The transport contractor, who will either own equipment (e.g. container or trailer) or lease it to the shipper.

We believe that the market is driven by the relationship between the owner of the cargo (the shipper or his agent, the forwarder) and the transport contractor who seeks to move that cargo from origin to destination. All other actors in the chain, including port authorities and stevedores, are effectively in competition to provide services to the transport contractor.

The transport contractor may use a wide variety of road, rail or shipping services to fulfil the demands of his clients efficiently and economically. He employs different stevedores, agents and equipment suppliers, and needs to inform Port, Customs and security authorities about the goods in transit. The 3SNET approach aims eventually to provide a comprehensive system able to fulfil all these functions. It will aim to encompass more and more organisations through its role as a market place; users will be expected to join and co-operate with the system because it is a means of their winning more business.

Initially, it will gain a foothold because it holds a database of shipping services which shipping lines will wish to advertise to potential clients.

The transport contractor will purchase the elements of a transport chain he requires to satisfy the shipper's demands. He may, of course, already control some elements of the chain. He may be a shipping line; own his own equipment and operate a maritime service between ports. He may still wish to buy in stevedoring services, a rail service or road haulage. Alternatively, the transport contractor may effectively be only a forwarder, and wish to purchase in the whole chain.

Certain elements of the chain may be packaged. For example, a ferry service from port A to port B will probably include stevedoring services, already arranged by the shipping line. The software will be able to cope with any combination of arrangements in phase 2 of the development.

The 3SNET system consists of three types of component:

Active players (contractor, shipping line, Haulier, rail freight company, stevedore) who buy and sell services from each other. These actors constitute the 'market'.

Databases, in which the activities of the active players are recorded and dynamically updated.

Passive players, who have to be informed at certain points in the chain (Port Authorities, Customs, Security etc.).

The project progresses in phases. Phase 1, which is the subject of the existing project part funded by the European Commission, concentrated upon the relationship between shippers and shipping lines. The second phase will extend the 3SNET system to stevedores, agents and hauliers etc.

User needs

The SHIRS study reviewed user needs in some detail. In conducting the SHIRS study, it became very clear that different actors in the transport chain had quite different requirements. Shippers (generally exporters) wanted to move their cargo quickly, cheaply and reliably. They were not seriously concerned with mode or route. They were not well informed about the options available. Choice of route and carrier would often be left to forwarders. Shippers were not often in a good position to judge whether their overall strategy was optimal, largely because they were unlikely to have direct competitors who shared their own geography and requirements. Shippers generally wished to be able to track cargo.

By contrast, the actors **within** the transport chain saw the advantage of telematics as saving on paperwork costs and reducing delays (through lack of proper documents), rather than in improving the physical performance of transport networks or the transport market themselves. The apparent telematics 'requirements' identified in some ports were simply not required in others. The role of Customs for intra EU traffic varied considerably by country. This was to be expected. The existing actors are often not in a position to change the way cargo is moved. Indeed, any change may actually pose a threat (e.g. by encouraging a change of port, a switch to sea or rail) or a reduction in the role of the port agent. While any shipper will be interested in changes which improve the quality (or reduce the cost) of the service on offer, individual transport service suppliers may prefer the status quo.

It therefore followed that the most useful approach was to consider the requirements from an information system from the shipper's point of view. He is, after all, the client. The shippers' requirements are simply summarised. They are to be able to identify the most cost efficient transport solution for his cargo, to have the maximum amount of information on the location of that cargo, and to promote a competitive environment for the services he purchases. There is, of course, a potential contradiction in his requirements in that a vertically integrated transport company may offer the most reliable level of service (greater control of each leg), but may not offer the most cost-effective option. Vertical integration in freight transport has been regarded as an anti-comparative device in both North America and the European Union.

Data sources

The active players within the system constitute the source for the databases. Now the system is launched, it should become self-sufficient and not require continuing data collection by the service manager.

The contents of the proposed databases are described in detail below which will be developed at a later stage.

Shipping Lines will be expected to supply data to compile the shipping service database. Software is available to enter and check data provided by means of a standard spreadsheet. **(shipping and rail service entry):** (Phase 1)

At a later stage, **stevedores equipment suppliers, port agents and road hauliers** will also require access to deliver data on the facilities they offer: (Phase 2)

Transport contractors can examine the shipping service database and make bookings. The search engine examines the shipping service database and is able to:

- List services between specified ports, including the ability to link different carriers' services together to form a complete chain, if there is no direct services
- Compare services by dates/times of arrival and departure
- List capacity available on each service listed or ranked (future)
- Link into tariff database to identify rates (for different options –e.g. by container type, route etc)
- Identify contact postal/fax/telephone/e-mail addresses
- Confirm bookings (subject to the user having an agreed account with the supplier; this involves the use of a password and booking reference generated by the 3SNET system)

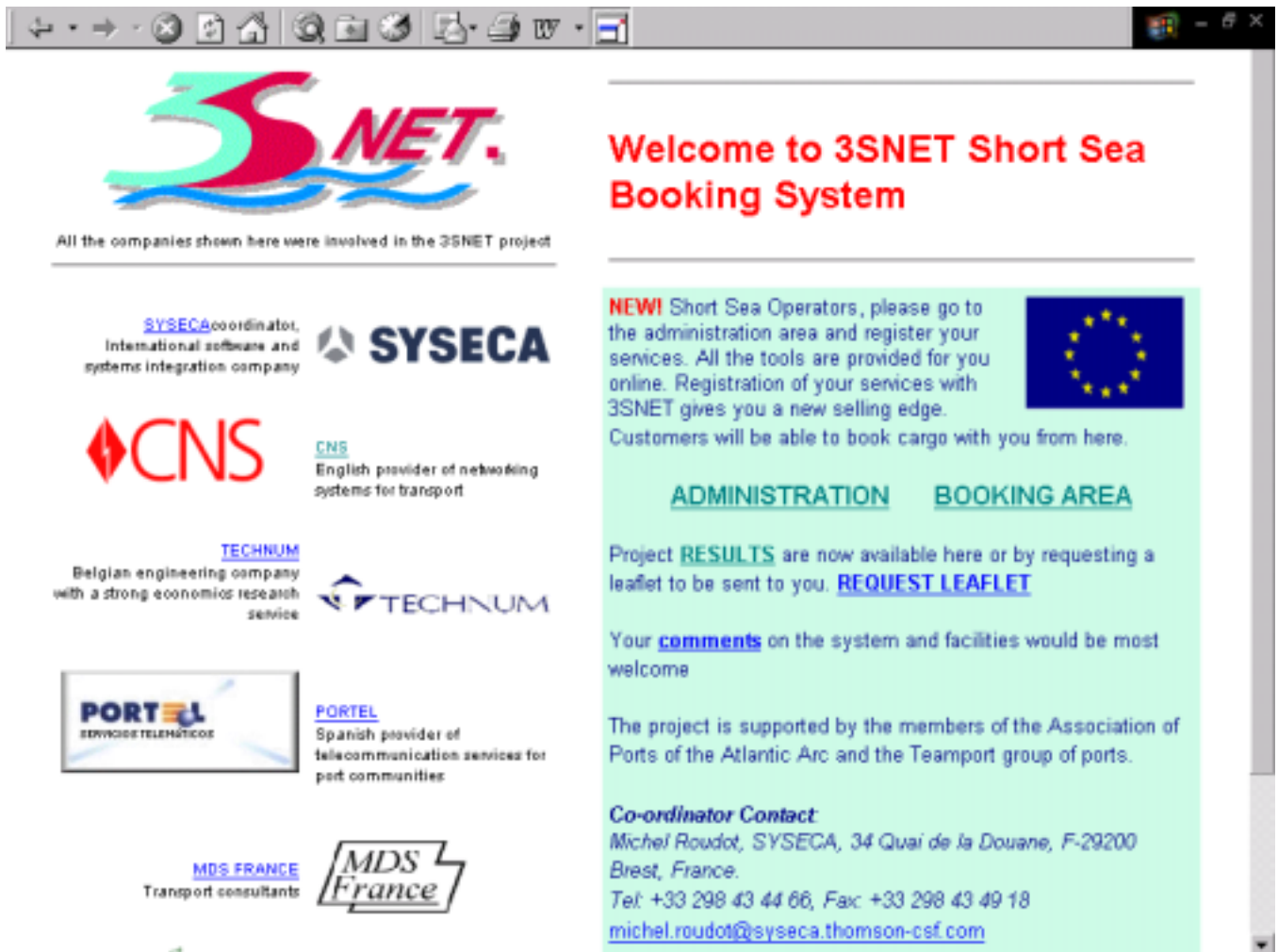
Outputs have been designed to work initially at an 'information only level' and to support a manual booking system (Phase 1), moving on later to an automated booking system (Phase 2).

In Phase 1, the developed system, cargo details are entered through existing systems, once the carrier has confirmed a booking. In phase 2, **shippers** will require to enter cargo information into a cargo database. Cargo details will be entered into the system at the time of making an automated booking, so that the data will be available within the system to generate bills of lading, manifests and dangerous cargo declarations as necessary.

5.3 Work package 3

The **3SNET home page** fronts the database and can be located at <http://www.shortsea.net>

Work package 3 and 4 are closely linked and come together in the final result of the project. The best way to show the results is to view the product online.



The screenshot shows a web browser window displaying the 3SNET Short Sea Booking System homepage. The page features the 3SNET logo at the top left, followed by a list of partner companies: SYSECA, CNS, TECHNUM, PORTEL, and MDS FRANCE. On the right side, there is a welcome message, a registration notice for Short Sea Operators, and links for ADMINISTRATION and BOOKING AREA. The page also includes contact information for the co-ordinator.

3SNET.

All the companies shown here were involved in the 3SNET project

SYSECA
SYSECA coordinator, international software and systems integration company

CNS
CNS English provider of networking systems for transport

TECHNUM
TECHNUM Belgian engineering company with a strong economic research service

PORTEL
PORTEL Spanish provider of telecommunication services for port communities

MDS FRANCE
MDS France Transport consultants

Welcome to 3SNET Short Sea Booking System

NEW! Short Sea Operators, please go to the administration area and register your services. All the tools are provided for you online. Registration of your services with 3SNET gives you a new selling edge. Customers will be able to book cargo with you from here.

[ADMINISTRATION](#) [BOOKING AREA](#)

Project **RESULTS** are now available here or by requesting a leaflet to be sent to you. [REQUEST LEAFLET](#)

Your **comments** on the system and facilities would be most welcome

The project is supported by the members of the Association of Ports of the Atlantic Arc and the Teaport group of ports.

Co-ordinator Contact
Michel Roudot, SYSECA, 34 Quai de la Douane, F-29200 Brest, France.
Tel: +33 298 43 44 66, Fax: +33 298 43 49 18
michel.roudot@syseca.thomson-csf.com

Integration between Work package 3 and 4

Hardware requirements

3Snet-WP3 server side operates on a PC connected to the Internet.

3Snet-WP3 client side operates on any kind of computer (PC, Workstation) connected to the Internet.

Software requirements

Server side

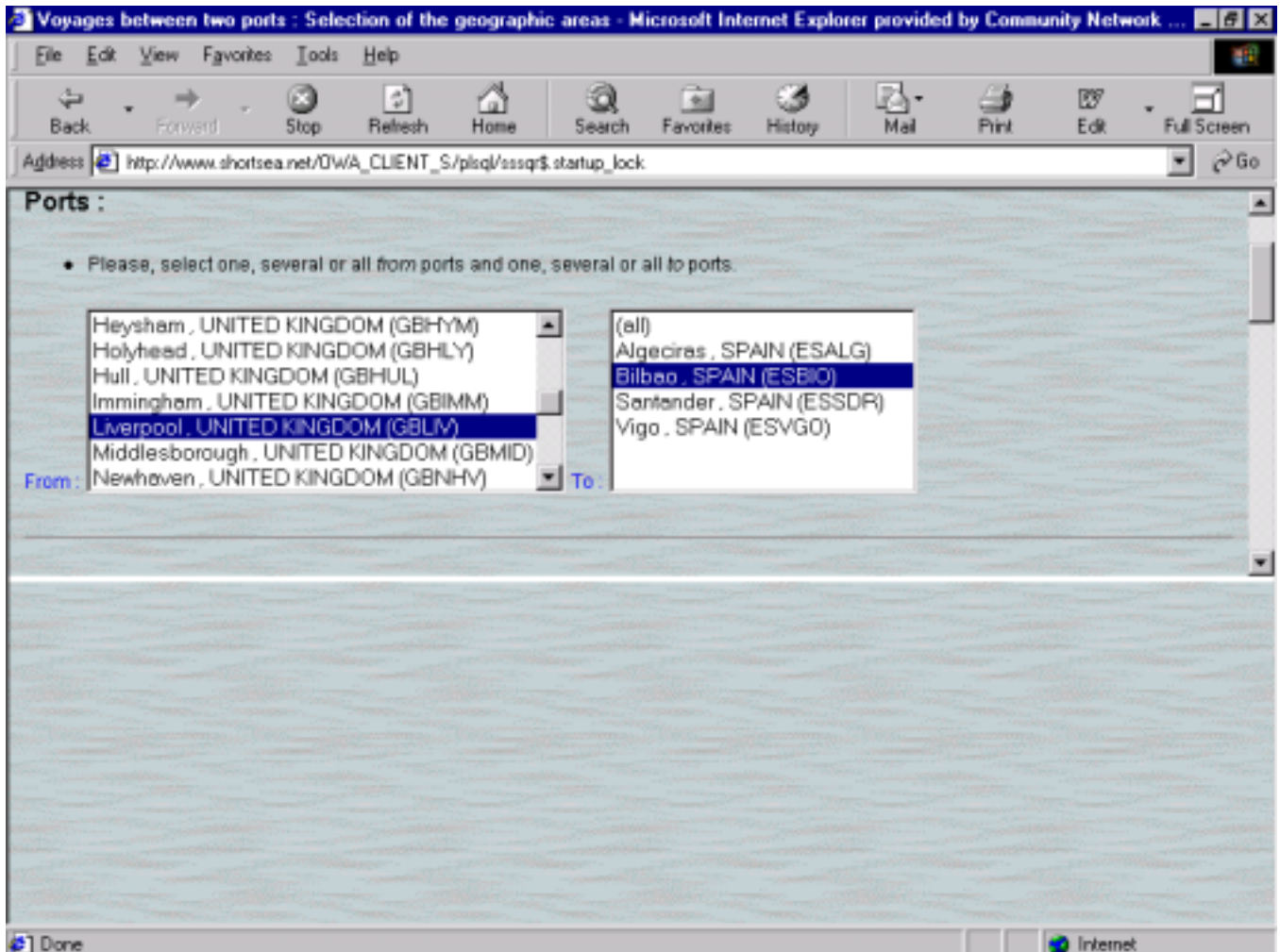
Tool	Product	Version
Operating System	Windows NT	4.0
Database Management System (DBMS)	Oracle 8 Server	8.0.4
HTTP Server and Middleware	Oracle Application Server	4.0

Client side

Browser	Version
Netscape	3 or greater
Microsoft Internet Explorer	4 or greater

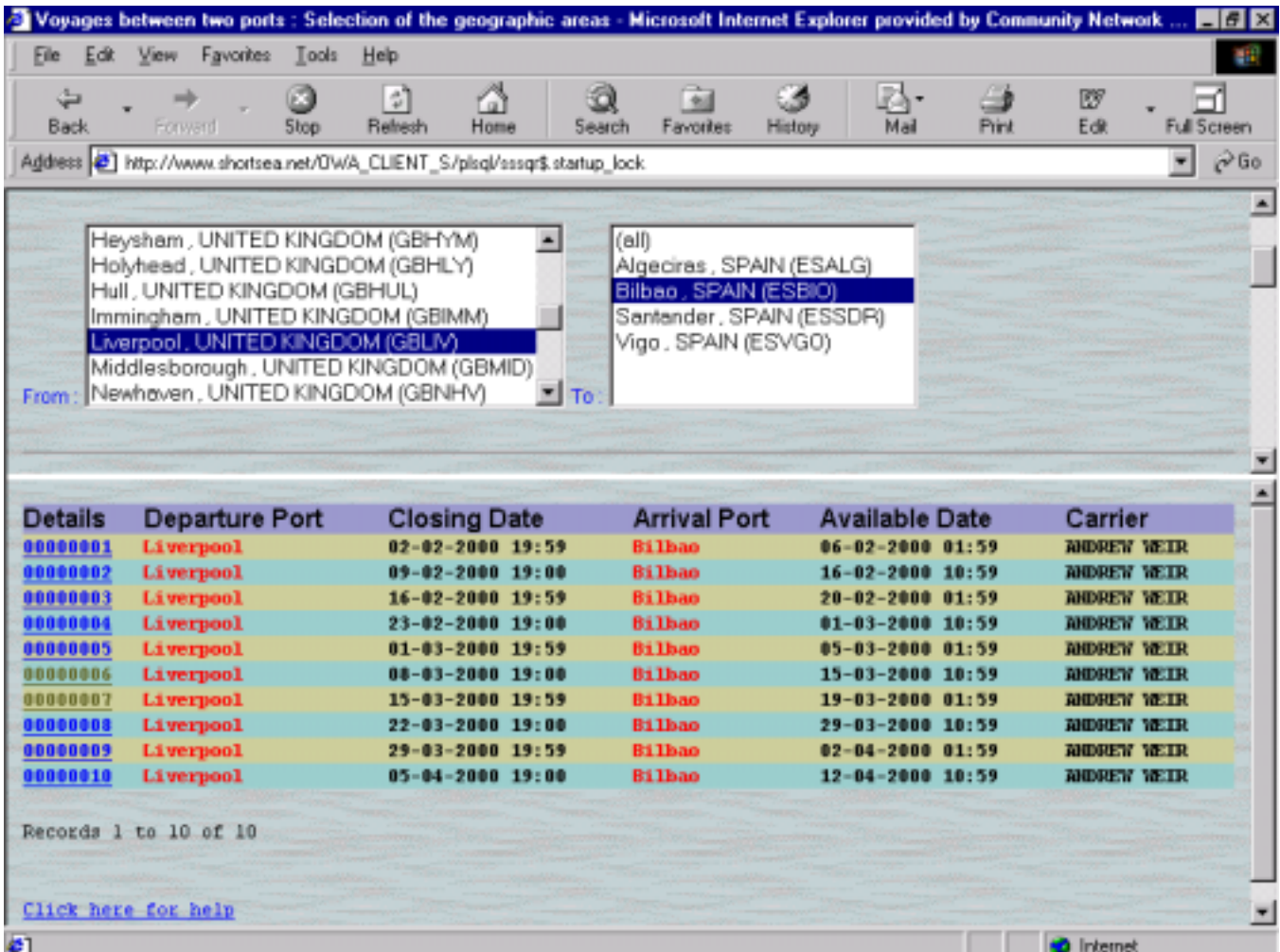
5.4 Work package 4

To view the full results of this work package visit <http://www.shortsea.net> and go to the Booking area. We display a few key shots of the system here to show the potential of the system.



Work package 4

The following shows you the first results of a basic search. You can select multi ports of origin and destination to obtain more details.



Voyages between two ports : Selection of the geographic areas - Microsoft Internet Explorer provided by Community Network ...

Address: [http://www.shortsea.net/OWA_CLIENT_S/plsql/essqr\\$.startup_lock](http://www.shortsea.net/OWA_CLIENT_S/plsql/essqr$.startup_lock)

From: **Liverpool, UNITED KINGDOM (GBLM)**

To: **Bilbao, SPAIN (ESBIO)**

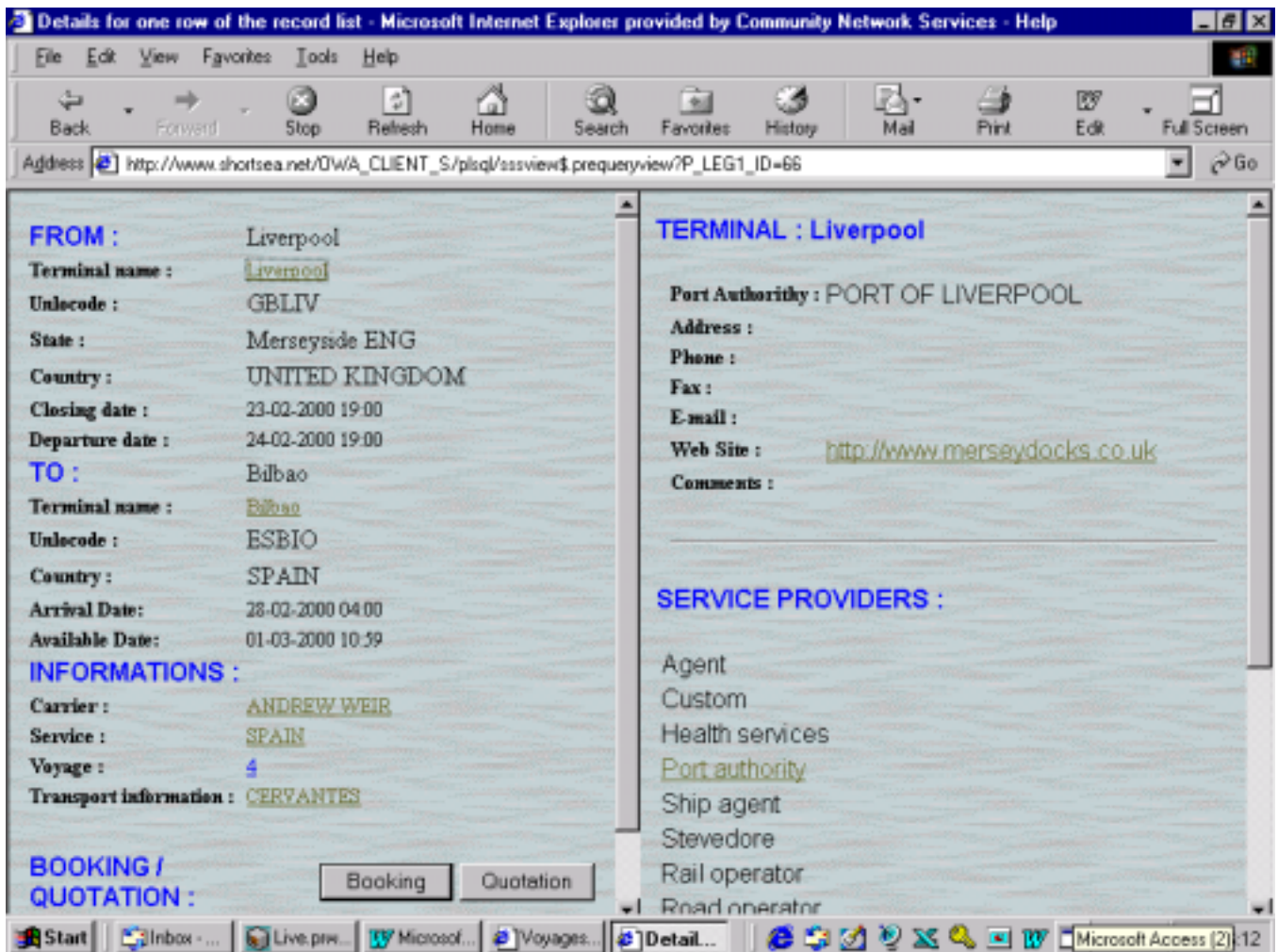
Details	Departure Port	Closing Date	Arrival Port	Available Date	Carrier
00000001	Liverpool	02-02-2000 19:59	Bilbao	06-02-2000 01:59	ANDREW WEIR
00000002	Liverpool	09-02-2000 19:00	Bilbao	16-02-2000 10:59	ANDREW WEIR
00000003	Liverpool	16-02-2000 19:59	Bilbao	20-02-2000 01:59	ANDREW WEIR
00000004	Liverpool	23-02-2000 19:00	Bilbao	01-03-2000 10:59	ANDREW WEIR
00000005	Liverpool	01-03-2000 19:59	Bilbao	05-03-2000 01:59	ANDREW WEIR
00000006	Liverpool	08-03-2000 19:00	Bilbao	15-03-2000 10:59	ANDREW WEIR
00000007	Liverpool	15-03-2000 19:59	Bilbao	19-03-2000 01:59	ANDREW WEIR
00000008	Liverpool	22-03-2000 19:00	Bilbao	29-03-2000 10:59	ANDREW WEIR
00000009	Liverpool	29-03-2000 19:59	Bilbao	02-04-2000 01:59	ANDREW WEIR
00000010	Liverpool	05-04-2000 19:00	Bilbao	12-04-2000 10:59	ANDREW WEIR

Records 1 to 10 of 10

[Click here for help](#)

Work package 4

Details about a particular sailing are displayed with multiple options to see much more. More details about the terminals, the carrier, the vessel are available here with links to their websites as well. You can then make bookings or ask for quotations from this screen.



The screenshot shows a Microsoft Internet Explorer browser window with the following content:

Address: [http://www.shortsea.net/DWA_CLIENT_S/plsql/ssview\\$.prequeryview?P_LEG1_ID=66](http://www.shortsea.net/DWA_CLIENT_S/plsql/ssview$.prequeryview?P_LEG1_ID=66)

FROM : Liverpool

Terminal name : [Liverpool](#)
Unlcode : GBLIV
State : Merseyside ENG
Country : UNITED KINGDOM
Closing date : 23-02-2000 19:00
Departure date : 24-02-2000 19:00

TO : Bilbao

Terminal name : [Bilbao](#)
Unlcode : ESBIO
Country : SPAIN
Arrival Date: 28-02-2000 04:00
Available Date: 01-03-2000 10:59

INFORMATIONS :

Carrier : [ANDREW WEIR](#)
Service : [SPAIN](#)
Voyage : [4](#)
Transport information : [CERVANTES](#)

BOOKING / QUOTATION :

TERMINAL : Liverpool

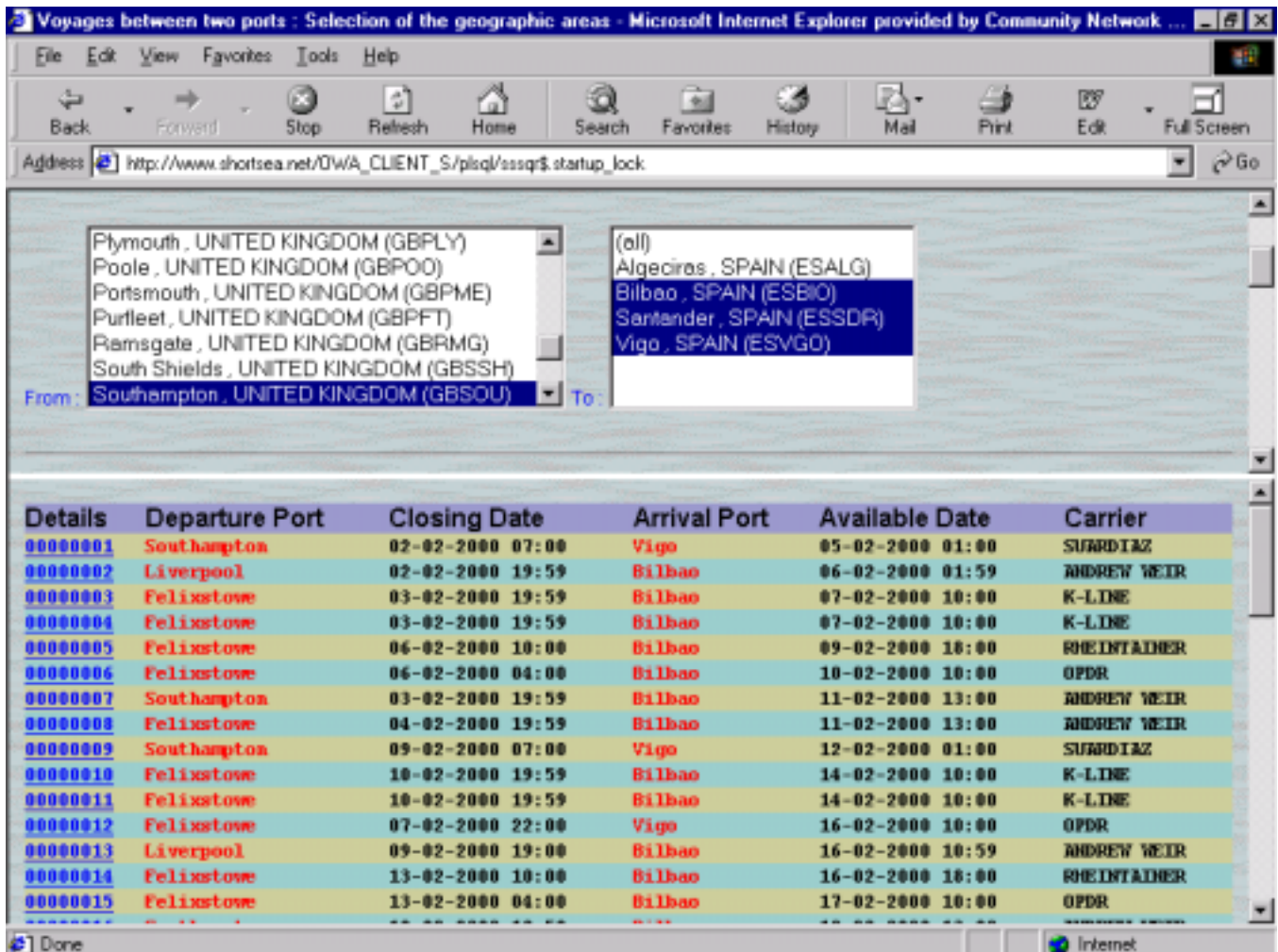
Port Authority : PORT OF LIVERPOOL
Address :
Phone :
Fax :
E-mail :
Web Site : <http://www.merseydocks.co.uk>
Comments :

SERVICE PROVIDERS :

- Agent
- Custom
- Health services
- [Port authority](#)
- Ship agent
- Stevedore
- Rail operator
- Road operator

Work package 4

Multi port selection results



Voyages between two ports : Selection of the geographic areas - Microsoft Internet Explorer provided by Community Network ...

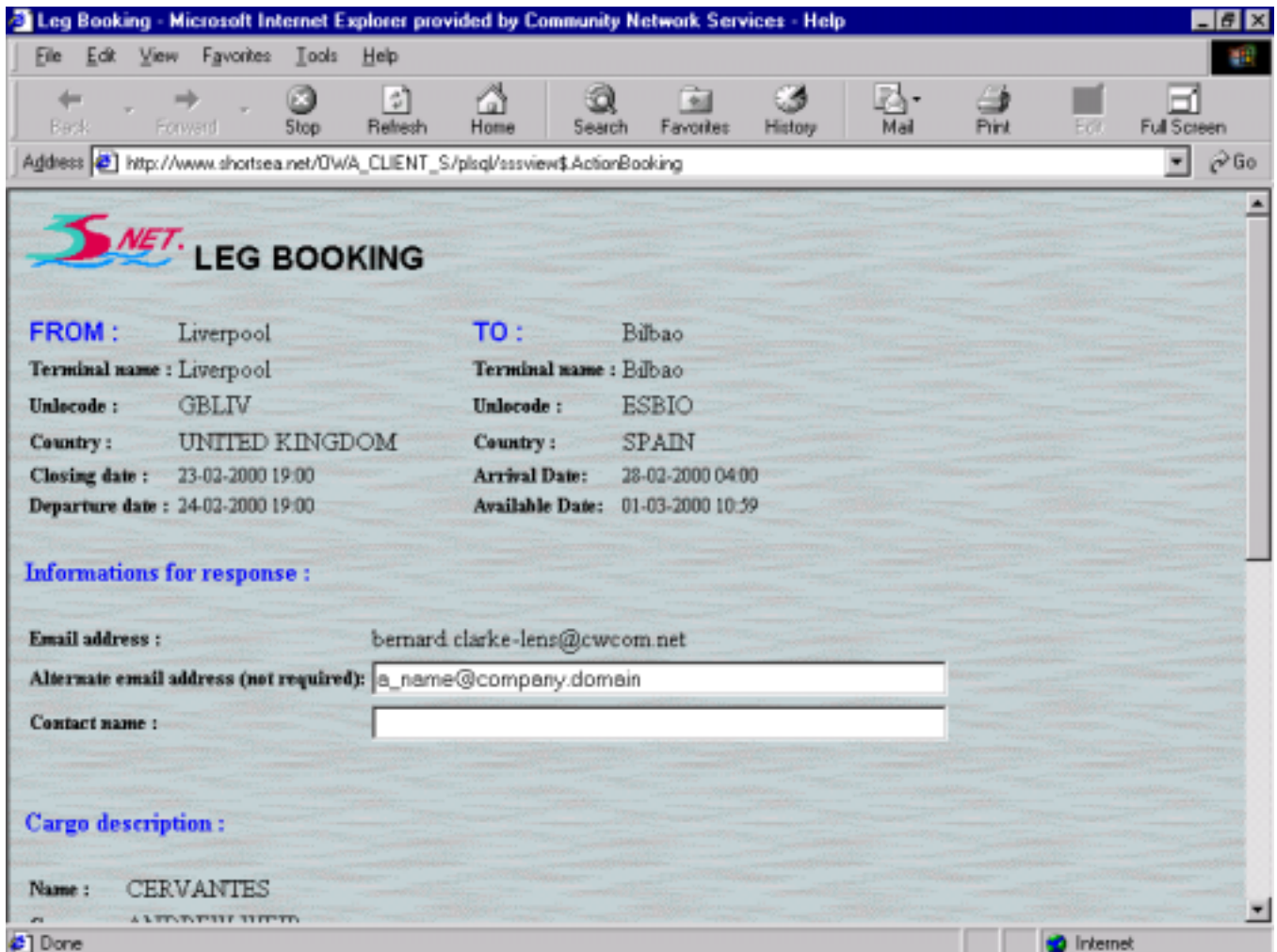
Address: [http://www.shortsea.net/DWA_CLIENT_S/plsql/essqr\\$startup_lock](http://www.shortsea.net/DWA_CLIENT_S/plsql/essqr$startup_lock)

From: **Southampton, UNITED KINGDOM (GBSOU)** To: (all)
 Algeciras, SPAIN (ESALG)
Bilbao, SPAIN (ESBIO)
 Santander, SPAIN (ESSDR)
 Vigo, SPAIN (ESVGO)

Details	Departure Port	Closing Date	Arrival Port	Available Date	Carrier
00000001	Southampton	02-02-2000 07:00	Vigo	05-02-2000 01:00	SURDIAZ
00000002	Liverpool	02-02-2000 19:59	Bilbao	06-02-2000 01:59	ANDREW WEIR
00000003	Felixstowe	03-02-2000 19:59	Bilbao	07-02-2000 10:00	K-LINE
00000004	Felixstowe	03-02-2000 19:59	Bilbao	07-02-2000 10:00	K-LINE
00000005	Felixstowe	06-02-2000 10:00	Bilbao	09-02-2000 10:00	RHEINTADNER
00000006	Felixstowe	06-02-2000 04:00	Bilbao	10-02-2000 10:00	OPDR
00000007	Southampton	03-02-2000 19:59	Bilbao	11-02-2000 13:00	ANDREW WEIR
00000008	Felixstowe	04-02-2000 19:59	Bilbao	11-02-2000 13:00	ANDREW WEIR
00000009	Southampton	09-02-2000 07:00	Vigo	12-02-2000 01:00	SURDIAZ
00000010	Felixstowe	10-02-2000 19:59	Bilbao	14-02-2000 10:00	K-LINE
00000011	Felixstowe	10-02-2000 19:59	Bilbao	14-02-2000 10:00	K-LINE
00000012	Felixstowe	07-02-2000 22:00	Vigo	16-02-2000 10:00	OPDR
00000013	Liverpool	09-02-2000 19:00	Bilbao	16-02-2000 10:59	ANDREW WEIR
00000014	Felixstowe	13-02-2000 10:00	Bilbao	16-02-2000 10:00	RHEINTADNER
00000015	Felixstowe	13-02-2000 04:00	Bilbao	17-02-2000 10:00	OPDR

Work package 4

The booking form top half



Leg Booking - Microsoft Internet Explorer provided by Community Network Services - Help

Address: [http://www.shortsea.net/OWA_CLIENT_S/plsql/assview\\$.ActionBooking](http://www.shortsea.net/OWA_CLIENT_S/plsql/assview$.ActionBooking)

NET. LEG BOOKING

FROM : Liverpool	TO : Bilbao
Terminal name : Liverpool	Terminal name : Bilbao
Unlocode : GBLIV	Unlocode : ESBIO
Country : UNITED KINGDOM	Country : SPAIN
Closing date : 23-02-2000 19:00	Arrival Date : 28-02-2000 04:00
Departure date : 24-02-2000 19:00	Available Date : 01-03-2000 10:59

Informations for response :

Email address :

Alternate email address (not required):

Contact name :

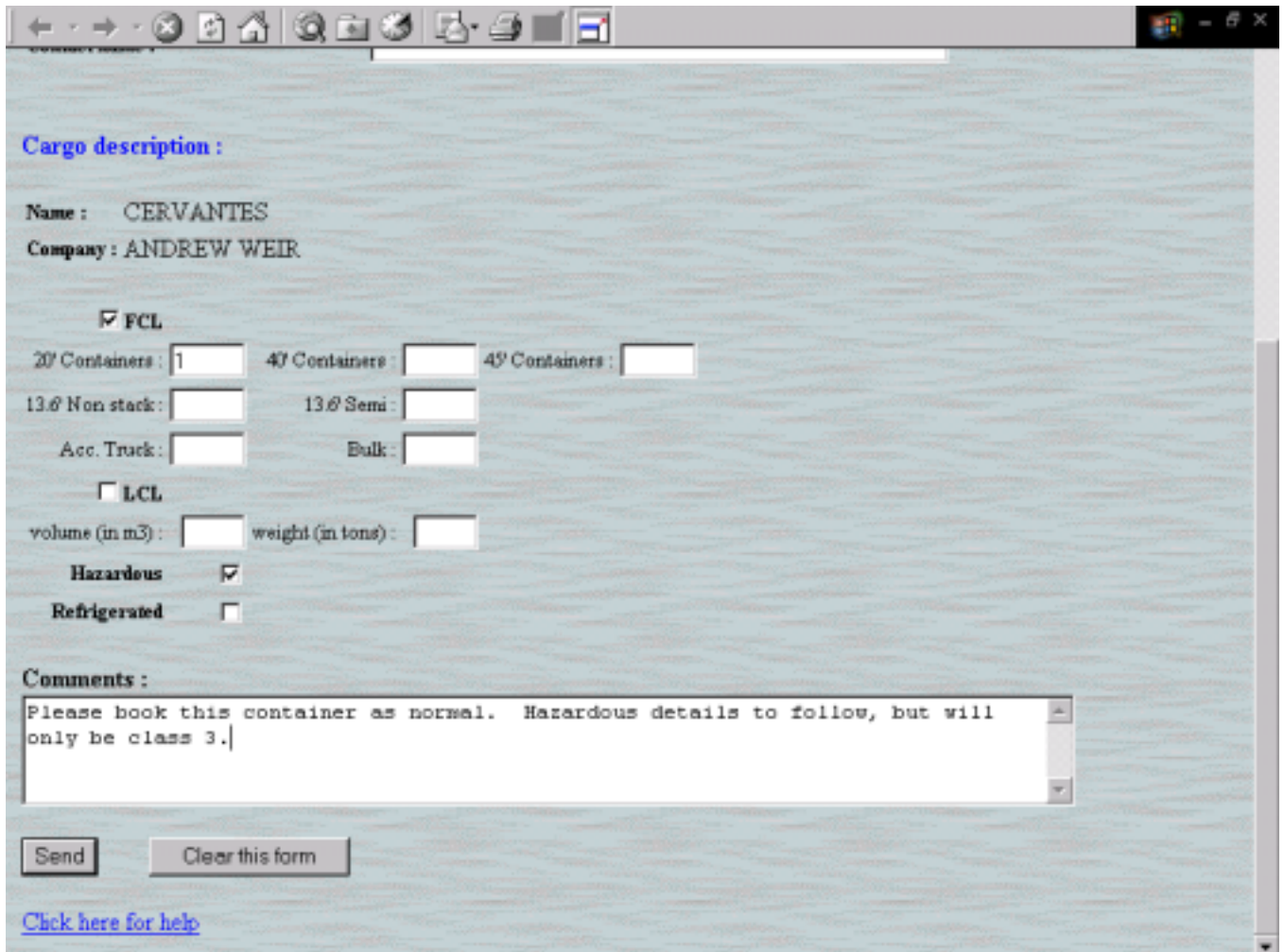
Cargo description :

Name : CERVANTES

Done Internet

Work package 4

Bottom half of the form



The screenshot shows a web browser window displaying a cargo booking form. The form is titled "Cargo description:" and contains the following fields and options:

- Name:** CERVANTES
- Company:** ANDREW WEIR
- FCL**
- 20' Containers:** **40' Containers:** **45' Containers:**
- 13.6' Non stack:** **13.6' Semi:**
- Acc. Truck:** **Bulk:**
- LCL**
- volume (in m3):** **weight (in tons):**
- Hazardous:**
- Refrigerated:**
- Comments:**

At the bottom of the form, there are two buttons: "Send" and "Clear this form". Below the buttons is a blue hyperlink: [Click here for help](#).

5.5 Work package 5

Work package 5 concentrated on the validation of the database and sought to obtain user feedback and opinions as the viability of the 3SNET project. Overall, the validation exercise was a success, as it provided a large volume of useful feedback on all aspects of the system.. The following comments have been extracted from the validation report to form part of this final report.

Some quotes from users are shown below.

“Interesting product, but it might be too soon to be used in Spain. Nevertheless, Spain is moving rapidly towards modern tools. Local TV indicated that the Spanish Government would invest money to push people and companies to make more use of the Internet.”

“The information purpose is brilliant. This is a very good tool for Shipping Lines themselves.”

“The system must be updated all the time and comprehensive to be of good use.”

“In Spain, people are not used to the Internet. The quotation will continue to be done by phone and even the bookings.”

“The fact that the E-mail for confirmation of booking is sent to the system instead of the user directly gave concern that there could be a lack of security. The system must prove its security to attract shipping Lines to use it.”

“Some Shipping Lines trade under different names in each country and the system only allows one name per line, unless each uses the system independently”

“Quotations could be made from a central office of because the rates are on an Intranet system, common to everybody. The system only provides one contact per company. “

“Bookings are made by regional offices, in Spain, Valencia, Madrid, Tarragona, Barcelona and Bilbao for example. Each of these offices work as an individual profit center and each one would want their own direct access to the system.”

“The Internet is not widely used at the moment and most quotations and bookings come in by phone and fax. It is accepted that this is the future and is technically possible to allow dedicated personnel to handle quotations and bookings this way.”

“The transshipment concept is a good one, but not realistic within the short sea market. A Shipping Line would only accept to transship containers within its own company fleet or consortium. One Bill of Lading for the whole transport in Short Sea Shipping and Deep-sea means that only one carrier and forwarder are involved. This is how the industry works and most definitely in Spain.”

“In general, we think that the system serves its intended purpose well. From the Shipper viewpoint, they have the ability to assess the potential coverage for their cargo within the Short Sea arena direct from the desktop. The biggest benefit of this is the elimination of the need to refer to multiple paper or web-based schedules or to make expensive, time-consuming, and often fruitless, telephone calls.”

“Further, once that Shipper has established a suitable route and carrier, the booking request can be made easily, again without the need for a telephone call. In our experience, the frustrations and man-hours involved in telephone communications is one of the biggest barriers to trade from both sides of the fence.”

“From the Carrier viewpoint, there is the potential to obtain bookings from previously unknown Shippers without the need for outbound telesales activity, which is clearly a benefit. In particular, the Transshipment options also give the potential for us to secure cargo on routes in which we are not always involved. Conversely, when the Shipper uses the transshipment queries it may alert him to a preferable service provided by one of our competitors, but that’s life I suppose.”

“One area where we feel improvements could be made is in Quotations. Certainly in the case of AWS, whilst the booking request gives sufficient information for us to begin the process of providing a rate, etc, we still need to formally issue a quotation from our internal system. I appreciate that 3SNET is designed to work in tandem with our core systems, but there may be shippers who would like to deal exclusively within 3SNET. Provision of a fuller quotation form may assist this.”

“The real benefit to us would be to integrate the messages from 3SNET direct in to and out of our system. Ideally, our operators would log into the AWA system and not need to browse the web site at all. Provision of a structured message format to enable that integration would be a big bonus.”

“In the short sea market, “door to door” is the required service. 3SNET only provides a port to port service. A user might be able to put a name of a city or even the name of the port in his own country, but may not know the ports in the destination country.”

“Users want “door to door” rates.”

“Quotations are often made up of various rates for inland haulage, sea freight etc and as mentioned above, the system does not allow much space to input all this information in its reply.”

“Internet is not currently used in transport fields in France, except where young people are employed”

“3SNET was of interest to us, but not for our current customer. They would be prepared to offer 3SNET to new customers” – Small operator

“3SNET should be the reference in SSS (the SSS hub) and is perfect to host web sites of Shipping Lines or service providers. This is the marketing strength of 3SNET”

“Must be a “door to door” search engine”

“Must be a “door to door” service profile”

“The agent must remain on-line all day to ensure he does not miss a booking or quotation request. Fax is currently the norm.”

“The details of the vessel must display whether dangerous cargoes, reefer units can be carried.”

“Do not envisage any use of transshipments between carriers.”

“The reliability of the information was seemed to be one of the most important issues. If electronic systems are to be relied upon in the future, assurances that accurate information is used is vital.”

“The smaller carriers would be the ones who should benefit most. The larger carriers who have their own IT structure and are familiar with the Internet and Web technology will probably want to continue to market their services independently.”

“Unfortunately, a lot of forwarders still use the telex for their communications and the technological change seems to be the biggest hurdle to cross.”

“Carriers would need to enter into transshipment agreements”

“More than 1 leg needs to be coordinated seamlessly”

“The smaller carrier would be more interested in this development than the larger carriers. Unfortunately there are only a few smaller carriers in France.”

“The carriers should be encouraged to ensure that their schedules are included within the 3SNET database”

“One aspect that is essential for any booking system whereby availability is offered, the shipping Line, or Ferry operator should always have the decision on who takes priority over the space allocation. 3SNET does not indicate space availability and it appears that the trade would not want such an enhancement.”

“Operators want to maximise their profitability for the available space and decisions on who has the space on a particular sailing has to be decided offline.”

“Therefore an interesting point comes up with regard to the wording of the 3SNET booking form. It has to be a “Booking Request” and not a firm booking commitment. The carrier will make the decision.”

“Lines would like to have received a copy of the booking e-mail when sent from the database. The data was available on the database, but having a hard copy in your own office is required.”

“Ferry operators do not see 3SNET as a threat, but a good product for the smaller carriers but tend to work on block bookings from regular customers. Ad Hoc business could be accepted via this system and they would act upon any booking received via 3SNET if it materialised.”

The above points will be considered and acted upon where necessary before 3SNET is put into the commercial marketplace. However, most of the comments and recommendations show quite strongly that the product has a future in the short sea market. The enhancements that can be made to the system will greatly enhance its value as a commercial product that can be integrated with other systems and services with the European market.

6 Detailed conclusions – checklist for development

One of the main objectives of the project was to develop a shortsea version of the “Electronic Shipping Guide” to promote the use of short sea shipping within the EU. The project team has **achieved this** and the system has been demonstrated and tested with a **variety of end users**. The validation of the project has highlighted various weaknesses of the developed product and before any commercial exploitation can be made, these weaknesses need to be reviewed and fixed. The fundamental operation of the system has proved to be a success and the framework for a fully operational system is in place. The main areas of **weakness** have been identified as follows:

Searches

The search engine offers choices to the shipper such as 40', 45', 20', trailers etc. You are only able to select one from the list. For the shipper who wanted to make different selections, this could take quite a lot of time. The way around this situation is to leave the field blank and then all types are selected. However, this leaves the shipper without the test results of the search information as to whether the particular service carries containers or is a Ro / Ro vessel. This has been added to the list of recommended improvements.

The revised search engine enables multi selection.

Looking up details

When the E-mail is received at the shipping Line offices, the receiver has to go the website and view the quotation or booking with the number given on the E-mail. Once that has been done, there is no drop down menu or area where the shipping Line or Agent can view a list of all his bookings or quotations. It is up to the individuals to manage their records outside 3SNET. It would be much better to provide the user with a list of his records to save time and effort in recovering and reviewing past information.

The new booking and quotation facility provides additional copies of the e-mail to both the client and the carrier.

Search engine

The exploitation of the system will not be possible with the existing search engine as designed for the pilot. The database has already the capability to provide a commercial environment designed into the database. The exploitation of terminals, “providers” etc. must be made available to provide the commercial tools to exploit the system.

Once a search has been made and you wish to make a further search, you have to reselect the origin and destinations. For example if you were searching from Spain to the UK and then you wanted to select Spain to Holland, you would have to reselect all the Spanish Ports before selecting Holland. Instead of taking out all the details, just taking out the destinations would allow a quicker selection for another search. This would be very useful for customers looking for comparisons of services from their country (To remain in the search engine) to various other countries. They may have exports to various EU countries and could find a common carrier to meet all their requirements.

The demonstrator search engine does not allow multiple selections of cargo type. The other selections of Port of Loading and Port of Discharge do, so an enhancement would be to include this functionality within the selection box. If the box is left blank, then all types are selected. However, the results do not specify the cargo types carried for that service.

The dates selection within the Search Engine is difficult to input and it would be easier if the system accepted the date input without separators and then the system would complete itself automatically with the separators.

When selecting source and destination from the drop-down lists, if you subsequently also specify a Unlocode in the next box, the previous selection is deleted. It would be better to restrict input to the second field if a range of ports were selected in the first box.

A revised version of the search engine is now available and has taken into account a lot of these comments.

Data Loading

A simple data input facility is required to load schedules. The current system was admittedly set up for the pilot, but even that proved to be a very long exercise. The main question was on how the carriers could manage the data input themselves. The Group discussed various options and **a standard "input form" has been written** to ensure that all carriers have the same data elements within the database. Additional information such as advertising will be handled separately on a commercial basis.

E-mail

The Carrier name in the database only has the option for one email address. It was discovered with Andrew Weir during the evaluation that they needed more than one. They use a different one for each of their services. The problem with registering different names for the one carrier is that the administration would become much more complex. However, if the trade need that requirement, then it is a valid point to be considered for commercialising the product.

When an E-mail is sent from the database, there is no "copy" generated for the user. He has a record on the 3NET database, but not on his mail server. The facility to enable a copy to the sender for his record would be an advantage. A simple change to the system would make this possible. Currently, the screen returns to the search engine results after making a booking request. No confirmation message is given to know that the email has gone.

The sender and receiver now get a copy of the e-mail using the revised search engine

The vessel reserve reference number only appears in the header of the e-mail message. It would be better if it reported within the body text of the message. Some mail software options can restrict the viewing of the subject within the e-mail and could confuse the user.

Presentation of search results on screen

The display of closing date, departure date, arrival date and cargo available date could be better displayed to avoid confusion. However the booking form carries the same vessel details, so for the evaluation this is not a problem.

The key elements required to make a decision as to whether the service would be able to deliver the goods on time, given the available date were the closing date for the departure and arrival date at destination.

Terminal Name

In the search engine results, the "Terminal" is shown as a number instead of the "Name". Previously identified but could be better presented as a Name. Each terminal is stored as the same name as the town, so this could be exported from the database to the search engine instead of the system generated reference number.

The revised search engine takes this into consideration

Company instead of Vessel Name

The Group preferred to see "Company" instead of "Vessel" displayed on the search engine results. Unless you knew the names of the vessels for each service, you would have to look further to know which Shipping Line was offering the service.

The revised search engine takes this into consideration

This will be an enhancement to the search engine when considered for commercial use. The potential of the system is clearly there and feedback on such detail is important.

The search engine for the demonstrator does not show all of the details held on the database. There is scope to enhance the display of such data as to provide more information to the users. These could be from drop down menus displaying as much or as little as requested.

The revised search engine takes this into consideration

Booking and Quotation form

The current booking and quotation forms only offer containers. The search engine allows other types of unit to be selected and checked, such as trailers. The design should be changed to encompass all modes of cargo. A generic term could be put on the form and the user would input his own cargo description such as 40' container, 13.6m un-accompanied trailer etc.

When making selections within the forms, example, the “Cargo Type”, you cannot uncheck the box once selected. You can change your selection but not clear it altogether. It is expected that this was to ensure that something was declared to the shipping Line, but the selections can all be left blank without a prompt from the system to ensure that one of these is completed.

When viewing quotations or bookings the user has to remember his booking or quotation numbers. The system does not offer a drop down selection of his bookings or quotations. The data is stored in the database under the user name and as the user has to identify himself to the database, this enhancement should be possible.

When the Shipping Line goes to the database to answer a quotation or booking, there is not enough space for information. It should be possible to:

Have more space in the E-mail answering the request

Attach a document to the answer as there is normally a pre formatted quotation form that is sent by fax which contains the rates, validity, weight restrictions etc.

The selection of over-height, over-weight buttons are too restrictive. Whilst it should be possible to specify both General and, say, Over-height for the same box, it should be possible to select Over-height, Over-height and Hazardous on the same box.

The shipper or the carrier normally makes haulage arrangements and it is not usual to nominate a specific Haulier when making a booking. A simple option in this field of “Shipper Own” or “Carrier” would be more appropriate.

The current Booking and Quotation forms are identical apart from the name, so a change to the Quotation form would be required for commercial use. It should be more “sales” orientated.

Each message should readily identify to the recipient whether the message is a “request” or a “confirmation”. The same company would potentially use the system as both Line and Shipper from time to time and it can become confusing unless they were better identified.

The revised search engine takes this into consideration

Types of cargo carried

The vessel details must indicate whether the vessel can carry dangerous cargoes, reefer containers etc. These details are maintained in the database but are not shown to the user at the moment. The main concern was the presentation of data and a decision had to be made as to how much information you displayed for the pilot. A more detailed search engine would be required for a commercial application. This data would then be presented in advanced searches within the selected records.

All of the above changes are possible and could be gradually modified as the project moves from the demonstrator to the commercial product. The opportunities for exploitation will be made possible from the above enhancements.

The revised search engine takes this into consideration



7 References

Short Sea Information and Reservation System. (SHIRS) Contract no TR-EA-14