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## Economic Commission for Europe

### Inland Transport Committee

#### Working Party on Inland Water Transport

##### Working Party on the Standardization of Technical and Safety Requirements in Inland Navigation

##### Fifty-ninth session

Geneva, 23–25 June 2021

Item 5 (b) of the provisional agenda

##### Promotion of River Information Services and other Information and Communication Technologies in inland navigation:

##### Booklet “River Information Services in the region of the United Nations Economic Commission for Europe”

## River Information Services in the region of the United Nations Economic Commission for Europe

### Note by the secretariat

### Mandate

1. This document is submitted in line with the Proposed Programme Budget for 2021, part V, Regional cooperation for development, section 20, Economic Development in Europe. Programme 17, Economic Development in Europe (A/75/6 (Sect.20), para. 20.51).
2. At its fifty-eighth session, the Working Party on the Standardization of Technical and Safety Requirements in Inland Navigation decided to prepare a booklet of general information on the River Information Services (RIS) concept, its objectives, recent developments and include an overview of the resolutions adopted by the Working Party on Inland Water Transport in order to promote the development of RIS in the pan-European region.
3. The draft as prepared by the secretariat is in the annex to this document. The Working Party may wish to discuss the draft and provide further guidance to the secretariat.





## Annex

### Draft booklet “River Information Services in the UNECE region”

#### Introduction

The European inland waterway network of international importance spans over 29,200 km with over 400 major ports and terminals. Inland water transport is still a safe, multifunctional, reliable, economical and environmentally friendly mode of transport with untapped capacities that can be harnessed.

In the United Nations Economic Commission for Europe (ECE), the activities of Working Party on Inland Water Transport (SC.3) focus on developing inland water transport as a sustainable, resilient, intelligent, safe and efficient mode of transport, which is an integral part of inland transport networks. Increasing navigation safety is an element of high focus in the development of advanced information and communication technologies which include River Information Services (RIS).

Since 2001, SC.3 has developed and maintained a set of resolutions on RIS that is harmonized with the various resolutions, regulations and guidelines of the European Union, Central Commission for the Navigation of the Rhine (CCNR), the World Association for Waterborne Transport Infrastructure (PIANC), the International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA) and other international organizations. As of January 2021, SC.3 has adopted:

- Resolution No. 48 “Recommendation on electronic chart display and information system for inland navigation”
- Resolution No. 57 “Guidelines and Recommendations for River Information Services”
- Resolution No. 58 “Guidelines and Criteria for Vessel Traffic Services on Inland Waterways”
- Resolution No. 63 “International Standard for Tracking and Tracing on Inland Waterways”
- Resolution No. 79 “International Standard for Electronic Ship Reporting in Inland Navigation”
- Resolution No. 80 “International Standard for Notices to Skippers”.

SC.3 encourages governments to apply the resolutions on national inland waterways to ensure a harmonized approach at the pan-European level. The resolutions are available on the SC.3 web page at <https://unece.org/resolutions-1>.

## 1. RIS objectives, services and stakeholders

### 1.1 Concept and Objectives <sup>1</sup>

RIS is formally defined as a concept of information services in inland navigation that supports traffic and transport management, including the interfaces with other transport modes. RIS is intended to improve the safety, efficiency and environmental performance of inland navigation towards a sustainable transport mode.

Specific objectives of RIS also:

- Ensure that inland navigation a reliable, plannable and transparent transport mode in the multimodal transport chain

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<sup>1</sup> According to the PIANC Guidelines and Recommendations for River Information Services, Edition 4 (2019).



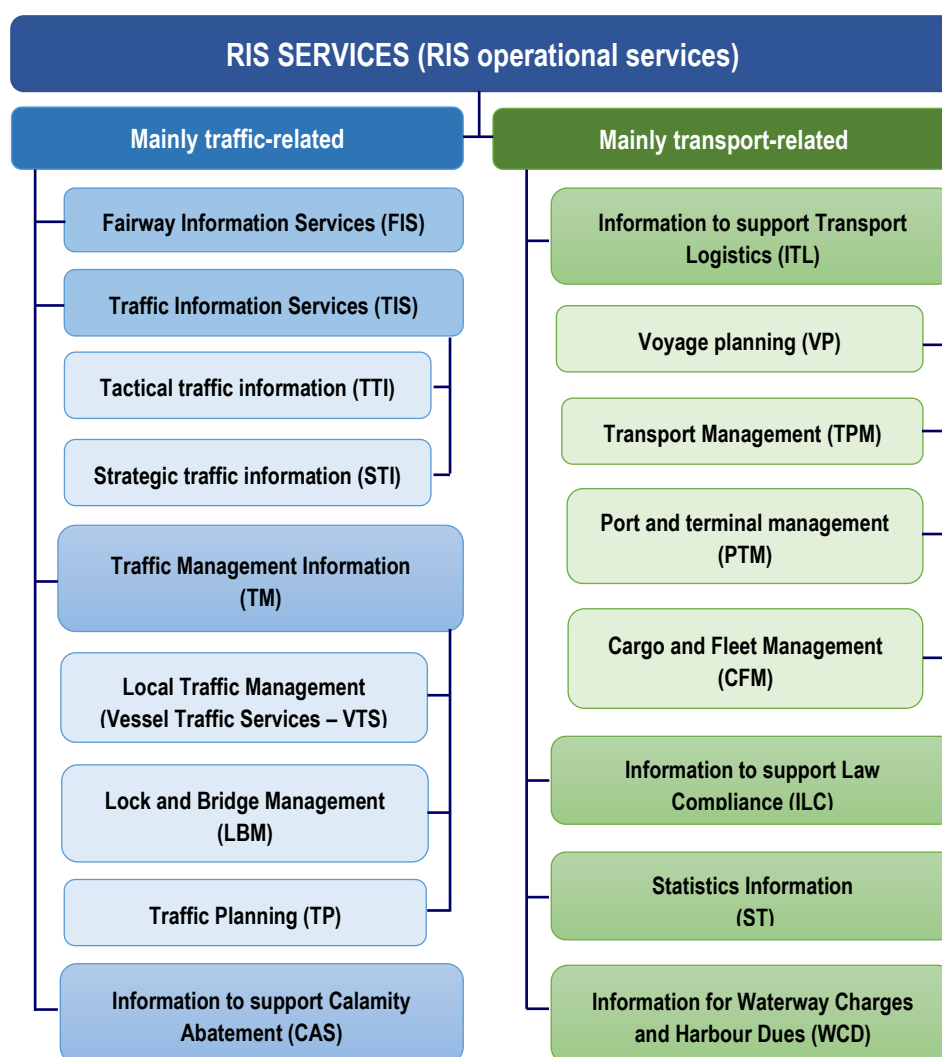
- Enhance navigation safety by reducing traffic, transport incidents and accidents, injuries and fatalities and by providing information for law compliance and statistics
- Enhance the efficiency of traffic and transport by optimizing the use of the capacity of waterways and vessels, the efficiency of ports and terminals, the resource management of the waterborne transport chain by enabling information exchange between vessels, locks, bridges, terminals and ports, by reducing transport costs, fuel consumption and increasing situational awareness of RIS users
- Contribute to environmentally friendly transport by reducing environmental hazards, including polluting emissions and spills, and by facilitating a smooth flow of traffic.

RIS are information from a fairway authority to other fairway authorities, waterway users and related logistic partners.

## 1.2 RIS services (RIS operational services)

According to the PIANC RIS Guidelines 2019, RIS operational services (formerly RIS services) include (a) mainly traffic related services and (b) mainly transport related services as shown on figure I.

**Figure I. RIS Services<sup>2</sup>**



**Fairway Information Services (FIS)** contains the geographical, hydrological and administrative information related to the waterway infrastructure and fairways in the RIS

<sup>2</sup> PIANC Guidelines and Recommendations for River Information Services, Edition 4 (2019).



area that is required by the RIS users to plan, execute and monitor a voyage. Fairway information is one-way information: shore to ship or shore to stakeholder's office.

**Traffic Information Services (TIS)** provides information that supports the safety and efficiency of traffic and navigation on inland waterways.

**Traffic Management Information (TM)** is the operational service that supports traffic management processes in inland navigation.

**Information to support Calamity Abatement (CAS)** is the operational service that facilitates the actions necessary to limit the consequences of a calamity (or accidents and incidents).

**Information to support Transport Logistics (ITL)** is the operational service that supports transport logistic processes in inland navigation:

**Information to support Law Compliance (ILC)** is the information that facilitates legal compliance for the waterway users and supports relevant agencies responsible for inland navigation law enforcement.

**Statistics Information (ST)** is the information on traffic and transport in inland navigation that is required to support statistical processes.

**Information for Waterway Charges and Harbour Dues (WCD)** is the information needed to facilitate the calculation and collection of waterway charges and harbour dues.<sup>3</sup>

### 1.3 RIS key technologies (RIS operational services)

The key technologies, or RIS technical services according to the PIANC RIS Guidelines 2019, are:

- Inland Electronic Chart Display and Information System (Inland ECDIS), based on the maritime ECDIS standards by IMO and the Electronic Nautical Charts (ENC) standardized by the International Hydrographic Organization (IHO), adapted to specific needs of inland navigation
- Notices to Skippers, based on the IMO/IHO World-Wide Navigational Warning Service (WWNWS), adapted to specific requirements of inland navigation
- Automatic Identification System (AIS) as standardized by the International Telecommunication Union (ITU) and the International Electrotechnical Commission (IEC). The performance standard for AIS was defined by IMO and developed by IALA. Inland AIS in Europe applies the same parameters and message structure as AIS Class A mobile stations according to IMO requirements, however, it extends the information content according to the inland navigation requirements. In view of their shared information content, Inland AIS and maritime AIS are compatible.
- Electronic Reporting International, mainly based on UN/CEFACT standards.

RIS technical services are based on technical and operational standards, which were initially defined and continuously updated by the International RIS Expert Groups. To ensure interoperability throughout the entire transport and logistics chain, the components of RIS technical services are aligned with applicable international standards and recommendations such as those issued by CCNR, IEC, IHO, IMO, IALA, International Organization for Standardization (ISO), ITU, PIANC, ECE and other relevant bodies.

### 1.4 User groups and services (RIS stakeholders)

Based on the information needs, RIS users can be divided in a number of different groups: skippers, RIS operators, lock and bridge operators, waterway authorities, terminal operators, operators in calamity centres, fleet managers, cargo shippers, consignors, consignees, freight brokers and supply forwarders.

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<sup>3</sup> PIANC Guidelines and Recommendations for River Information Services, Edition 4 (2019).



The following categories of RIS stakeholders can be differentiated:

- Service consumers: RIS users in inland navigation operations: skippers, shipowners, lock operators, Vessel Traffic Services (VTS) operators, terminal operators and port operators, etc.;
- Governmental, regulatory and standardization bodies;
- Managers in inland navigation: fleet managers, waterway managers and water managers;
- Information providers: waterway authorities, fairway authorities (fairway surveillance, VTS operators, lock operators, etc.);
- Service providers.

### 1.5 RIS enabled Corridor Management<sup>4</sup>

To ensure that RIS is harmonized and standardized throughout the inland waterway network, the PIANC RIS Guidelines in 2019 introduced the concept of RIS Enabled Corridor Management, aimed at linking operational services together on a route or a corridor in order to provide a harmonized set of services to support skippers on their voyage on the network. Corridor Management is defined as mutual operation services between fairway authorities, waterway users and related logistic partners in order to optimize the use of inland navigation corridors within a network of waterways.

The concept of Corridor Management can be recognized as the next step in the deployment of RIS that supports inland navigation as a transport mode in the international multimodal logistic chain.

## 2. Evolution of RIS

### 2.1 RIS origins

National stand-alone telematic services for inland waterways in Europe have been developed since the late 1980s, however, the project that paved the way for the development of the RIS concept is “Inland Navigation Demonstrator for River Information Services” (INDRIS)<sup>5</sup> of the European Union (1998–2000); it provided a set of open standards for information exchange among public authorities and inland shipping parties. The concept for RIS architecture was developed by the Thematic Network “Waterborne Traffic and Transport Management” (WATERMAN) (2000–2003). The technical, organizational and functional architecture of RIS was further developed in the project “Consortium Operational Management Platform River Information Services” (COMPRIS) of the European Union (2002–2005) and in other projects.

The role of RIS in strengthening the position of inland navigation within the transport chain has been recognized by international organizations (PIANC, ECE) and river commissions – CCNR, the Danube Commission and the International Sava River Basin Commission. In 2002, Permanent Working Group 24 of the PIANC Inland Navigation Commission (InCom) developed the first Guidelines and Recommendations for River Information Services. The PIANC Guidelines were the basis for the relevant documents by CCNR and ECE:

- Guidelines and Recommendations for River Information Services, adopted by CCNR in 2002 (RIS Guidelines 2002) (followed by Edition 2.0 in 2004 and Edition 3.0 in 2012);
- Resolution No. 57 “Guidelines and Recommendations for River Information Services”, adopted by SC.3 in 2004 (revised in 2011).

<sup>4</sup> PIANC Guidelines and Recommendations for River Information Services, Edition 4 (2019).

<sup>5</sup> <https://trimis.ec.europa.eu/sites/default/files/project/documents/Indris.pdf>.



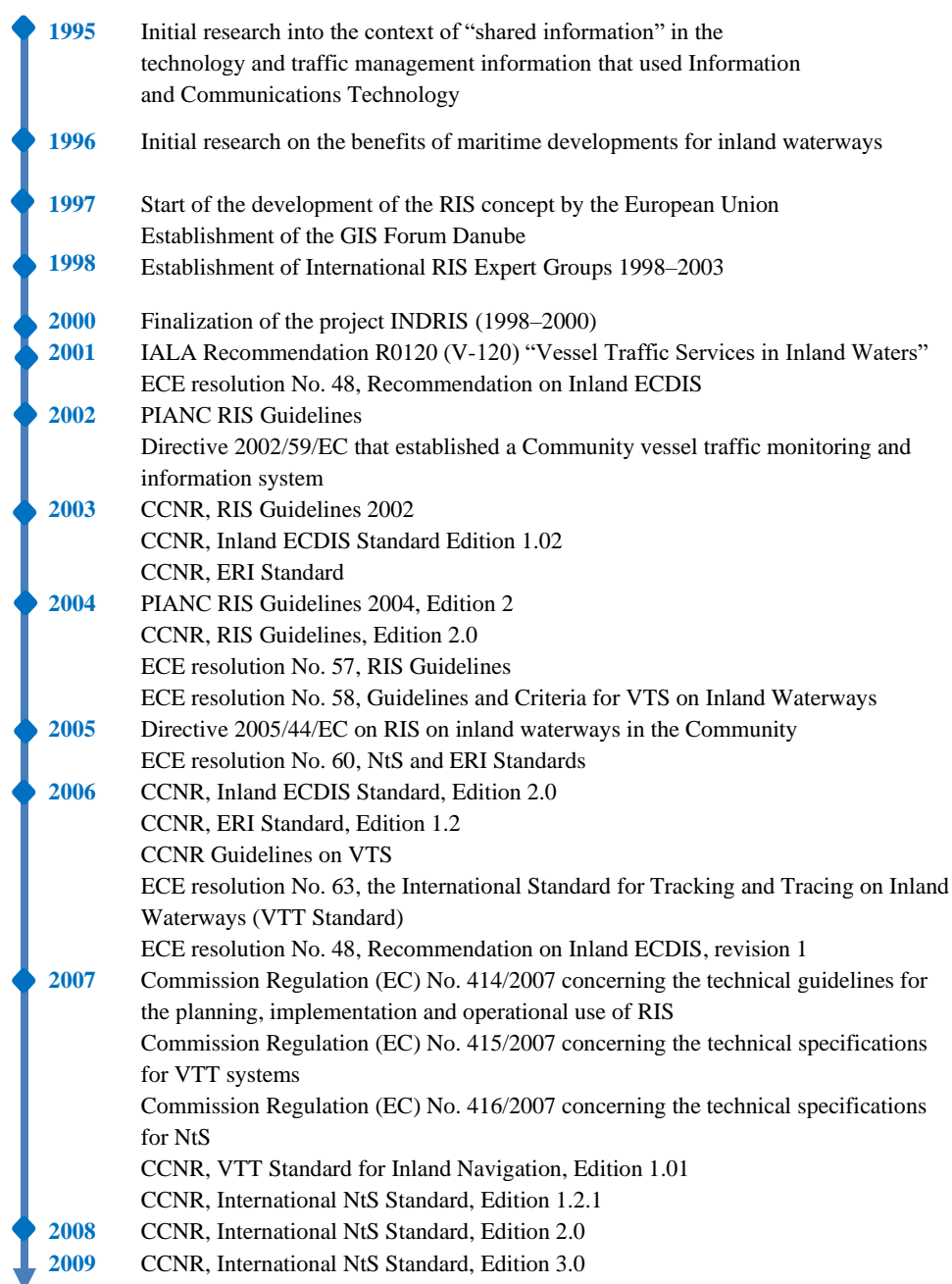
In 2005, the European Union adopted Directive 2005/44/EC on harmonized RIS on inland waterways in the Community. In the overall European context, the development and formalisation of RIS were seen as the model for other transport modes to advance towards a successful implementation of traffic and transport information services. In the domain of inland navigation, it was recognized for its importance in cross border information exchange.<sup>6</sup>

The added value of RIS has received worldwide recognition. Technical standards such as Inland ECDIS, Inland AIS, Electronic Ship Reporting in Inland Navigation (ERI) and Notices to Skippers (NtS) have matured and were formally adopted in Europe..

## 2.2 RIS development

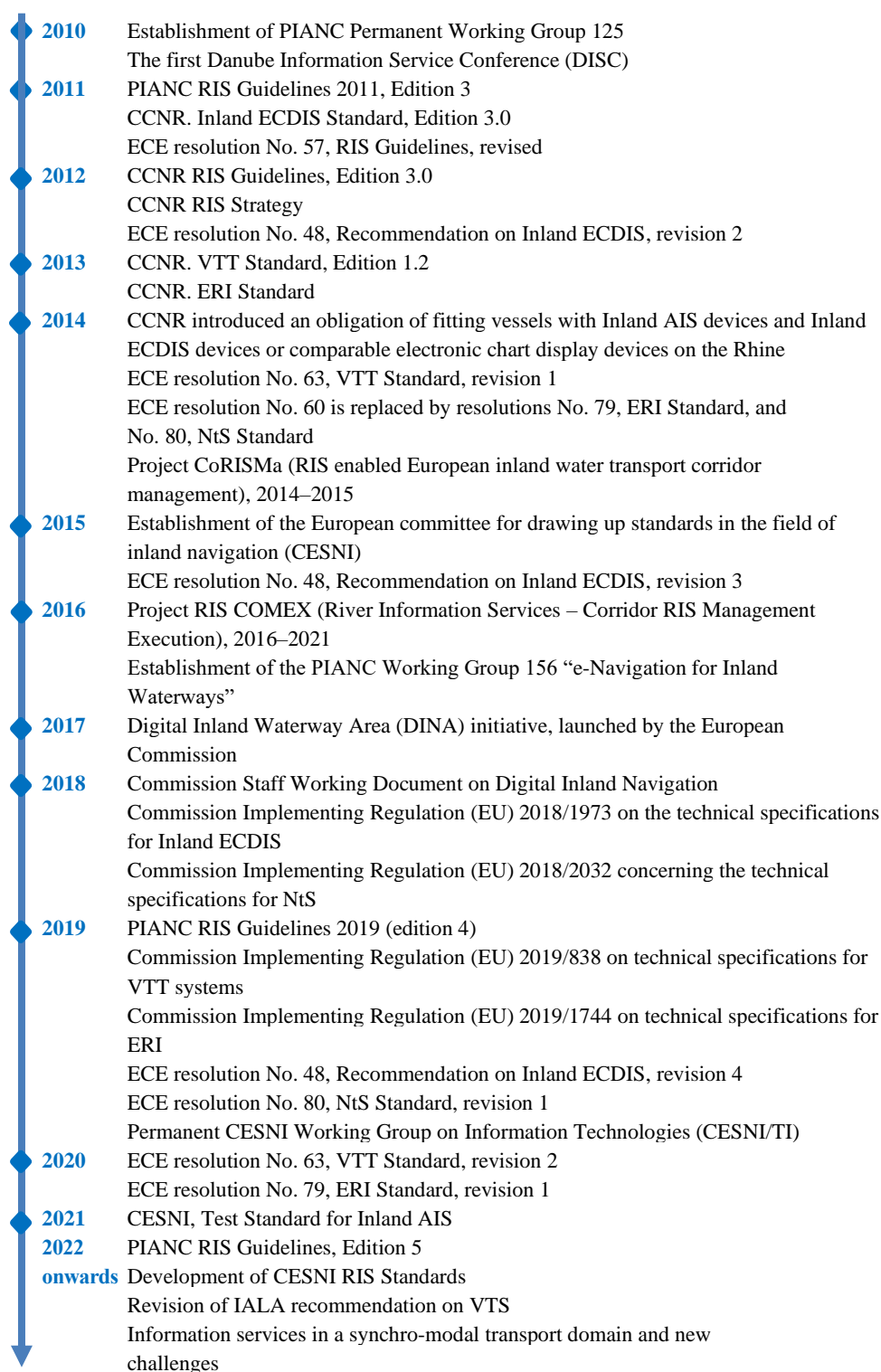
Milestones in the development of RIS are in figure II.

**Figure II. RIS Development in Europe**



<sup>6</sup> PIANC Guidelines and Recommendations for River Information Services, edition 4 (2019).





### 3. ECE Resolutions on RIS

#### 3.1 Resolution No. 48 “Inland Electronic Chart Display Information Service”

Resolution No. 48 was adopted by SC.3 on 25 October 2001 at its forty-fifth session. As the first ECE recommendation on RIS, it was based on the standard developed by the International Inland ECDIS Expert Group which had adapted the existing ECDIS, originally developed for maritime navigation, with some distinct inland features to ensure compatibility with inland navigation.



Inland ECDIS is an on-board computer system which combines information from the Inland System Electronic Navigational Chart (Inland SENC) with additional information on the vessel's environment from other navigation sensors and displays the selected information on a single screen. Inland ECDIS also provides the basis for other RIS, e.g. Inland AIS. Inland ECDIS aims to contribute to the safety and efficiency of inland shipping by reducing the workload for the skipper and increasing the situational awareness.

Inland ECDIS is composed of hardware, software for the operating system and application software and can be designed for information or navigation mode, or for information mode only. In the information mode, Inland ECDIS is used to guide and to provide information about the waterway and not for navigation. In this mode, Inland ECDIS receives data from positioning sensor and controls the vessel's own position against the background of an electronic chart. Inland ECDIS which can be operated in navigation mode is considered as navigational radar installation.

In the navigation mode, Inland ECDIS can be used for conning the vessel with overlaid radar image. Data, as a minimum, is received from both the position sensor and the on-board radar installation. Currently, as a rule, Inland ECDIS is also connected to the shipborne AIS mobile station; other navigation sensors can be connected as an option.

The annex to resolution No. 48 was subsequently revised in 2006, 2012, 2015 and 2019. The fourth revision, adopted by resolution No. 96, is currently in force, based on edition 2.4 of the Inland ECDIS Standard and is harmonized with the Commission Implementing Regulation (EU) 2018/1973 of 7 December 2018 and the national provisions of member States.

The annex contains the technical specifications for Inland ECDIS (Edition 2.4) and appendices with the Product Specification for Inland ENC, the Status of the Presentation Library for Inland ECDIS, and the Product Specification for Bathymetric Inland ENC. The standard is available on the SC.3 web page as ECE/TRANS/SC.3/156/Rev.4 at [www.unece.org/DAM/trans/doc/2020/sc3/ECE-TRANS-SC3-156-Rev4e.pdf](http://www.unece.org/DAM/trans/doc/2020/sc3/ECE-TRANS-SC3-156-Rev4e.pdf) and the appendices are available in electronic format in English only on the SC.3 web page.

### **3.2 Resolution No. 57 “Guidelines and Recommendations for River Information Services”**

Resolution No. 57 was adopted by SC.3 on 21 October 2004 at its forty-eighth session. Intended to establish a single pan-European approach to the planning, implementation and use of information services in inland navigation, the resolution aimed to ensure a high-level of safety, efficiency and fluidity of inland water traffic and the protection of the environment throughout the E waterway network.

The annex to resolution No. 57 is based on the PIANC RIS Guidelines and Recommendations. The guidelines in the annex were revised by SC.3 in 2011, following the revision of the PIANC RIS Guidelines, and adopted by resolution No. 73 on 14 October 2011.

The guidelines contain the main terms and definitions related to RIS and used in other SC.3 resolutions; RIS objectives, services and stakeholders; RIS key technologies; RIS services; recommendations on the implementation; and the structured approach for implementing RIS services. Appendices contain the list of RIS Open Standards and RIS Information categories.

SC.3 has recommended that governments, intergovernmental organizations, regional economic integration organizations, river commissions and private entities base the planning, implementation and use of information services in inland navigation on the guidelines.

Development of the ECE RIS guidelines will include a revision based on the next, fifth edition of PIANC RIS Guidelines that is foreseen for 2022 or 2023.

The text of resolution No. 557 is available on the SC.3 web page as ECE/TRANS/SC.3/165/Rev.1 at [www.unece.org/DAM/trans/doc/2012/sc3wp3/ECE-TRANS-SC3-165-Rev1e.pdf](http://www.unece.org/DAM/trans/doc/2012/sc3wp3/ECE-TRANS-SC3-165-Rev1e.pdf) and also contains Amendment No. 1.



### 3.3 Resolution No. 58 “Guidelines and criteria for Vessel Traffic Services on Inland Waterways”

Resolution No. 58 was adopted by SC.3 on 21 October 2004 at its forty-eighth session. It is based on the IALA Recommendation 0120 (V-120) “Vessel Traffic Services in Inland Waters”, that was adopted in 2001.

VTs are considered an element of the Vessel Traffic Management service provided by RIS. However, there is no obligation to include VTs in the scope of RIS, and VTs areas can overlap those covered by RIS, be organized outside the RIS area or established locally with the focus on traffic organization.

Guidance is provided for establishing VTs on inland waterways, in particular, where IMO Resolution A.857(20) is not applied, and aims at enhancing navigation safety in cross-border areas where two regulatory regimes exist, i.e. in estuaries, lakes and other areas where inland waterways connect with the sea and vessels cross the boundaries of responsibility of maritime and river administrations.

SC.3 recommended governments to take resolution No. 58 into account when developing, implementing and operating VTs on inland waterways where the application of IMO Resolution A.857 (20) was not considered appropriate.

The upcoming new IALA guideline on VTs in inland waters, expected in 2022, which will replace IALA Recommendation 0120 (V-120), may require a substantive revision of resolution No. 58 and other relevant resolutions.

The guidelines are available as TRANS/SC.3/166 at <https://unece.org/DAM/trans/doc/finaldocs/sc3/TRANS-SC3-166e.pdf> and includes TRANS/SC.3/166/Corr.1.

### 3.4 Resolution No. 63 “International Standard for Tracking and Tracing on Inland Waterways (VTT)”

Resolution No. 63 was adopted by SC.3 on 13 October 2006 at its fiftieth session, and revised in 2014 and 2020. The second revision is based on the revised International Standard for Tracking and Tracing on Inland Waterways prepared by the International VTT Expert Group and published in the Commission Implementing Regulation (EU) 2019/838 of 20 February 2019 on technical specifications for vessel tracking and tracing systems, and repealing Regulation (EC) No. 415/2007. It has been harmonized with Recommendation ITU-R M.1371-5 and the application scope has been extended to maritime AIS and AIS classes A and B.

Vessel tracking means the function of maintaining the status information of the vessel, such as the current position and characteristics, and – if needed – combined with information on cargo and consignments. Vessel tracing means the retrieval of information on the whereabouts of the vessel and – if needed – information on cargo, consignments and equipment. VTT systems support the following services: Navigation, Traffic Information, Traffic Management, Calamity Abatement, Transport Management, Law Compliance, Waterway Charges and Harbour Dues, Fairway Information and Statistics.

This information exchange is supported by Inland AIS, a shipborne radio data system that enables exchange of static, dynamic and voyage-related vessel data between shipborne AIS stations (mobile stations) and shore-based AIS stations.

Due to the application of VTT systems in mixed traffic areas with both inland and maritime navigation environments, like sea ports and coastal areas, VTT systems are compatible with the maritime AIS (AIS Class A mobile stations as referred to in Chapter V of the SOLAS Convention) to enable a direct data exchange between sea-going ships and inland waterway vessels.

The annex to resolution No. 63 contains VTT functions for inland vessels, Inland AIS Technical Specification, an overview of other mobile stations applied on inland waterways, and AIS Aids to Navigation in inland navigation. The standard is available as ECE/TRANS/SC.3/176/Rev.2 at <https://unece.org/transport/standards/transport/international-standard-tracking-and-tracing-inland-waterways-vtt>.



### **3.5 Resolution No. 80 “International Standard for Notices to Skippers in Inland Navigation”**

Resolution No. 80 was first adopted by SC.3 in 2005 at its forty-ninth session as part I of resolution No. 60 “International Standards for Notices to Skippers and for Electronic Ship Reporting in Inland Navigation”. In 2014, SC.3 separated parts I and II and adopted the standard as resolution No. 80. The annex was revised in 2019, following the revision of the standard by the International NtS Expert Group and the adoption by Commission Implementing Regulation (EU) 2018/2032 of 20 November 2018. Amendment No. 1 to the standard was adopted in 2020.

NtS messages include four types of essential messages in a standardized format:

- Fairway and traffic related messages (information for fairway sections or objects and limitations relevant for safety, voyage planning and general information)
- Water related messages (the water level, bathymetric measurements, the vertical clearance, the barrage status, the discharge and the regime)
- Ice related messages (actual or predicted ice conditions)
- Weather related messages.

NtS ensure automatic translation of the most important content, using the standard vocabulary - the NtS Reference Tables. The messages are available in the 21 languages of the member countries of the European Union and in Croatian, Russian and Serbian.

The technical specifications for NtS provide rules for the data transmission of the fairway information in a standardized data format, which can be used for publishing NtS on the Internet (pull services) or for distribution by e-mail (push services). They facilitate the data exchange among NtS systems of different countries and towards other applications making use of NtS data, including Inland ECDIS.

The revised standard is available as ECE/TRANS/SC.3/199/Rev.1 and ECE/TRANS/SC.3/199/Rev.1/Amend.1 at <https://unece.org/transport/standards/transport/international-standards-notices-skippers-resolution-no-80-0>. The appendices are available in electronic format in English only using the same link.

### **3.6 Resolution No. 79 “International Standard for Electronic Ship Reporting in Inland Navigation”**

Resolution No. 79 was first adopted by SC.3 in 2005 at its forty-ninth session as part II of resolution No. 60 “International Standards for Notices to Skippers and for Electronic Ship Reporting in Inland Navigation”. In 2014, SC.3 separated parts I and II and adopted the ERI standard as resolution No. 79. The standard was revised in 2020, based on the updated version by the International ERI Expert Group and published in the Commission Implementing Regulation (EU) 2019/1744 of 17 September 2019 on technical specifications for electronic ship reporting in inland navigation.

The purpose of the ERI standard is to enable electronic data interchange (EDI) for reporting purposes to and between competent authorities and to facilitate EDI among partners in inland navigation and in the multimodal transport chain. This standard describes the messages, data items, codes and references to be used in electronic reporting for RIS and is based on internationally accepted trade and transport standards and on internationally accepted classifications and recommendations. The Message Implementation Manuals aim to ensure a common understanding and usage of the ERI messages.

The revised standard contains parts on the UN/EDIFACT message structure, codes and references and is available as ECE/TRANS/SC.3/198/Rev.1 at <https://unece.org/transport/standards/transport/international-standard-electronic-ship-reporting-inland-navigation>. The appendices with the Message Implementation Manuals are available in electronic format in English and French only.



#### 4. International regulatory framework for RIS

The table below shows the correlation between the regulatory framework for RIS applied in Europe as of January 2021.

<i>ECE</i>	<i>European Union</i>	<i>CCNR</i>
<i>Inland ECDIS Standard</i>		
Resolution No. 48, revision 4	Commission Implementing Regulation (EU) No. 909/2013 on the technical specifications for the electronic chart display and information system for inland navigation (Inland ECDIS) <sup>7</sup>  Commission Implementing Regulation (EU) 2018/1973 of 7 December 2018 on the technical specifications for the electronic chart display and information system for inland navigation (Inland ECDIS) <sup>8</sup>	Standard for Electronic Chart Display and Information System for Inland Navigation, Edition 3.0
<i>Guidelines and Recommendations for River Information Services</i>		
Resolution No. 57, revision 1	Directive 2005/44/EC of 7 September 2005 on harmonised river information services (RIS) <sup>9</sup>  Commission Regulation (EC) No. 414/2007 of 13 March 2007 concerning the technical guidelines for the planning, implementation and operational use of river information services (RIS) <sup>10</sup>	Guidelines and Recommendations for River Information Services, Edition 3.0
<i>Guidelines and Criteria for Vessel Traffic Services on Inland Waterways</i>		
Resolution No. 58	Directive 2002/59/EC establishing a Community vessel traffic monitoring and information system and repealing Council Directive 93/75/EEC <sup>11</sup>	Guidelines and Criteria for Vessel Traffic Services on inland waterways, 2006
<i>International Standard for Tracking and Tracing on Inland Waterways</i>		
Resolution No. 63, revision 2	Commission Implementing Regulation (EU) 2019/838 on technical specifications for vessel tracking and tracing systems and repealing Regulation (EC) No 415/2007 <sup>12</sup>	Vessel Tracking and Tracing Standard for Inland Navigation, Edition 1.2
<i>International Standard for Electronic Ship Reporting in Inland Navigation</i>		
Resolution No. 79, revision 1	Commission Implementing Regulation (EU) 2019/1744 on technical specifications for electronic ship reporting in inland navigation and repealing Regulation (EU) No 164/2010 <sup>13</sup>	Standard for Electronic Ship Reporting in Inland Navigation, Edition 2013

<sup>7</sup> OJ L 258, 28 September 2013, p. 1–39.

<sup>8</sup> OJ L 324, 19 December 2018, p. 1–44.

<sup>9</sup> OJ L 255, 30 September 2005, p. 152–159.

<sup>10</sup> OJ L 105, 23 April 2007, p. 1–34.

<sup>11</sup> OJ L 208, 5 August 2002, p. 10–27.

<sup>12</sup> OJ L 138, 24 May 2019, p. 31–69.

<sup>13</sup> OJ L 273, 25 October 2019, p. 1–182.



<i>ECE</i>	<i>European Union</i>	<i>CCNR</i>
<i>International Standard for Notices to Skippers in Inland Navigation</i>		
Resolution No. 80, revision 1 and amendment 1	Commission Regulation (EC) No 416/2007 concerning the technical specifications for Notices to Skippers <sup>14</sup>  Commission Implementing Regulation (EU) 2018/2032 amending Commission Regulation (EC) No 416/2007 concerning the technical specifications for Notices to Skippers <sup>15</sup>	International Standard for Notices to Skippers for Inland Navigation, Edition 3.0

## 5. The ECE Strategic Framework for the Development of RIS

RIS are increasingly integrated for use in the inland water transport sector. RIS is a harmonized and interconnected information system, that provides real time data to users and authorities about the traffic and fairway conditions on a waterway, and about vessel positions and directions. Streamlined planning of vessel movements are, in this way, facilitated on the waterways. RIS not only increases safety on the waterways, but also increases the efficiency of transport across rivers and canals by added functions like the RIS corridor management.

The role of RIS for inland navigation as one of the priorities for the forthcoming period was emphasized in the Wroclaw Ministerial Declaration “Inland Navigation in a Global Setting” of 18 April 2018, signed by eighteen Member States of the United Nations and supported by resolution No. 265 “Facilitating the Development of Inland Water Transport”, adopted by the Inland Transport Committee (ITC) on 22 February 2019.

The ECE White Paper on the Progress, Accomplishment and Future of Sustainable Inland Water Transport, endorsed by ITC in 2020, has set out policy recommendation No. 5 “Promote the development and pan-European application of RIS and other information technologies”. The recommendation provides for cooperation with other international institutions on the implementation of RIS and other information technologies, and for regularly update of ECE resolutions on RIS. It also encourages other uses of IT to facilitate IWT operations and inspections of inland vessels, and the development and promotion of the harmonized rules and criteria in this area.

RIS constitute an essential element of the updated ECE Road Map on Intelligent Transport Systems, launched at the eighty-third session of ITC in February 2021.

Furthermore, RIS are referred to in other ECE resolutions, which are maintained and constantly updated by SC.3, in particular:

- Resolution No. 21 “Prevention of pollution of inland waterways by vessels”, revision 2
- Resolution No. 24 “European Code for Inland Waterways” (CEVNI) revision 5
- Resolution No. 61 “Recommendations on Harmonized Europe-Wide Technical Requirements for Inland Navigation Vessels - Resolution No. 61”, revision 2
- Resolution No. 90 “European Code for Signs and Signals on Inland Waterways” (SIGNI).

<sup>14</sup> OJ L 105, 23 April 2007, p. 88–253.

<sup>15</sup> OJ L 332, 28 December 2018, p. 1–181.



## 6. RIS: the way forward

Trends in the Development of RIS for the Upcoming Period are shown in Figure III.

**Figure III. Trends in the Development of RIS for the Upcoming Period**



The background and perspectives for the evolution of RIS are laid down in:

- The PIANC RIS Guidelines 2019
- The ongoing work of the European Commission on the assessment of Directive 2005/44/EC
- Tasks of the Permanent CESNI Working Group on Information Technologies
- Progress by member States on implementing and developing RIS on their inland waterways.

Corridor management will enable the use of RIS not only as a safety management tool, but as an integrated system, that serves as a facilitator in the whole logistics chain, by enabling harmonized services across the borders. This will be the next step in the deployment of RIS to support inland navigation as an important transport mode in the international multimodal logistic chain.

As set out in the PIANC RIS Guidelines 2019, the future of RIS in the worldwide scope will focus on new transport services in response to new manufacturing technologies and e-commerce processes. The new horizons will cover, but not be limited to:

- Synchro-modality and the optimization of the whole transport and logistics chain
- The physical internet, intelligent cargo technology and optimization of cargo flows
- Digitization developments and electronic data exchange (DINA)
- Smart shipping and automated navigation on inland waterways
- RIS enabled Corridor Management (based on the outcome of the project RIS COMEX)



- e-Navigation for inland waterways and links between RIS and maritime e-Navigation
  - Cybersecurity and protection of data
  - Coordination with the maritime sector and interaction between inland waterway and maritime transportation
  - Development of training and qualification standards.
-