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## INTERNATIONAL ELECTRONIC REPORTING MODEL IN CROATIAN INLAND WATERWAY NAVIGATION

### ABSTRACT

*The development of inland waterway traffic of the Republic of Croatia over the recent several years has attracted great attention from experts whose tendencies are oriented to the development of strategy and traffic policy in the framework of the European Union countries. The traffic increase on inland waterways of Europe will be reflected on the increase in traffic on inland waterways of the Republic of Croatia. Consequently, over the recent years the need has been recognized to improve the border crossing mobility, as well as to improve the accessibility to border areas on inland waterways of the Republic of Croatia. This paper attempts to briefly present the ERI model (Electronic Reporting International) in inland navigation, whose implementation will enable exchange of border information among authorities, vessels and other participants in inland navigation, by applying electronic notification messages in order to facilitate crossing of international borders and traffic management.*

### KEY WORDS

*ERI, notification messages, information exchange, border control, traffic management*

### 1. INTRODUCTION

Regarding the expected increase in transported goods from the EU countries towards the countries of Eastern Europe, the transport system of inland navigation regarding space and socially acceptable transport is of extreme significance. The inland navigation is predicted to become in the future one of the main transport modes.

Consequently, for the development of the Croatian inland navigation, the improvement in cross-border mobility and accessibility of border areas of the Croatian inland waterways, more precisely of the

waterways of the Danube and the Drava, is very important, as well as the development of available information technology that is to be used in the future both in the social and economic life of the border regions. The plan is to achieve this by implementing RIS (River Information Services) in the region of Baranja, one of which will be located in Osijek, and another one in Mohač. RIS centres will be interconnected through the exchange of all the relevant traffic information. For the exchange of traffic information between the port authorities involved in inland navigation, navigation safety and environmental protection, private sectors, ports, forwarders, shippers and RIS centres the introduction of ERI will be necessary. The introduction of ERI should result in the improvement of cross-border traffic and transport management, increase in safety, frequency and efficiency of inland navigation, as well as raising of this transport mode to a higher level of ecological awareness.

The border crossing procedures (customs, migration, and technical control) need to be carried out at border crossings, i. e. when crossing the borders of countries that are not included in the Schengen region within the European Union. Current experiences show that the time necessary to cross these borders, i. e. waiting time for the border procedures greatly affects the increase in the transport time, which results also in an increase in the transport costs. For the development of applications that may accelerate these procedures, it is necessary to analyze the current border procedures that exist and that are used on the Danube border. The introduction of automated processes using the information technology will contribute to the saving, i. e. reduction in the duration of border controls. In this way the authorities will be informed in advance about the approaching of a vessel to the territory that is under their authority. This will

contribute to a more adaptable and more efficient flow of people, transport means and goods across the international borders with the aim of satisfying the requirements of the authorities and security, i. e. safety of commercial interests.

The paper will be used as a basis to define new electronic services that may serve as addition to the development and usage of new border-crossing procedures. The border crossing procedures on the Danube border have to be harmonized as soon as possible with the legislation and recommendations of the EU countries. This will enable at the same time an overview of advanced cross-border procedures in inland waterway traffic during the crossing of state borders on the Danube river, and describe and present the border information exchange model between the respective authorities in order to facilitate border crossing. The collected and analyzed requirements, as well as the covered border-crossing procedure, will allow a wider implementation of itself. In principle it represents what the service "Border Management" should provide, rather than how to implement it.

There is a long way for the change in administrative procedures, but it is imperative to make the first step, with the aim of competitiveness and integration of the Republic of Croatia into the European Union.

## 2. PURPOSE AND CHARACTERISTICS OF INTRODUCING INTERNATIONAL STANDARD FOR ELECTRONIC REPORTING

The purpose of introducing the standard, i. e. standardization for electronic reporting in inland navigation is:

- to enable Electronic Data Interchange (EDI) between partners in inland navigation, as well as among partners in multimodal transport chain who participate in inland navigation,
- to avoid, i. e. prevent multiple reporting of the same information, related to the transport, to different authorities and/or commercial participants,
- to insure rules and standards for exchange of electronic messages between partners in the field of inland navigation. Port authorities and other participants including the ship owners, skippers, forwarding agents, ports, will also exchange data in accordance with these standards and rules.

The electronic reporting standards in inland navigation are based on the internationally accepted commercial and transportation standards and recommendations. The standards reflect the experiences obtained and collected in the European research projects and by implementing of reporting systems in different European countries. New developments, i. e.

discoveries taken over from the ERI group are also contained in these standards.

The legal basis for the introduction of international standards consists of:

- Resolution by the Central Commission for the Navigation on the Rhine (CCNR) of 28 May 2003: "Standards for electronic reporting in inland navigation" (Resolution 2003-I-23), as well as
- Recommendations of the United Nations Recommendations regarding the interchange of trade data (UN/CEFACT), Recommendations 25, 31 and 32 EDI and E-commerce contracts.

In order to reach the compatibility, i. e. harmonization with maritime navigation, two documents of the European Commission have been taken into considerations:

- Guideline 2002/6/EC of the European Parliament and of the Council of 18 February 2002, based on the reporting formalities for ships arriving in and/or departing from ports of the Member States of the Community,
- Guideline 2002/59/EC of the European Parliament and of the Council of 27 June 2002, establishing a Community vessel traffic monitoring, and information system and repealing Council Directive 93/75/EEC.

Electronic reporting in inland navigation is necessary for the development of the strategy of traffic information services, traffic management and support to reduction of accidents. The existing alternative of data reporting through documents or voice reporting is facilitated by the use of electronic reporting by data interchange between the vessels and traffic centres. Apart from this, the provisions of electronic reporting allow the traffic centres of various authorities the electronic data interchange. In electronic ship reporting, the data will be exchanged by using notification messages.

## 3. TYPES AND IMPLEMENTATION OF INTERNATIONAL NOTIFICATION MESSAGES

International electronic reporting is based on the usage of international notification messages that serve for the exchange of adequate traffic data between the authorities, vessels, and other participants in inland navigation. The types of international notification messages include:

- ERINOT (IFTDGN),
- APERAK (ERIRSP),
- CUSCAR,
- CUSRES,
- PAXLST,
- BERMAN.

### 3.1 ERINOT (IFTDGN)

ERI notification message ERINOT represents specific usage of UN/EDIFACT (Directories for Electronic Data Interchange for Administration, Commerce and Transport) messages, i. e. message of "International forwarding and dangerous goods notification message – IFTDGN". This message has been accepted worldwide as the standard notification message on the transport of dangerous materials. The message is part of UN/EDIFACT manual, annually published through UN/CEFACT (United Nations Centre for Administration, Commerce and Transport).

ERINOT (IFTDGN) message is sent by a party (transport agent, carrier) responsible for the declaration to the party that on behalf of the local authorities checks on conformance with the legal requirements on the control of dangerous goods, usually, the Port authority of inland waterways, information transfer by reporting on the transport of the transport means such as a vessel or barge, and whether the dangerous goods have been loaded, unloaded and/or are in transit.

The notification message on the dangerous goods can be used for national and international application. These messages have been developed as part of the protection group, later to be adopted by IMO FAL Committee as recommended practice in case when the authorities have to be informed electronically on the transport of dangerous goods by vessels.

The application of ERINOT message was based on the UN/EDIFACT Directories, i. e. instructions 98. B and the protective version 1.0., which is in compliance with the recommendations of the International Maritime Organization (IMO) the IMO FAL form 7.

For each shipment, ERI notification message should be composed and sent to the competent authorities containing the following information:

- transport notification from vessel to authority (identifier "VES"), from ship to shore,
- transport notification from carrier to authority ("CAR"), from shore to shore,
- passage information ("PAS"), from authority to authority.
- These messages also offer the possibility to report a voyage to RIS. The reporting includes the following data:
  - the origin and destination of transport,
  - dangerous cargo on board,
  - non-dangerous cargo on board,
  - quantity of containers and their location on board.

### 3.2 APERAK (ERIRSP)

The specification provides the definition of the application error and acknowledgement message

(APERAK) to be used in Electronic Data Interchange between trading partners involved in administration, commerce and transport.

The basic function of this message is:

- to inform the 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,
- to acknowledge to a message issuer the receipt of his message.

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.

The procedure of sending the message:

- if the error has been identified while it was being applied, which prevents its forwarding, then the APERAK message is sent to the original message issuer, providing details on the identified errors;
- if the error remains unidentified, and when the acknowledgement is necessary (when there are no answers according to the original message), then APERAK message is sent notifying about the reasons of acknowledgement,
- in case of application error, APERAK message will need to be delivered manually, e. g. is the application error is of programme type,
- in case of acknowledgment the APERAK message can be forwarded automatically or manually, at the receiver's discretion.

### 3.3 CUSCAR

The CUSCAR message is based on the UN/EDIFACT Directory.

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

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

It is envisaged that the reporting message CUSCAR is sent by the carrier of cargo to report a single or multiple consignments to a Customs administration. The message is sent upon the arrival of the vessel or where national legislation permits, prior to the arrival of the vessel. The transmitted data provide the Customs with a means of "writing off" or acquitting the cargo report against Goods declarations. It also allows Customs to undertake selectively the processing in order to select high risk shipments requiring examination.

The message may be used for reporting:

- onward transit / transhipment,
- small and partly shipped goods,
- empty containers,
- import/export of cargo.

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

### 3.4 CUSRES

The CUSRES, Customs Response message is based on the UN/EDIFACT Directories.

The specification provides the definition of the Customs response message to be used in Electronic Data Interchange between trading partners involved in administration, commerce and transport.

This customs message permits the transfer of data from a customs administration to:

- acknowledge the receipt of the message,
- indicate whether the information received is correct or if there are errors (e. g. accepted without errors, accepted with errors, rejected, etc.),
- inform the sender of the status of the customs declaration (i. e. goods released, goods for examination, documents required, etc.),
- transmit additional information as agreed between the involved parties (e. g. tax information – customs and tax, quantity information, etc.),
- respond to batched messages (e. g. CUSDEC, CUSCAR, CUSREP, CUSEXP).

The message implementation guide of the CUSRES is based on the recommended users' guidelines for this type of message by the WCO.

### 3.5 PAXLST

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

PAXLST message 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 legislation permits and with agreement of all the parties involved. This message may also be exchanged between carriers and Customs, Immigration, Police or any designated authorities. The transfer of data may occur upon departure from the sending agency, as well as prior to the ar-

rival of the vessel to the receiving agency. This is performed to permit the designated authority at place of destination to screen the data and undertake timely decisions related to the clearance of passengers and crews. The transfer of data may also occur prior to departure, so that carriers transmit passenger listings to customs, police and immigration for pre-arrival clearance.

Reporting on quantities, i. e. number of persons and other personal passenger data on inland waterway vessels may be done by using PAXLST message. Sending of data to authorities by means of this message should be done with great care in order to insure the confidentiality of data.

The application of PAXLST message guide is based on the recommended user guidelines by the WCO. The message guidelines have been adopted by the IMO FAL Committee as recommended practice where the authorities are electronically notified about the crew and passengers on board vessels. (IMO FAL Forms 5 and 6).

### 3.6 BERMAN

The BERMAN message is based on the UN/EDIFACT Directories.

The Berth management message is a message sent by the carrier, its agent or means of transport to the authority responsible for port and waterway management, requesting a berth, giving details of the call, vessels, berth requirements and expected operations.

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 does not depend on the type of business.

This message is intended to comply with the requirements of authorities, including the request for berthing services. The following guidelines and regulations have been applied to Berth management message, defining that:

- the message has to contain information on a single transport means only. The only exception will be in case of pre-announcement function,
- the vessel call may request several berths,
- at a berth there may be scenario for several operations,
- the message must ensure sending of updated postponements (cancellation, replacement, provisional, definitive) or new services requests such as shifts and requests for second berth. This message will cover the pre-announcement of vessels.

#### 4. INTERNATIONAL ELECTRONIC REPORTING PROCEDURES

The application of electronic reporting in inland navigation will enable support to the following RIS services:

- transport management (strategic traffic information, lock and bridge management),
- reduction in the number of accidents,
- transport management (management of ports and terminals, fleet and cargo),
- statistics,
- waterway infrastructure taxes,
- border control,
- customs services.

The procedures for international information interchange are important in order to ensure smooth cargo flows. Prior to transport, the responsible person (skipper, fleet operator/manager) has to inform, i. e. declare all the relevant data (data related to transport, data related to cargo, data related to personnel and data related to vessel, e. g. such as the purpose of stay) to the competent authorities of the country which is the origin of transport. At crossing the border of the neighbouring country the same data have to be sent to the competent authorities of the respective country.

With the possibility of electronic reporting, the information will be sent to the competent authorities of the country, which will eliminate or at least substan-

tially reduce the need for skippers/fleet operations regarding delivery, i. e. submitting of the same information several times.

Figure 1 shows the scheme of the model of the processes of information flows by using international electronic reporting.

- ① Since every transport has to be announced prior to the departure of the vessel, the fleet operator of the relevant vessel or the skipper personally will send the necessary reports (standardized messages included in the software) to ERI mailbox. In this way the relevant data will be automatically sent to the competent authorities;
- ② RIS centres, at the same time also the individually connected users may request specific data (standardized messages stored in ERI mailbox);
- ③ The requested information (standardized messages) will be sent, at the request of RIS centres or users in cases when the participant, i. e. the involved party requesting the data is authorized to receive the required data.

The procedure of electronic reporting does not differ much, regarding contents from the "paper" reporting procedure. All the necessary data reported during "paper" procedure are in principle also reported in the procedure of electronic reporting. The differences can only be found in the direction of distribution of the included data. The delivery of electronic data makes the distribution of data much more efficient, since the

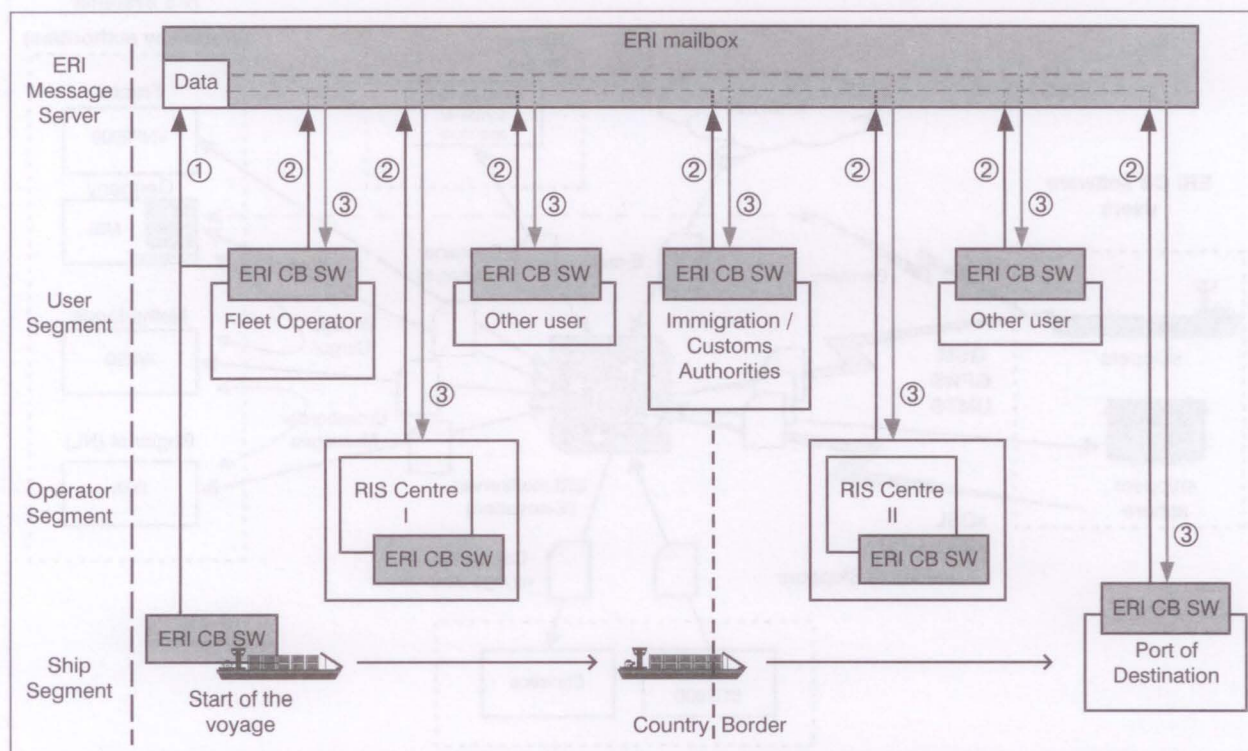


Figure 1 - Model of information exchange by means of international electronic reporting

Source: Inland navigation development centre (Centar za razvoj unutarnje plovidbe - CRUP)

data arrive to one or several addresses much faster, are clearer, more standardized, and immediately ready to be forwarded.

The basic component of electronic reporting in inland navigation is the so-called **ERI CB software "cross-border software of international electronic reporting"**. It is used on vessels (e.g. by skippers), as well as on shore (e.g. by carriers).

By using, i.e. combination of personal computer and ERI CB software, the system is provided which serves to send permanent and variable data about the vessel and transport by the ship/coastal service to the central information forwarding unit, using EDI messages, which means internationally accepted UN/EDIFACT standards. The data are sent electronically by mobile phone, Internet technology, or PSTN/ISDN connection.

With ERI CB software, the start<sup>1</sup>, or changes in transport are sent to the information forwarding system. During transport notification to the RIS system or to some other traffic management system, the transport begins, the transport starts so that RIS centre can immediately control and/or monitor the ship.

This means that the ship captain or the carrier should send a message to the RIS system prior to the arrival of the vessel. ERI CB software has been set in such a way that the entry of data is independent from the moment of sending the message, which means that

the data can be entered relatively long before the planned arrival of the vessel.

Figure 2 shows the scheme of the model of connecting and the information exchanged at the international level among the mentioned systems.

#### 4.1 Ship-to-authority messaging

- Ship-to-authority messaging consists mainly of:
  - *transport notification messages* of loaded, i. e. full or empty ships within the jurisdictional area of the authority where such is applicable, and
  - *arrival notification and position reports* at locks, bridges, reporting points, i. e. points of traffic centres.
- Ship-to-authority messaging is not confined to messages sent directly from a ship to the authority. All messages sent by or on behalf of the ship are considered as ship-to-authority messages even if the message is sent by shippers ashore.
- If permit for entering a jurisdictional area is needed, the transport notification will always be sent at the start of the voyage to the authority and then, the next time, when entering the area.

#### Transport notification

- The transport notification messages are used to inform the authorities of the intention to make a

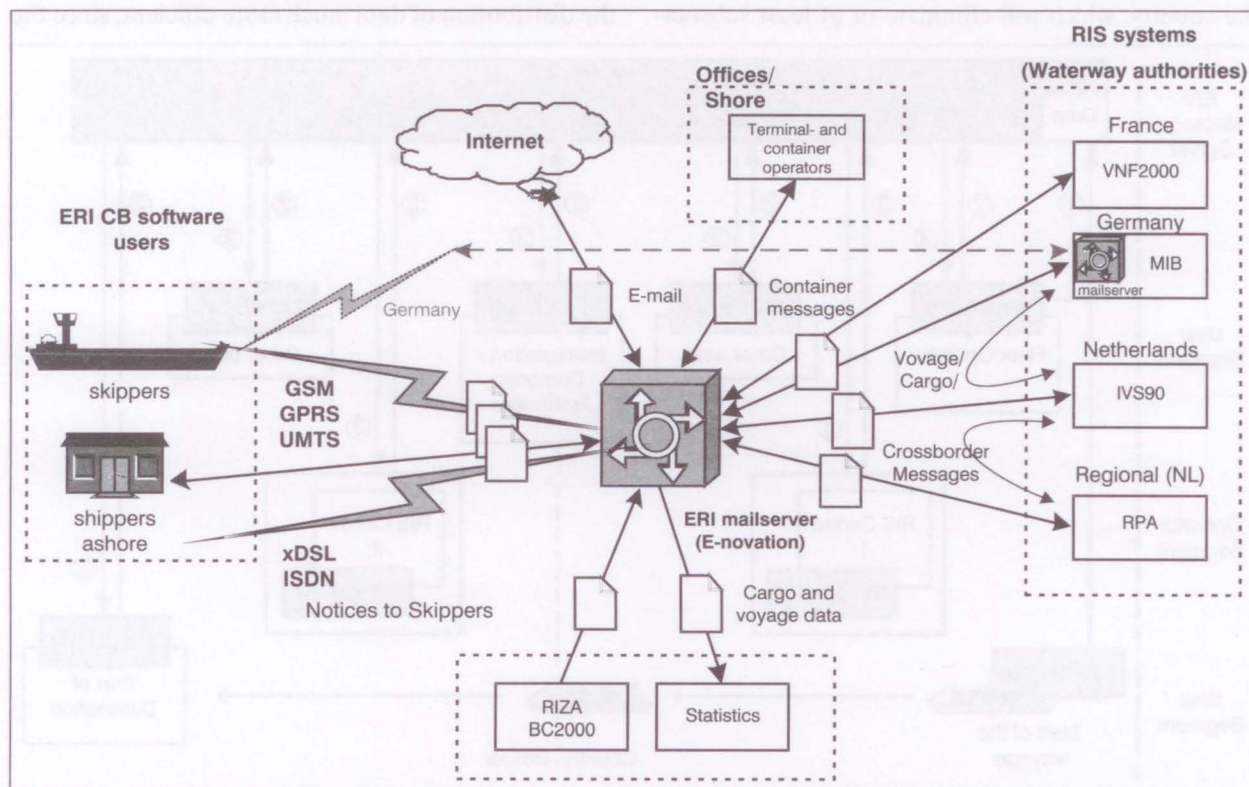


Figure 2 - Model of electronic reporting of participants, i. e. parties, links and connections

Source: Inland navigation development centre (Centar za razvoj unutarnje plovidbe - CRUP)

- specified voyage, regardless of whether the ship is full or empty;
- the transport notification may be sent either from the skipper of the ship or from the carrier on behalf of the skipper;
- the transport notification message will always be sent prior to the start of a voyage, then before entering the jurisdictional area of an authority and then after every significant change of the voyage data, such as e.g. number of crew on board or number of barges in the convoy. If a ship requires a permit for transport, the competent waterway authority shall return an acknowledgement after processing the notification and after satisfactory contents of the notification. The acknowledgement can include permission together with recommendations or refusal together with recommendations on what needs to be undertaken;
- transport notification message exchanges shall be sent asynchronous but within short time;
- every authority shall accept the delivered messages as E-mail, electronic mail, in accordance with the message specification, preferably as attachment to the E-mail, but the requested structured message may also be directly sent in the text. The mailbox will be directly available by public telephone (PSTN) and indirectly through the Internet;
- any authority can decide to accept or not additional other means of delivery. In case where notifications, i. e. means of delivery are given in the traditional way (e. g. on paper, by fax, by VHF), and further processed in an electronic way, the information has to be given in a way that it can be entered into an electronic system easily.

#### **Arrival notification and position report**

- The arrival notifications are used to inform the local waterway operators, such as lock masters, bridge operators, traffic centre operators, ports and docking crews of the impending arrival of a ship. The arrival notifications shall be sent at least two hours before the arrival of the ship at a lock, bridge or port;
- position reports shall be sent at certain reporting points at the waterway;
- the arrival notifications and position reports can be sent in several ways, either active or passive:
  1. Visual/manual  
The traditional way of notifying the arrival of a ship is visual. The exact time of arrival at a specific point is noted and in some cases manually entered into the computer system.
  2. By VHF radio  
The ship may inform the lock or bridge about its presence by VHF (very high frequency) radio. In this case ATIS (Automatic Transmitter Identifica-

tion System) code can be used to identify the calling ship and to insert the passage of the ship into the waiting queue of the lock's computer system. In this case, visual or radar control by the lock master is still necessary in order to avoid vessels entering into the waiting queue prematurely.

#### **3. By transponders (AIS, Automatic Identification System)**

As transponders have become more frequently used, they will probably be the ideal way of announcing the arrival of a ship. In addition they can send extra information such as the presence of hazardous cargo on board.

### **4.2 Authority-to-authority messaging**

- Authority-to-authority messaging consists mainly of transport notifications for ships either carrying cargo or being empty, and when travelling from one jurisdictional area to another;
- the messages are sent to the neighbouring authority if the ship passes a mutually agreed section of the waterway;
- all messages shall be sent asynchronous but within a short time. The sending authority is allowed to ask for acknowledgement from the receiving authority;
- every authority shall accept messages delivered as E-mail, that is, electronic mail in accordance to the message specification, directly in the text or preferably as attachment to the E-mail. The mailbox shall be reachable by public telephone (PSTN) and/or indirectly through the Internet. The authorities may decide to accept additional other means of delivery, such as e. g. by direct connection between the systems. These requirements are applicable also for the port authorities that can take part in such services;
- requests to send information contained in the messages from ship to authority to any other party, will not be sent unless the owner providing the information, either the skipper or cargo carrier, give their consent. This consent can be carried out by being included in the original transport notification message.

### **4.3 Authority-to-ship messaging**

- Authority-to-ship messaging consists mainly of acknowledgements and responses to previously submitted notification messages on travelling within the jurisdictional area of the authority;
- authority-to-ship messaging could also encompass the sending of fairway information, such as notices-to-skippers and hydro-meteo information.

This type of information is not dealt with in this standard;

- all messages shall be sent asynchronous but within short time;
- every sender of a notification message (skipper or shipper) participating in electronic reporting shall have access to a personalised mailbox to allow the reception of messages sent by an authority as electronic mail in accordance with the message specification, either as plain text or preferably as attachment to the electronic mail. To ensure the ease of use, such a mailbox shall be accessible by all parties in a permanent and consistent fashion taking into account costs, justification and convenience;
- authorities shall not send messages which do not comply with published standards. Authorities may only implement and send non-standard messages for specific purposes unique to the particular combinations of applications

### 5. EXAMPLE OF IMPLEMENTING ERI BETWEEN THE NETHERLANDS AND GERMANY

This chapter will describe the electronic information interchange between the Netherlands and Germany, in order to emphasize the importance of international electronic reporting.

ERI CB software sends automatically notifications on voyages to the Netherlands by "Rijkswaterstaat

Netherlands" mailbox system, to traffic management system (IVS90) or "Port information system" of the port of departure (e. g. Port of Rotterdam).

The ship notification copies, only for the Dutch ships in addition are sent automatically, through the same mailbox system to the statistic office, i. e. service (CBS) in the Netherlands.

For notification on the start of voyage in Germany, ERI CB software sends automatically information by the German mailbox system, to the German traffic management system (MIB).

As presented in Figure 3, the copies of the notifications are automatically sent by means of the Dutch mailbox system to CBS for statistical reasons, for the Dutch ships only. The software that receives, i. e. updates the notifications to skipper (RIZA) vessels, is also started by means of the Dutch mailbox system.

When crossing the border between Germany and the Netherlands, the traffic management system in Germany (MIB), passes based on the transport data notification to the system of the other country (the Netherlands IVS90) by means of the existing link, i. e. relation between the systems of the two countries. The link between MIB and IVS90 is based on SMTP (Simple Mail Transfer Protocol) - a protocol for sending e-mail messages between servers.

Information interchange between these two systems is based on the passage of specified so-called travel-points (last passage along points prior to ship leaving the region). When the ship travels to a certain destination, the so-called travel-point informs the RIS

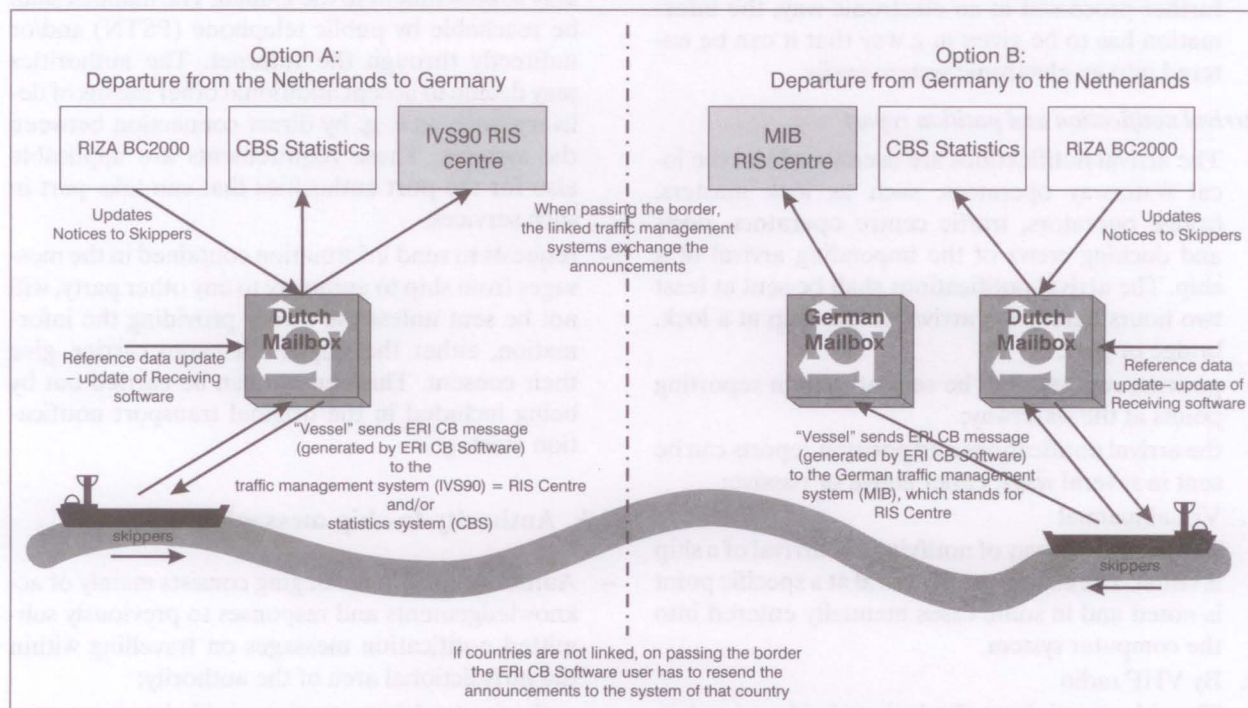


Figure 3 - Electronic information interchange procedure between the two countries (the Netherlands - Germany)

Source: Inland navigation development centre (Centar za razvoj unutarnje plovidbe - CRUP)



system by sending the information that the ship is planning to leave its administrative region and RIS is obliged to send the message to the system of the country entered by the ship.

When a ship leaves the Netherlands with the destination in Germany or beyond, IVS90 generates a passage notification and sends it to MIB mailbox (to "Rijkswaterstaat Netherlands" mailbox system). MIB system in Germany checks the MIB mailbox every 12 minutes. The message is stored by the MIB system in Germany, where the data are forwarded.

When the ship or convoy with destination in the Netherlands leaves Germany, MIB generates the passage notification and sends the information<sup>2</sup> on hazardous goods to mailbox IVS90 at "Rijkswaterstaat Netherlands" mailbox system, and sends them directly to IVS90. The message is stored by the IVS90 system in the Netherlands where the information will be forwarded.

## 6. CONCLUSION

By the European Union enlargement to the Republic of Croatia a significant increase in the traffic volume is expected which will result in overload of road and rail traffic. Consequently, it is necessary to prepare on time the most cost-efficient and most acceptable transport mode, i. e. inland waterways navigation.

In the recent decades, there has been strong development of inland waterway traffic in Europe, with inland navigation reaching an enviable level. Related to the accession of the Republic of Croatia into the European Union, this transport mode needs to be harmonized with the European standards.

One of the essential factors of harmonizing traffic on inland waterways of the Republic of Croatia with the European standards is the harmonization of the cross-border mobility as well as accessibility of border regions of the Danube and the Drava waterways, that is, harmonization of the border control procedures with the European standards, which have to be performed when crossing the international borders. In order to facilitate the crossing of international borders, thus shortening the waiting times, the introduction of information technology will be necessary, which means application of ERI in inland navigation. This will allow exchange of relevant traffic information between the authorities, vessels and other participants in inland navigation by using the notification messages.

Apart from facilitating the crossing of international borders, the application of ERI will achieve improvement regarding the traffic management, reduction in the number of accidents, transport management, border controls, customs services. This will con-

tribute to increase in safety and efficiency of the traffic process, and its full use.

All this leads to the conclusion that the introduction of information technologies, such as ERI, with the basic objective of supporting the traffic and transport organization in inland navigation including the connection with other transport modes, will achieve a developed and more modernized inland navigation that will be much safer, economically more cost-efficient, and environmentally friendlier than any other transport mode.

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## SAŽETAK

### MODEL MEĐUNARODNOG ELEKTRONSKOG IZVJEŠTAVANJA U UNUTARNJOJ PLOVIDBI REPUBLIKE HRVATSKE

*Razvoj prometa na unutarnjim plovnim putovima Republike Hrvatske u posljednjih nekoliko godina privlači veliku pozornost stručnjaka čije su tendencije usmjerene na razvoj strategije i prometne politike u okviru zemalja Europske unije. Povećanje prometa na unutarnjim plovnim putovima Europe, reflektirat će se i na povećanje prometa na unutarnjim plovnim putovima Republike Hrvatske, pa se iz tih razloga posljednjih nekoliko godina javlja potreba za poboljšanjem prekogranične mobilnosti, kao i za poboljšanjem pristupačnosti graničnim područjima na unutarnjim plovnim putovima Republike Hrvatske. Ovim radom pokušat ćemo ukratko predstaviti model ERI-a (Međunarodno Elektronsko Izvještavanje) u unutarnjoj plovidbi, čijom će se primjenom omogućiti razmjena prekograničnih informacija između vlasti, plovila, te ostalih sudionika uključenih u unutarnju plovidbu, i to primjenom elektronskih obavještajnih poruka u cilju olakšanog prelaska međunarodnih granica i upravljanja prometom.*

## KLJUČNE RIJEČI

*ERI, obavještajne poruke, razmjena informacija, granična kontrola, prometno upravljanje*

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1. Transport starts with the loading of the first item (quantity) of cargo and ends with unloading of the last item (quantity) of cargo.

2. Current German MIB system stores only information on hazardous goods in accordance with the regulations of Rhine police

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