COMPETITIVE AND SUSTAINABLE GROWTH (GROWTH) PROGRAMME

SHORTSEA SHIPPING, SEA-RIVER AND SEAPORTS

Working Paper

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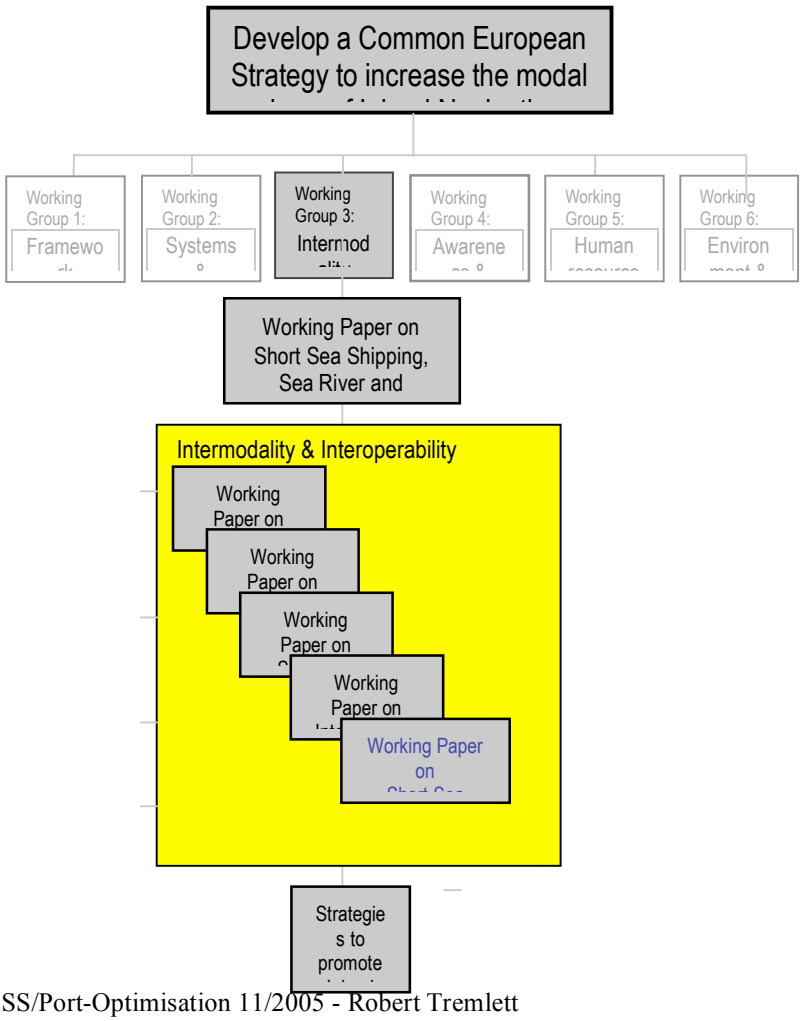
1 PURPOSE AND SCOPE

1.1 Objective WG papers of Inter-modality & Interoperability

The issue "Inter-modality & Interoperability" focuses on tasks related to the integration of Inland Navigation into inter-modal transport chains, to the interoperability of systems used in inter-modal transport chains and systems used on different European waterways. This group of tasks is considered as horizontal topic to be taken into account by most activities. This refers especially in the group of "Systems and Technologies ". Due to the importance of the integration of Inland Navigation in inter-modal door-to-door transport, for gaining access to new markets, for participating in the growing transport volumes and for increased use of waterborne transport in Central and Eastern Europe, specific tasks will address requirements to improve inter-modality and interoperability of systems and European waterways.

1.2 Objective of paper on Short sea shipping, sea river and sea-ports

This task will address shortcomings in integrated Inland Navigation in transport chains with short sea shipping and sea river transport.



there are still many problems associated with interfaces, especially in seaports, that reduce efficiency of inter-modal transport operations, those shortcomings will be analysed and measures will be proposed.

The figure above shows the objective of the SPIN Thematic network, as well as the position of the Working Paper on Short Sea Shipping, Sea River and seaports.

2 INTRODUCTION

2.1 Short Sea Shipping And Sea River Transport

The Commission's White Paper on the "European Transport Policy for 2010: time to decide" sets out a series of targets to ensure competitiveness and sustainable mobility by 2010. Inland waterway transport is an obvious choice to play a key role in reaching these targets. In the context of an entirely deregulated inland navigation market the European Commission aims to promote and strengthen the competitive position of the inland waterway transport in the transport system, and to facilitate its integration into multi-modal logistics chains. Recently, progress has been made in the field of the implementation of new information and communication technologies (River Information Services) and the harmonisation of technical requirements for vessels.

Short sea transport has an important share in transport of cargo within Europe: almost 43%. The cargo consists mainly of large bulk flows (dry and wet bulk, such as fertilizers and oil (products), but also general cargo, such as forest products and paper. It should be noted that Semi-manufactured articles and consumer products are mainly transported by road in 20/25 ton volumes, whereas these goods could well be transported via Short Sea. Within the sector there is a choice between Short Sea shipping, such as container - , Ro-Ro - , general cargo transport and sea-river shipping.

2.2 Interaction Delays & Obstacles

To be efficient, Inland vessels are dependent on rapid turn around so reducing delays that are inevitable due to commerce, cargo handling, berth availability and administrative matters, is of paramount importance.

All to often, cargoes are delayed due to the late arrival of a seagoing vessel, or the berth might not be available due to another vessel occupying it either because the vessel itself or cargo was delayed. Other delays might be caused due to infrastructure capacity restraints (Locks Bridges, basins and berths) or due to requiring a survey or inspection due to the nature of the cargo. Commercial considerations must also be taken into account. Any discrepancy between the current appearance or quality of the cargo and that declared by the previous carrier or shipper, paper work discrepancies or mistakes, will also incur delays. Administration matters can also prevent a vessel from loading or leaving incurring long delays if not rectified. Regulatory issues such as number of hours worked, or local bylaws effecting labour can also prevent vessels from loading. Additionally

weather can be the cause of delay either for handling cargo or the arrival of vessels that have the cargo onboard.

Some of these delays are unavoidable, but many can be predicted, or if known in advance could facilitate a change of port or cargo. However for real efficiency, culture has to be changed in the industry. There is a reluctance to share information in advance, enabling pooling of cargo, infrastructure and intermodal interconnectivity.

Obstacles for short sea shipping

- More congestion around sea ports
- High dependency on other Transport modes and suffer form delays of them
- Infrastructure abroad is sometimes inadequate
- Relatively unknown to a large section of the market
- Relatively poor image in a large section of the market
- Longer transit times
- Lack of organization in door-to-door
- More complex management due to transhipment
- Transparency of the market
- Differences in (and complicated) Customs procedures in various countries
- Insufficient harmonization of regulations with other modalities
- Lack of market structure on supply side

It is clearly recognised that incentives are required to promote short sea and river sea shipping, that better coo-operation between forwarders and ship brokers is required and better Cooperation between seaports and between the deep sea shipping community systems as well as road and rail is needed. Given that short sea shipping is very much an international activity, it is important that there are as few obstacles as possible at both ends of the route. International cooperation can also provide an active stimulus for short sea shipping. This aspect of short sea is in keeping with general bilateral sea shipping policy, along with a range of other measures.

Background work for the paper investigates the main obstacles and causes of delays due to the need of interface with ports, and dependency on other modalities,

principally ships. It will identify and address Regulatory, administrative, infrastructure, commercial causes of delay as well as the areas that need to be considered with respect to the arrival of seagoing vessels.

Short Sea shipping vessels are normally not suitable for deep sea voyages, but this is not always the case, for example, a vessel on a liner trade around north sea ports, will have to be capable of resisting heavy Seas. Just the same as all other vessels they need to comply with a number of EU regulations:-

- Port State control EU 1995/21 and 2001/106
- RO/RO Ships EU 19/35
- Ships waste EU 2000/59
- Passenger ships EU 19/41
- Monitoring directive EU 2002/59 (ship reporting)
- Erection of European Maritime Safety Agency 2002/1406
- EU Regulation 2002/6 on reporting formalities for ships arriving in and / or departing from ports of the Member States of the Community
- EU Regulation on enhancing ship and port facility security.

Inland shipping also has to comply to regional regulations, and now increasingly at a European level (eg. RIS). Because regulations related to provision of information form Sea Going vessels, at a European level, have significant impact on International and strategic European requirements, wherever possible information should be sought from services that are interoperable with the Seagoing requirements as well as RIS.

The paper will identifies information “groups” that should be shared, the information and tools that will integrate the information so to facilitate traffic and cargo fluidity whilst ensuring minimum delays.

3 CAUSES OF DELAYS

Delays have many causes, but whether they are due to administrative or regulatory processes, port or infrastructure operations, vessel movements, berth availability, stevedoring personnel or equipment, crew rest requirements, or late arrival of a vessel for transhipment, the delays are very often out of the control of the port / infrastructure or vessel operators, traffic service operators shipboard personnel.

Many processes are streamlined by the use of modern practices, but still today reliance is focussed on direct and not on indirect causes or processes. The culture within short sea shipping, river sea shipping, and inland navigation is protective concerning availability of information concerning vessel operations. (ETA's, cargo type / quantity, readiness to load / discharge).

To ensure efficiency of port, infrastructure and vessel operation, it is necessary to integrate information from a number of sources and to share commercial information about the current vessel and cargo status, which previously would have been determined as confidential. The aim should be to ensure that the vessel is working 100% of its available time (when not under repair or refit or inspection). In a perfect world a vessel would arrive just as its cargo for loading arrived, if a vessel was relying on transhipment and the other vessel was delayed, an agent would be able to provide an alternative plan which might even mean deviation to another port, or berth within a port.

Four areas are addressed.

- Stakeholder Information types
- Port Community & State
- Commerce
- Vessel, VTS & Reporting

This work is not intended to invent new solutions but to integrate and use existing solutions where they exist. It is hoped also that the work will stimulate awareness and actions on the key aspects covered.

4 STAKEHOLDER / INFORMATION REQUIREMENTS

Many different EU, Sate and Local stakeholders have an interest in information on efficient, safe and secure maritime and inland navigation.

4.1.1 Stakeholders on EU level

- DG Finance, including Taxud (collection of customs duties and tariffs) and Olaf (fiscal investigation, with risk assessment).
    - DG Security: Coordination of security measures across the different transport modes.
    - DG Environment: Safeguarding the environment and the sustainable use of resources.
    - DG TREN, including EMSA (agency supporting DG TREN concerning maritime transport safety and rescue operations).
    - DG Agriculture & Fishery: Coordination of inspection activities (food, health, etc).
    - Eurostat: Collection and distribution of statistics.
    - Europol: Coordination of national police administration (cf. Interpol).
    - Eurojust: Public prosecution of the European and National Courts.
    - Representative organisations, such as ports, ship owners, forwarders, etc (cf 2002/59).

4.1.2 Stakeholders on national / regional level

- Policy (Ministry of Justice, Ministry of Finance, Ministry of Environment).
- Maritime Administration (State department of ports and waterways, policy setting and enforcement of regulations concerning ports, ships, waterways and approaches).
- Private representative organisations (shipping lines, forwarders, etc).
- Inland Navigation Commissions (Rhine, Danube etc.)

4.1.3 Stakeholders on port / local level and (National implementation at local)

Some of national / regional level stakeholders, whilst organised at the national level, are implemented at the port / local level.

- Policy:
    - Port Authorities: Setting and enforcement of local regulations and bylaws; management of the port (land use, infrastructure, PR, etc); commercial interests.

    - Harbour Master or Lock Master / Keeper: Police authority in the port on maritime matters in the context of safety; safety interests.
    - Municipality (environmental issues): Contingency / emergency response planning; environmental agency.
- Regulation:
    - Safety agencies (Port State control): Identification of sub-standard vessels; inspection of vessels, cargo, stowage and segregation rules, certificates; safeguarding safe navigation.
- Executing:
    - Vessel Traffic (Management) Service (VT(M)S), or alternatively River Information Service (RIS): Management of vessel movements and the information involved, from the perspective of both safety (security) and efficiency; radar operation.
    - Customs (also regulation): Follow up of the cargo, risk assessment of the supply chain, collection of duties.
    - Maritime Police & Immigration (also regulation): Monitoring of identity of crew / passengers (Schengen).
    - Local (Municipal) Police.
    - Border inspection: Monitoring of goods / animals / people passing the border and its effect on food safety and public health; quarantine measures.
    - Search and Rescue (SAR).
    - Infrastructure operators (locks / bridges / etc).
    - Pilots.
- Private:
    - Freight forwarders: Organising transport operations and related documentation.
    - Ships owners / operators.
    - Shipping agents: Representing a vessel on behalf of ships owners / operators.
    - Stevedores (terminal operators): Loading and discharging activities (with additional warehousing activities).
    - Transport operators: Providers of transport operations of a certain modality.
    - Shippers.
    - Consignee.
    - Surveyors etc: Inspection of vessels, cargo, etc.
    - Service providers (tugs, mooring gangs, etc): Providers of service needed for manoeuvring in the port, loading / discharging operations, etc.
    - Classification societies: Conformity assessment of vessels.
    - Others.

From the rather extensive list of stakeholders listed above, the following are seen to be important in context of information requirements that could result in delays. These are considered main stakeholders.

VTMIS / VTS services, Port Authorities, Ports state Control, Maritime and border police, Security Authorities, Environmental agencies, Customs and Competent

authorities. (be they local regional or national). Ship owners, operators and cargo shippers and consignees / consignors.

The individual stakeholder organisations normally interface by EDI with others in their own domain, but usually within their own region or country, and seldom with neighbouring countries or between domains. But when one investigates their individual information requirements, there are many same or similar requirements, and in many cases the information is in-fact sent again and again to the different parties.

To eliminate most delays, and to ensure as far as possible, optimum performance throughout the operational processes across the spectrum of stakeholders, a lot can be achieved by providing all stakeholders, at the time they need to make a decision, all information that can effect that decision. Though this seems to be a very obvious statement. The information will include secondary factors that may well arise in other transport domains, or be the result of a knock on effect within one own domain.

The Key stakeholders therefore must have interoperable information services that use key protocols of the most prolific service in operation covering any information type. This would require extensive co-operation between stakeholders to build up a common data dictionary addressing all key aspects that have need of interoperability with other stakeholders. This will include identification those information types that need to be shared, and therefore, cannot be regarded as a commercially secret. Those who are not prepared to share these traditionally sensitive information types, will not benefit from the increased performance, and thus increased profitability or productivity.

5 PORT COMMUNITY AND STATE

This includes commercial, regulatory, and operational aspects. A simple out of date certificate can cause delays of days, even when the vessel, or shore handling equipment are in first class condition, the sharing of manifest and recording of dangerous goods information can be time consuming. But what about an out of date certificate on a vessel that has been prevented to leave another port. If your cargo is aboard this inland or seagoing vessel, it will have an impact on berth occupancy, lock scheduling, pilot scheduling and of course the wisdom of your own vessel to proceed with being the carrier of that freight.

The areas to be tackled are:-

- Safety & Certification (manning & Ship)
- Stevedoring and Handling equipment availability
- Customs, Manifests and Cargo documentation

In most cases port specific systems are used (port community systems). However, here we do not need to start from scratch. There are three main initiatives that are already in use and within the type of communities that we are addressing. They between them constitute the possibility of expansion to include all information needs within the Port and EU level. They include River Information Services (will be dealt with under Vessel, VTS & Reporting), SAFESEANET at EU Level and PORTNET at local, regional and state level. (at present).

5.1.1 SAFESEANET

Following the loss of the tanker ERIKA off the French coast in 1999, the European Union has adopted several directives aimed at preventing accidents at sea and marine pollution. Directive 2002/59/EC adopted by the Parliament and the Council on 27 June 2002 aims at establishing, within the Community a vessel traffic monitoring and information system “with a view to enhancing the safety of efficiency of maritime traffic, improving the response of authorities to incidents, accidents or potentially dangerous situations at sea, including search and rescue operations, and contributing to a better prevention and detection of pollution by ships”.

This Directive requires Member States and the Commission to co-operate to establish computerised data exchange systems and to develop the necessary infrastructure to this end. The information is stored within TESTA which is the backbone of European intra-administration communications. TESTA is a private, highly-secured network, a special Internet, for public administrations in Europe. With

TESTA, officials such as ministries or competent authorities can communicate with colleagues in other countries and work on common projects being confident that, as they exchange confidential information, their files are safe from possible interception and will be delivered correctly and promptly. It provides European Public administrations with access to modern telecommunication services for their operations, especially when they exchange cross-border information.

The implementation of Directive 2002/59/EC, as well as provisions contained in other EC legislation, requires the collection and distribution of various kinds of data. It concerns vessel traffic monitoring, dangerous cargo details, results of ship inspections and information related to ship waste and cargo residue. SafeSeaNet has improved data exchange with better standardisation and a profusion of transfer mechanisms.

The SafeSeaNet System relies on a distributed architecture made of 3 levels;

- Local Competent Authorities (LCA)
- National Competent Authorities (NCA)
- The central index (TESTA),

The core of the SafeSeaNet architecture consists of the SafeSeaNet XML Messaging System, so it is easy to interface to information contained within. It acts as a secure and reliable “yellow pages” type index system and as a “hub and spoke” system for data transfer between data providers and data requesters (including requests, notifications, responses, authentication, validation, data transformation, etc.).

The Parties involved in the SafeSeaNet system are the Members States and the European Union. The Members States are involved in the system through different authorities:

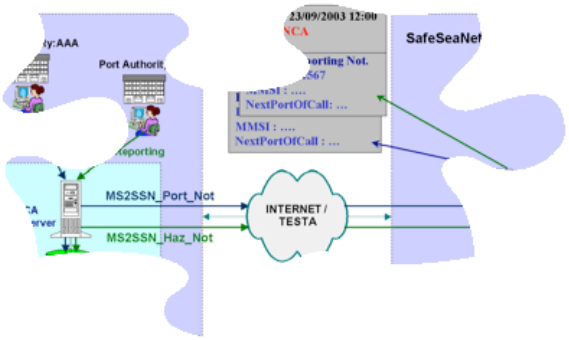
- National Competent Authority (NCA)
- Local Competent Authority (LCA)

National Competent Authority (NCA): Body designated by Member States responsible for the management of the system at national level. It co-ordinates all required action with the objective of complying with the specification described in the Interface Control Document.

The NCA is the only national authority in contact with the European Union Institutions for matters related to SafeSeaNet and as such it takes part in the management and development of the system at EU level by participating in periodical review. The NCA

is also responsible for designating their associated Local Competent authorities and delivering and maintaining their access right to the SafeSeaNet network.

The NCA may or may not be involved in handling and exchanging SafeSeaNet messages related to maritime safety and the traffic-monitoring directive. The Local Competent Authority (LCA): the authorities and organisations designated by Member States to receive and transmit information pursuant to Directive 2002/59EC. The LCA are all the local stakeholders involved in the handling of maritime information. They are designated by their NCA for participation in the SafeSeaNet network and include Port authorities, Coastal Stations, Vessel Traffic Service, shore-based installations responsible for mandatory reporting systems.



It is the LCA that in terms of SPINN-TN, we should consider for interface with a local / regional system and RIS network. Though it is probably not possible or necessary for Inland navigation to be within the SAFESEANET system, it should promote a similar system or extend RIS to incorporate the information types recorded within the SAFSEANET system, and then merge information at the LCA level.

5.1.2 PORTNET

PortNet offers all responsible parties, who need to share with others information on traffic to and from the port, it also creates a cost effective and much more efficient way of minding their administrative tasks. The ship owner or agent may send advance information on the arrival or departure of his ship, the report on dangerous goods cargo either using the PortNet website or sending EDI or XML files. The cargo declaration may be given as a manifest enabling that the cargo may be cleared with the Customs office in advance. The basic idea is to give the possibility to clear all the notices that have to be given at a ships arrival or departure in one single sweep. This means that the same dangerous goods information is used by the Customs office, the Port authority as well as the Marine authority. All this means considerable savings in time and cost for all participants. The aim is to free the participants from paperbased routines with a totally paperfree administration as a remote target.

The systems offers it's users checked information from the national ship database maintained by the Marine authority and the Customs office. Ports and other authorities may easily derive information from the system as XML files or just by browsing in the website according to the access rights given.

PortNet is fitted with facilities to find how many times and how much a ship has paid in fairway dues during the past year. After a certain amount a ship may be relieved of this duty and an official exemption document is issued in PortNet to verify this.

5.1.3 Customs Issues

The June 2004 Kyoto Convention of the World Customs Organisation contains guidelines on the application of information and communication technology. These identify a number of important topics, including:-

- Cargo inventory control;
- Goods declaration processing (import and export, transit, inward processing etc);
- Release notification;
- Data storage;
- Reporting;
- Management information systems.

The guidelines conclude that acceptance of automated pre-arrival cargo manifests into the customs system enables customs to make an initial risk assessment. Also that the customs system should be designed on a modular basis, enabling distinct parts of the system to be developed on different timelines and integrated with other parts as necessary. Reference is also made to a "Single Window Scenario", with a preference for data exchange based on EDI.

5.1.4 PortNet Reporting procedure when the ships arrives:

5.1.4.1 Advance Notice

Before the ship arrives an arrival notice must be given to the Customs office 24 h prior to arrival, advanced notice must be given. If this cannot be achieved a special permission has to be received from the Customs office in the arrival port. This arrival information may then be used by the port and maritime authorities. The advance notice may cover either only the arrival or both the arrival as well as the departure if ship or voyage data has changed, a correction message may be sent

5.1.4.2 Dangerous goods - notice.

If the ship carries dangerous cargo the agent has to report it 24 h prior to arrival. When sending this data the previously mentioned arrival/departure reference number is referred to. Hence the DG cargo notice is linked to the advance notice.

5.1.4.3 Cargo declaration.

There two types of cargo declaration for authorities: one gives the cargo information on manifest level and the other on statistical level. The declaration on manifest level is designed to work simultaneously as a cargo declaration for the Customs. Several cargo declarations may be sent simultaneously in the same advance message, and can be updated during handling operations.

The manifest information also forms the basis for invoicing by the port authorities and for the cargo statistics produced by the Marine authority.

5.1.4.4 Dangerous goods declaration.

When dangerous goods are involved, the shipper or agent has to report dangerous goods expected to arrive within the port area for loading in advance. Procedures are outlined:-

1. The advance notice is made up of the goods batch, e.g. a container xy@@@£££.

2. When the goods arrive to the port to be loaded on a vessel when the goods enter the port area the port authority confirms that an advance notice indeed has arrived. The DG goods may temporarily be stored within the port area before loading.

3. The DG goods batches are then loaded on the ship when she is ready

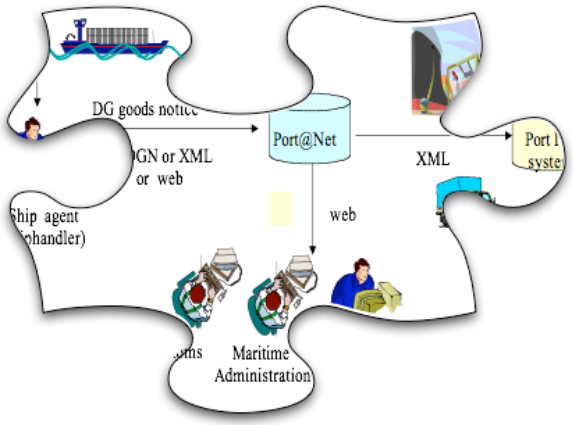
4. The agent who represents the ship owner then has to deliver a DG goods notice on all batches of DG goods which have been loaded onboard the ship.

This notice includes all the dangerous goods onboard on a specific ship, and meets all the requirements set by the EU Hazmat directive – SafeSeaNet requirements

5. The ship agent delivers this departure notice either by transferring a XML or EDIFACT file or using the PortNet www-interface.

6. The port authority as well as the Customs office and Marine authority may browse through the information on the website

7. The port authority can also browse all dangerous goods notices from the PortNet System as XML files, They can get detailed information about dangerous goods directly in their own IT-systems, e.g. for statistical purposes



In the case of departing dangerous goods PortNet is used for Phases 4-7.

For a ships arrival:-

1. The ship agent receives dangerous goods information from the agents in previous ports. The ship agent inputs all the dangerous goods for an incoming ship into PortNet either directly or using a XML or EDIFACT file

2. the port authority as well as the Customs office and the Marine authority may browse in the information using the PortNet www user interface

3. the port authority may also retrieve the dangerous goods information directly as a XML file into their own systems, and thus the port authority may use this information as an advance notice and it may also form a base for statistics

4. the ship arrives to the port, dangerous goods is unloaded to the port area

5. dangerous goods batches are transported onwards using land or rail transport

For arriving dangerous goods PortNet is used for phases 1-3.

5.1.5 PortNet Reporting procedure at ship departure:

5.1.5.1 Advance notice.

The procedure at departure is the same as when the ship is departing but now no time limits are applied. The notice may be sent just prior to the departure.

5.1.5.2 Dangerous goods notice.

The procedure concerning dangerous goods is the same as when the ship is departing but now no time limits apply. The notice must be sent prior to departure.

5.1.5.3 Cargo declaration.

The cargo declaration has to be delivered at departure, either on manifest or statistical level. The agent has to follow the following procedure when he delivers a cargo declaration on manifest level:

- when loading is finished the agent sends the manifest using a ”CUSCAR” message to PortNet
- the cargo declaration refers to the same Customs arrival/departure reference number
- the Customs office may now browse through the cargo declaration
- if the agent is authorised by the Customs, the manifest may be delivered after departure, if the same information is available also using some other means for the Customs office
- if the cargo declaration is delivered on statistical level it may be sent even after departure

5.2 PortNet expansion

5.3 Future EU expansion

At present the PortNet system is used in Finland, however all Member States could use a PortNet-like system.

EU is presently working with a reporting system for maritime traffic. The vision should be that ports all over Europe should be able to exchange information within a Pan European solution. The development of PortNet could also serve Inland Navigation and mobile users.

There are a number of valuable existing or future sources of information that should be connected to the PortNet System. PortNet for example also is interoperable with PilotNet in Finland and HELCOM (sharing AIS information throughout the Baltic).

6 VESSEL, VTS & SHIP REPORTING

This area could be said to be in the lap of the gods, but even so events such as weather or pollution requiring vessels to deviate either in speed or course can make significant changes in their estimated times of arrival. So too will congestion in anchorages, locks, berths. Maritime Vessel Traffic Services and River Information services have developed in recent years to not only offer advice, but now take an active role in the monitoring of coastal and inland waters from for safety, traffic and pollution perspective.

Already vessels use weather routing to avoid sea ice, ice accretion and storms. It is fair to say that reasonable judgement of adjustments of ETA' s to compensate for bad weather can easily be made. What can really frustrate the planning for feeder ships though, is the late arrival of a deep sea vessel that may be delayed from a few hours, or a couple of days.

The status of locks, anchorages, and availability of pilots and tugs must also be considered in the planning, not only effecting ones own vessel, but all other vessels that either cause delay to own vessel by blocking infrastructures, or may be late due to congestion of anchorage, or non-availability of tugs or pilot.

Because some VTS authorities are now looking at dynamic slot planning so to best allocate vessels as they arrive. And because RIS and sea going ship-reporting requirements demand that European coastal and inland waters are or will be covered by AIS networks. An AIS image can determine the status not only of each vessel, but traffic congestion tendency can also be predicted allowing for more efficient planning.

The AIS image can be further strengthened by LRIT (Long Range Identification and Tracking) information. However, though this would extend the range of ascertaining a vessels status from the coast AIS limits (40 Nm) to 200Nm or 900Nm (nautical miles) away from land, it is still subject to a resolution at IMO. Though there is full expectation that this will be forthcoming in June 2006.

6.1 The vessel

The actual information needed from a vessel once she is underway is small. The bulk information on cargo, passengers, certification etc. would be sent as in the PortNet scenario via shore networks, VTS and RIS information (including meteorological, sea

state and other ambient and infrastructure information) can be sent using the PortNet architecture. Though this is more difficult to enforce for ships trading outside the EU, short sea, river-sea and inland shipping can be very well provided.

When the ship is underway, VHF automatic Identification systems, (AIS) broadcast vessel data information every few seconds and every 3 minutes while at anchor. This tracking information includes for example: position; navigational status; rate of turn; speed over ground; course; heading; etc. In addition, identification information (including IMO / MMSI number, radio call sign, ship name, ship dimensions, destination, ETA, etc) is broadcasted every 6 minutes.

When vessels are out of range of VHF AIS coverage, they will soon be provided with Lon Range Identification and Tracking systems (LRIT) and in the longer-term future maybe Long Range Automatic Identification Systems (LRAIS). LRAIS systems will provide more information than LRIT. The main driver for LRIT is security, and therefore the information sets that will be available will be limited to ID and position, with perhaps a status message. There is a growing support for a systems that will also be able to broadcast information related tom the status of seaworthiness and therefore give indication of a trend of degradation of sea-worthiness, such a system would be probably be based on LRAIS and not LRIT

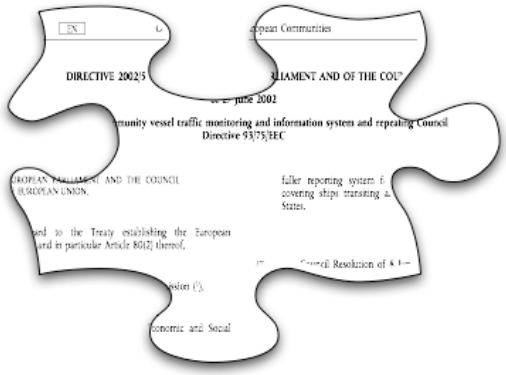
It is considered that a transmission interval of 2 hours should suffice for most long-range purposes, however, in sea areas that are congested or where convergence or crossing of traffic is expected out of VHF AIS coverage, then the interval between reports is expected to be reduced by 20 or 30 minutes. In any case the interval of two hours frequency should decrease when approaching the coast.

6.2 Regional exchange of AIS / LRIT information (HELCOM)

Not only does Europe have the instruments in (or planned to be) in place, it will be able to monitor the passage of vessels throughout our inland waters, coastal waters and offshore. However to maximise the optimum efficiency of Short Sea Shipping, River sea Shipping and Inland Navigation, there will be need of a network that shares the AIS and hence traffic information between Member States, creating in effect a Pan European image. Fortunately, we do not need to start from scratch. There has been an initiative to collate and share information derived from AIS networks within and for approaches to the Baltic Sea called HELCOM. This follows an initiative agreed in Copenhagen in December 2001 were the Baltic Sea countries agreed to establish and integrate national AIS surveillance-systems for ships. The Baltic Sea countries have now integrated their AIS surveillance systems to an AIS network, to which all national networks are now connected.

The Helsinki Commission HELCOM have officially launched an Automatic Identification System (AIS) for monitoring maritime traffic in the Baltic Sea. It is an automatic VHF radio-based AIS as mandated for carriage by IMO for SOLAS ships, s that enables the identification of the name, position, course, speed, draught and cargo of every ship of more than 300 gross tonnes sailing in the Baltic Sea, and displays all available data over a common Network.

EU Directive 2002/59 requires that all coastlines of Europe have coverage of land based AIS base stations to receive ship-borne AIS information as the vessels pass through national waters. HELCOM have integrated these national servers to share information. There is close interest of the European Commission and it may require the sharing of information between all neighbouring countries using an architecture similar to the HELCOM server. This would result in a comprehensive real-time picture of the overall vessel traffic in the European sea area enabling the competent authorities in each Member State to have an accurate real time traffic image. The HELCOM server updates ship positions every six minutes.



The primary task of the shore-based AIS network is to provide competent authorities with a monitoring tool for supervision, statistics, risk analyses, search and rescue (SAR), port state control, security and other safety related tasks to ensure safe navigation in the crowded waters. A secondary function could be to provide authorised information to all actors having a legitimate interest in the information.

Pan European integration of national AIS networks will make it possible to not only monitor maritime traffic but also to elaborate statistics on the nature and extent of shipping as well as the amount of cargo being transported in European Sea areas. Thus it will also provide the basis for future risk assessments and identification of needs for additional measures.

As with many of these initiatives they often are created after a catastrophe. The decision to establish a land-based monitoring system for ships in the Baltic using AIS

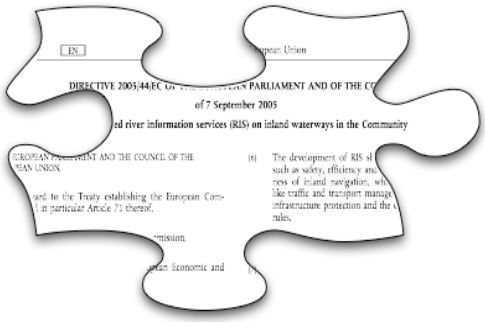
information was agreed during the HELCOM Extraordinary Ministerial Meeting in Copenhagen in 2001, following one of the gravest recent oil spill incidents in the Baltic Sea

when on 29th of March 2001, close to the sea border between Germany and Denmark, the double hull oil tanker “Baltic Carrier” collided with the bulk carrier “Tern”, releasing 2700 tons of heavy fuel oil from the cargo tanks of which a significant part eventually washed up onto parts of the Danish coast. Similar drivers are today responsible for the ERIKA III package which has been borne from the Prestige disaster.

This system builds upon the International Maritime Organisations (IMO) requirements for ships to be equipped with AIS. Together with the establishment of land-based stations which are able to receive AIS data the Baltic Sea States are now able to gather information on ship traffic in the Baltic. This HELCOM work will also give valuable input at European level to the implementation of the EU directive on traffic monitoring and information under which an AIS exchange system shall be operational by the end of 2008.

6.2.1 River Information Systems (RIS), & Inland & Seagoing VTS

Because there are many similarities of VTS serving inland shipping and short sea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shipping, this part tries not to duplicate text and concentrates on Inland shipping VTS and RIS. RIS also in many ways has similarities to PortNet. RIS was introduced on 30th September 2005, the new EU RIS Directive 2005/44/EC on harmonised river information services (RIS) was published in the official journal of the European Union. On the 20th October 2005 it entered into force.

The new directive controls the application of River Information Services on the pan-European inland waterways of class IV and higher, which are linked to a waterway of another member state. The directive acts as framework for deployment and use of harmonised RIS within the Community in order to support inland waterway transport with a view to enhancing safety, efficiency and environmental friendliness and to facilitating interfaces with other transport modes.

The new directive provides a framework for the establishment and further development of technical requirements, specifications and conditions to ensure harmonised, interoperable and open RIS on the Community inland waterways. Furthermore, continuity shall be ensured with other modal traffic management services, in particular maritime vessel traffic management and information services.

RIS is a concept for harmonised information services that supports traffic and transport management in inland navigation, including interfaces to other transport modes.

RIS streamlines information exchange between public and private parties participating in inland waterborne transport. The information is shared on the basis of information and communication standards. The information is used in different applications and systems for traffic or transport processes.

The general objectives of RIS are:

- Enhancement of inland navigation safety in ports and rivers. RIS will also contribute to remedial measures. It will provide local and regional traffic information for safety monitoring on tactical as well as strategic level.

- Enhancement of the efficiency of inland navigation. RIS will optimise the resource management of the waterborne transport chain by enabling information exchange between vessels, lock and bridges, terminals and ports.

- Better use of the inland waterways by providing information on the status of fairways.

- Environmental protection by providing traffic and transport information for an efficient calamity abatement process.

River Information Services integrate information services to support traffic and transport management in inland navigation, including interfaces to other transport modes. RIS does not deal with internal commercial activities between one or more of the involved companies, but RIS are open for interfacing with commercial activities, as is PortNet.

Vessel Traffic Services (VTS) may be established locally with the emphasis on traffic organisation. Reference is made to the Inland VTS Guidelines of IALA. However, RIS have not necessarily have to include a VTS. Information is exchanged with currently available technology like VHF radio, mobile data communication systems, GNSS, Internet, Inland ECDIS and vessel tracking and tracing systems such as Inland AIS.

6.2.2 RIS & Port VTS Components

River Information Systems consist of one or more harmonised IT systems. An IT system (information technology system) is the totality of human resources, hardware, software, communication means and regulations in order to fulfil the task of processing information.

6.2.2.1 RIS Centre

A RIS centre is the place, where operators manage the services. A RIS may exist without a RIS centre (e.g. an Internet service, a buoys service). When ship/shore interaction in both ways (e.g. by VHF service) is intended, one or more RIS centres are needed. If a VTS Centre or a lock exists in a RIS area, they may also be used as RIS centres. It is recommended to concentrate all services in a RIS area into one single RIS centre.

6.2.2.2 Inland VTS

Inland Vessel Traffic Services are a service, implemented by a competent authority, designed to improve the safety and efficiency of vessel traffic and to protect the environment. The service should have the capability to interact with the traffic and to respond to traffic situations developing in the VTS area. VTS should comprise at least an information service and may include others, such as navigational assistance service, or a traffic organisation service, or both. This much the same for VTS serving seagoing vessels.

6.2.2.3 VTS Area

A VTS area is the delineated, formally declared service area of a VTS. A VTS area may be subdivided in sub-areas or sectors.

6.2.2.4 VTS Centre

A VTS centre is the centre from which the VTS is operated. Each sub-area of the VTS may have its own sub-centre.

6.2.2.5 Competent authority

The competent authority is the authority made responsible for safety, in whole or in part, by the government, including environmental friendliness, and efficiency of vessel traffic. The competent authority usually has the task of planning, arranging funding and of commissioning of RIS.

6.2.2.6 RIS authority

The RIS authority is the authority with the responsibility for the management, operation and co-ordination of the RIS, the interaction with participating vessels and safe and effective provision of the service.

6.2.2.7 RIS users

The users of the services can be described in a number of different groups: skippers, RIS operators, lock/bridge operators, terminal operators, operators in calamity centres, fleet managers, cargo shippers, consignors, consignees, freight brokers, supply forwarders.

6.2.2.8 Levels of RIS information

River Information Services work on the basis of different information levels. Fairway information contains the data of the waterway only. Traffic information has the information on vessels in the RIS area. Traffic information can be divided in tactical traffic information and strategic traffic information. Traffic information is provided by traffic images.

There are three levels of information, which mirror closely VTS used by Short sea Shipping, and in some cases the RIS VTS centre is also the VTS centre for a port,, or waterway shared by both Inland and seagoing vessels.

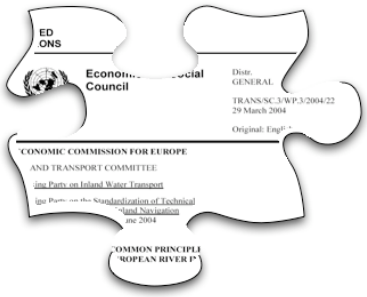
- Fairway information - geographical, hydrological, and administrative information regarding the waterway.

- Tactical traffic information (TTI) is the information affecting the vessel or the VTS operator's immediate decisions with respect to navigation in the actual traffic situation and the close geographic surroundings

- Strategic traffic information (STI) is the information affecting the medium and long-term decisions of RIS users. A strategic traffic image contributes to the planning decision capabilities regarding a safe and efficient voyage.

7 COMMERCE

Over recent years a lot of work has been done in various United Nation forums for the development of protocols and messages.



There are some well established information protocols in use within the Maritime Short Sea Shipping and Inland Navigation communities. These include:-

7.1.1 ERINOT (IFTDGN)

The ERI notification message (ERINOT) is a specific use of the UN/EDIFACT "International Forwarding and Transport Dangerous Goods Notification (IFTDGN)" message. This message has been worldwide accepted as the standard message to notify the carriage of dangerous goods. The message is part of the UN/EDIFACT directories yearly published through UN/CEFACT (United Nations Centre For Administration, Commerce and Transport).

The IFTDGN message is a message from the party responsible to declare the dangerous goods (e.g. carrier's agent, freight forwarder) to the party acting on behalf of the local authority performing the checks on conformance with the legal requirements on the control of dangerous goods, normally Port respectively Inland waterway Authority, conveying the information relating to one conveyance/voyage of a means of transport such as a vessel or barge, on the dangerous goods being loaded, unloaded, and/or in transit.

The Dangerous goods notification message may be used for both national and international applications. The ERINOT message implementation is based on the UN/EDIFACT directory 98.B and Protect version 1.0. In line with the recommendation of the IMO; IMO FAL form 7.

For each transport, an ERI notification message is to be composed and sent to the competent authority, with the following types:

- Transport notification from vessel to authority (identifier "VES"), from ship to shore
- Transport notification from carrier to authority ("CAR"), from shore to shore
- Passage notification ("PAS"), from authority to authority.

These messages also offer the possibility to report a voyage. The following data is reported:

- The origin and destination of a voyage
- The dangerous cargo on board
- The non-dangerous cargo on board
- The amount of containers and their location on board.

7.1.2 APERAK (ERISP)

The specification provides the definition of the Application error and acknowledgement message (APERAK) to be used in Electronic Data Interchange (EDI) between trading partners involved in administration, commerce and transport.

The function of this message is:

a) To inform a message issuer that his message has been received by the addressee's application and has been rejected due to errors encountered during its processing in the application.

b) To acknowledge to a message issuer the receipt of his message by the addressee's application.

The Application error and acknowledgement message may be used for both national and international applications. It is based on universal practice related to administration, commerce and transport, and is not dependent on the type of business or industry.

7.1.3 CUSCAR

The CUSCAR description is based on the “United Nations Directories for Electronic Data Interchange for Administration, Commerce and Transport”.

The CUSCAR message permits the transfer of data from a carrier to a Customs administration for the purpose of meeting Customs cargo reporting requirements.

The Customs cargo report message (CUSCAR) may be used for both national and international applications. It is based on universal practice related to administration, commerce and transport, and is not dependent on the type of business or industry.

It is envisaged that the Customs Cargo Inventory Report Message may be initiated by the carrier to report single or multiple consignments to a Customs administration. The message is transmitted upon arrival of the goods, or where national legislation permits, prior to arrival. The data provides Customs with a means of "writing off" or acquitting the cargo report against Goods declarations. It also allows Customs to undertake selectivity processing in order to select high risk shipments requiring examination. The message may be used for reporting: (a) onward transit/transhipment; (b) short and part shipped goods; (c) empty containers; (d) import/export cargo; (e) house and masterbill relationships.

The message implementation Guide of the CUSCAR is based on the recommended user guidelines for this message by the WCO (World Customs Organisation) and these message guidelines have been adopted by the IMO FAL Committee as a recommended practice whenever the customs authorities are notified electronically of the cargo carried (cargo manifest information) on board of vessels (IMO FAL Form 2).

7.1.4 CUSRES

The CUSRES Customs Response message description is based on the “United Nations Directories for Electronic Data Interchange for Administration, Commerce and Transport”. The specification provides the definition of the Customs response message (CUSRES) to be used in Electronic Data Interchange (EDI) between trading partners involved in administration, commerce and transport. This Customs Response Message (CUSRES) permits the transfer of data from a customs administration: - to acknowledge the receipt of the message - to indicate whether the information received is correct or if there are errors (i.e. accepted without errors, accepted with errors, rejected, etc.) - to inform the sender of the status of the customs declaration (i.e. goods released, goods for examination, documents required, etc.) - to transmit additional information as agreed between parties (i.e. tax information, quantity information, etc.) - to respond to batched messages (i.e. CUSDEC, CUSCAR, CUSREP, CUSEXP).

The message implementation Guide of the CUSRES is based on the recommended user guidelines for this message by the WCO (World Customs Organisation).

7.1.5 PAXLST

This specification provides the definition of the Passenger list message (PAXLST) to be used in Electronic Data Interchange (EDI) between trading partners involved in administration, commerce and transport.

This Passenger List Message (PAXLST) permits the transfer of passenger/crew data from a Customs, Immigration or other designated authority in the country of departure to the appropriate authorities in the country of arrival of the means of transport. Where national privacy legislation permits, and with the agreement of all parties involved, this message may also be exchanged between carriers and Customs, Immigration, Police or any designated authorities. This transfer of data may occur upon departure from the sending agency and prior to arrival of the vessel/ flight at the receiving agency. This is to permit the designated authority at the place of destination to screen this data and take timely decisions related to the clearance of passengers and crew. The transfer of data may also occur prior to departure, carriers may transmit passenger listings to customs, police and immigration for pre-arrival clearance.

7.1.6 BERMAN

The BERMAN message description is based on the “United Nations Directories for Electronic Data Interchange for Administration, Commerce and Transport”.

Functional definition: The Berth management message is a message from a carrier, its agent or means of transport to the authority responsible for port and waterway management, requesting a berth, giving details of the call, vessel, berth requirements and expected operations.

Field of application: The Berth management message may be used for both national and international applications. It is based on universal practice related to administration, commerce and transport, and is not dependent on the type of business or industry. This message is meant to comply with requirements of authorities concerning the request for berthing services.

The message has to cater for the provision of sending updates (cancellation, replace, provisional, definitive) or new services request such as shifts and request for second berth. The message will cover the function of pre-announcement of vessels.

7.1.7 IMO/FAL

The IMO Convention on the Facilitation of Maritime Traffic (FAL Convention), was adopted in 1965 by the International Conference on Facilitation of Maritime Travel and Transport.

The purpose of this Convention is to facilitate maritime transport by simplifying and minimising the formalities, documentary requirements and procedures associated with the arrival, stay and departure of ships engaged on international voyages.

The annex to the Convention contains rules for simplifying formalities, documentary requirements and procedures on the arrival, stay and departure of ships. It reduces the number of declarations, which can be required by public authorities, and specifies corresponding standard forms:

Form 1 - General Declaration,

Form 2 - Cargo Declaration,

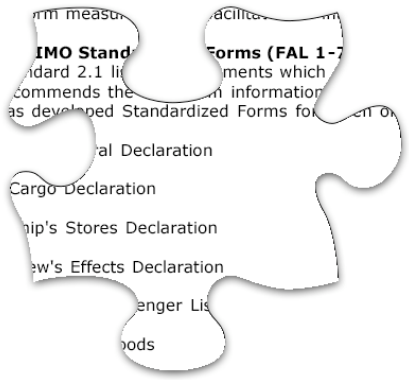
Form 3 - Ship's Stores Declaration,

Form 4 - Crew's Effects Declaration,

Form 5 - Crew List,

Form 6 - Passenger List,

Form 7 - Dangerous Goods Manifest.



The IMO Compendium on Facilitation and Electronic Business was approved by the IMO Facilitation Committee at its 28th session and circulated to the IMO member States. In this Compendium recommendations have been given on the electronic format of the various FAL Forms as mentioned in the Convention.

For EDI and electronic business it is quite important that for all information the appropriate standards and standard codes are used. These codes can be found in the annex of this document. In the FAL Compendium (FAL.5/Circ.15 of 19/02/2001, as amended by FAL.5/Circ.15/Corr1 of 04/04/2003), under the heading "FAL Forms in Electronic format", applicable code values have been mentioned to ensure unambiguous usage and clarity.

The World Wide Web offers opportunities, which are available to any party having access to the Internet. Possibilities such as web form arrangements making it possible for instance for agents to fill in and file so called E-Forms in advance with

the appropriate authorities in the relevant port would already mean a great step forwards for quite a few medium and small size enterprises. Obviously again the best way forward is to harmonise and standardise also the electronic form and align these, where possible and suitable, with the used paper forms as for instance contained in the FAL Convention. The various messages mentioned in this document are wherever applicable based on the IMO/FAL recommendations and the appropriate standards.

7.1.8 BAPLIE

This provides the definition of the Bayplan/stowage plan occupied and empty locations message (BAPLIE) to be used in Electronic Data Interchange (EDI) between trading partners involved in administration, commerce and transport. It is a message to transmit information about equipment and goods on a means of transport, including their location on the means of transport. The message can be exchanged between (liner's) agents, tonnage centers, stevedores and ships masters/operators

The Bayplan / stowage plan occupied and empty locations message may be used for both national and international applications. It is based on universal practice related to administration, commerce and transport, and is not dependent on the type of business or industry.

The message will contain only one vessel/voyage combination, giving details regarding carrier, mode of transport, means of transport, equipment, location on the means of transport, goods descriptions and properties of equipment and/or goods.

The message can be used to transmit information about occupied locations on the means of transport, however information about empty locations may be added.

The bayplan message BAPLTE must be used to transmit information about total numbers of equipment and quantity of goods on a means of transport.

7.1.9 IFTMCS

This message is a single consignment based message, being aligned with other single consignment based messages such as the booking messages (IFTMBP, IFTMBF and IFTMBC), the Instruction Message (IFTMIN) and the Arrival Notice Message (IFTMAN). The single consignment based messages can be used by all modes of transport for the forwarding and

transport of goods from any origin to any destination, regardless of route or prevailing commercial practice.

These messages are suitable for the arrangement of the transport of goods between all parties to the movement of the consignment (including the consignor/shipper and consignee a well as the forwarders, brokers, and carriers involved) as well as providing the information necessary to perform that transport and delivery of the goods. They should be used in the same way by each mode of transport when the requirements are common even if functionally similar information is known by different names.

A message from the party providing the transport/forwarding services to the party that issued the instructions for those services stating the actual details, terms and conditions (charges when applicable) of the service and of the involved consignment. In addition it can be used for the exchange of contract information between carriers mutually.

8 CONCLUSIONS & RECOMMENDATIONS INFORMATION INTEGRATION

We have the tools to promulgate share and monitor information within the key stakeholders activities for:-,

- Port Community & State
- Commerce
- Vessel, VTS & Reporting

Though some are still restricted to national coverage, and others are restricted to one domain or another, we do have probably 80% of the tools and experience at information exchange covering numerous players (RIS and PorTNET), pan European coverage (SafeSeaNet), instruments that can be built upon, RIS and Ship reporting Directives and we have international message protocols covering most areas of interest. We even have experience in the design, application and operation of information tools within the sectors. IN fact we have most of the jigsaw pieces already to build a multidiscipline information network that will serve the short sea, inland and inland shipping community.

To reach the goal of this paper the CEE TREN, EMSA, Finnish Maritime Administration, Member States, Inland Navigation Commissions with the assistance of the architects of RIS (Via Donau, AVV, & participants of COMPRIS etc). Baltic

States HELCOM, and in particular Finish Maritime Administration (PortNet) should take actions to enable research / study and implementation instruments to:-

1. Expand services such as PortNet to cover European Ports at a regional level and through inter-regional exchange to fulfil pan-European interoperability.

2. Survey all:-

    a. information requirements that can impact directly or indirectly on inland and short sea shipping.

    b. all information tools (such as those described in the paper) that are already within domain systems to find whether the requirements in (a) can be derived.

    c. List all requirements of (a) that are not available within the information sets of (b) and suggest how to obtain the missing information.

3. Design a new information tool that extracts the information required from each domain and presents them within a multidiscipline data tool that can be accessed by all legitimate stakeholders, thus enabling information exchange that can feed into decision support tools that can advise respective actors as to the optimum strategic and tactical planning for berths, vessels and infrastructures. The fusion of should result in the provision of a concise image of vessels, infrastructures and cargo, and when necessary include infrastructure, environmental and carrier status from rail, road and a lesser extent air transport domains.

4. Design strategy for awareness and training within key stakeholders of short sea, river sea and inland shipping to encourage more openness of commercial information, and how to best use such information for maximising the efficiency of there processes and operations.

No. 4 is a very important component as the commercial aspects are very difficult, not from information or operational complexity, but from commercial confidentiality. It seems completely against good sense to volunteer information related to the cargo being or to be carried, availability of vessel and where and where bound. However, if all vessels within a “club” did so, it would be much easier to plan the optimum berth, port and even time for each vessel to arrive to ensure that vessels and cargo had minimum delay. The information areas have already been identified within the “Information Requirements” where the stakeholders are listed. It is really necessary to probe this area to identify information types that are crucial to the enhancing performance of Short Sea Shipping & Inland Shipping.

Information regarding the status of the vessel are often a close guarded secret, this is of course very important information. Information such as the Estimated time of arrival or departure, fuel consumption, draught limitations, length breadth, speed, status of safety hull and other certification as well as the status of the cargo on board, or in the case of empty or partly loaded vessels, status of the holds (could be crucial for carriage of certain commodities).

Regarding point 3, because tools like SafeSeaNet, though when working with RIS and PortNet type services could provide a “one stop shop” It should be kept in mind because SafeSeaNet is an index server and not a centralized database, it only identifies where the information is held and information type. A single window application within an individual port, region or country may serve as a primary capturing point for most of the required information. The SafeSeaNet system, for which further development is planned, can retrieve the required information from reliable sources such as port State control, port authorities, maritime administrations, etc via the index retrieval system. The use of such a “single window” application can simplify the procedures. In such single window concepts, security and authenticity are very important factors.

An envisaged enhancement of SafeSeaNet is intended to focus on providing the EU and Member States with earlier and more comprehensive information about vessels which may constitute a risk to European interests. In this context, inland waterways vessels and small coastal vessels on short voyages operating solely within the jurisdiction of a single Member State are not considered and must be catered for by a similar initiative, possibly using the PortNet experience.