GUIDELINES FOR RIVER INFORMATION SERVICES (RIS) EDITION 2018 – PIANC WG125

Jürgen Trögl[1], Mario Sattler[2], Cas Willems[3], Jeffrey van Gils[4]

1. Historical Background

PIANC recognized already in 1999, the importance of the development of River Information Services (RIS) and installed a working group on this topic with the task to develop the first edition of the Guidelines for River Information Services. These first RIS Guidelines were published in 2002. The PIANC RIS Guidelines were an important corner stone of the Directive on River Information Services of the European Commission that came into force in 2005. It is applicable to all waterways of class IV or higher with binding rules for authorities on the implementation of RIS within the European Union.

The RIS Guidelines describe the principles and general requirements for planning, implementing and operational use of River Information Services and related systems. They are equally applicable to the traffic of cargo vessels, passenger vessels and pleasure craft. They should be used in conjunction with international regulations, recommendations and guidelines, such as:

- Guidelines and Criteria for Vessel Traffic Services in Inland Waters,
- Technical specifications for Inland ECDIS,
- Technical specifications for vessel tracking and tracing systems, such as Inland AIS,
- Technical specifications for Electronic Ship Reporting in inland navigation,
- Technical specifications for Notices to Skippers in inland navigation

Since the publication of the RIS Guidelines versions 2002 and 2004, further developments on services and standards as well as the technical and practical experience have taken place. PIANC established in 2010 the Permanent Working Group 125 with the task to keep the Guidelines for River Information Services up to date. As a first result of this Permanent Working Group, PIANC published in 2011 an update of the RIS guidelines after having analysed the world-wide status of the implementation of River Information Services.

The PIANC RIS guidelines 2011 were formally accepted by the United Nations Economic Commission for Europe (UNECE) and all European River Commissions.

Since the last technical report of PIANC on RIS the development in the implementation of River Information Services has been considerably. The PIANC working group is preparing the next generation of RIS guidelines that will be published by PIANC in 2018

In the PIANC *"Technical Report on the Implementation Status of River Information Services status 2010"* of Working Group 125, it was stated that the development and use of RIS services in a logistics environment was still in his infancy. Since this report the following developments were recognised as relevant reasons for the update of the RIS guidelines. These developments are:

- RIS enabled corridor management
- The Maritime e-Navigation development
- The need for globalisation of the RIS guidelines

The described RIS services since until 2011 are:

Mainly traffic related

1 Fairway information Services (FIS)

2 Traffic information (TI)

    a) Tactical traffic information (TTI)

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[1] via donau - Oesterreichische Wasserstrassen-Gesellschaft mbh, Austria, Juergen.Troegl@viadonau.org

[2] via donau - Oesterreichische Wasserstrassen-Gesellschaft mbh, Austria, Mario.Sattler@viadonau.org

[3] Smart Atlantis, The Netherlands, caswillems@me.com

[4] Ministry of Transport and Water management, Rijkswaterstaat, The Netherlands, Jeffrey.van.gils@rws.nl

b)   Strategic traffic information (STI)

3   Traffic management information (TM)

a)   Local traffic management (vessel traffic services - VTS)

b)   Lock and bridge management (LBM)

c)   Traffic Planning (TP)

4   Calamity abatement support (CAS)

Mainly transport related

5   Transport logistics Information(ITL)

a)   Voyage planning (VP)

b)   Transport management (TPM)

c)   Port and terminal management (PTM)

d)   Cargo and fleet management (CFM)

6   Law enforcement information (ILE)

7   Statistics information (ST)

8   Waterway charges and harbour dues (CHD)
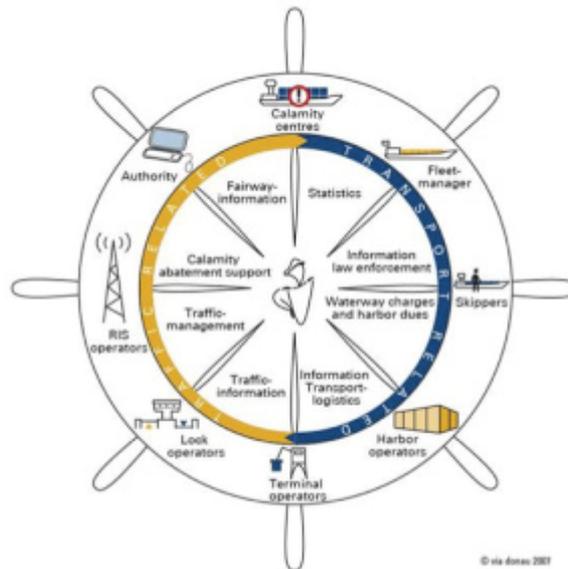
Figure 1: RIS services

2. RIS enabled Corridor Management

Since 2010 studies have been conducted on RIS enabled Corridor Management. The concept of Corridor Management is recognised as the next step in the deployment of RIS services in Europe.

> *"Corridor Management is defined as information services among waterway authorities mutually and with waterway users and related logistic partners with the goal to optimise use of inland navigation corridors within a network of waterways"*

Corridor Management requires sharing of information between authorities and the cooperation of public and private partners is necessary to improve both the performance of inland navigation and the use of the existing infrastructure.

Besides the necessary technical and procedural harmonisation, the basic principle of Corridor Management is the mutual agreement between the fairway authorities in a specific transport corridor on the services and functions they are planning to provide in that corridor.

Three distinctive levels of Corridor Management have been defined:

- Level 1: Corridor Management at this level provides a set of services to enable reliable route planning by supplying – dynamic and static – infrastructural information.

- Level 2: Corridor Management at this level provides a set of services to enable reliable travelling times for voyage planning and for traffic management, by providing traffic information:
  - Level 2a: considering the actual use of the waterway network (e.g. actual waiting times)
  - Level 2b: considering predictions during a voyage (e.g. predicted waiting times on the corridor) where considered reasonable

- Level 3: Corridor Management at this level provides a set of services to support transport management of the logistic partners.

Enhancing inland navigation with the concept of RIS enabled Corridor Management will lead to benefits for inland waterborne transport in the logistic chain e.g.:

- Reliable voyage planning to improve the operation of skippers, terminal and port operators;

- Improved added value of Vessel Traffic Management Services in the logistic chain;

- Simplification of the administration procedures by the usage of an intelligent information management.

The PIANC RIS guidelines are essential for the further development and implementation of RIS enabled Corridor Management being an essential corner stone towards smart multimodal transport management solutions. During the evolution of the PIANC RIS Guidelines and its revision towards a version 2018 a possibility is sought for incorporating the concept of Corridor Management in such a way that it can be applied on a world-wide scale and provides also added value to the regions of the world where national borders don't play such a dominant roles as in Europe.

3. RIS in the intermodal transport domain and Maritime e-Navigation development

The PIANC Working Group 125 on RIS analysed the above-mentioned developments but also took up the lessons that can be learned from information technologies and services in other transport domains, like there are e-Navigation in the maritime world and Intelligent Transport Systems (ITS) in the road sector.

In the RIS Guidelines 2018 special attention is given to the relation between RIS and the maritime concept of e-Navigation and the benefits of these developments for inland navigation.

The PIANC working group 156 on the relation between RIS and e-Navigation published their final report in 2017. As the harmonization between the inland and maritime world is very important, several recommendations of this working group will be of importance for the RIS guidelines 2018.

It is expected that RIS Flagship projects will take into consideration the developments in e-Navigation in order to pave the way for a coordinated implementation of RIS and e-Navigation in Inland Waterways.

These Flagships projects will cope with challenges that need to be solved:

- Standardisation, interoperability, interconnectivity and proprietary solutions

- Improve the quality and reliability of traffic and transport data

- Innovative solutions (IoT, Blockchain)

- Short and medium-term solutions (autonomous sailing)

- Privacy and building confidence, stakeholder acceptance ("legal" issues)

- Cooperation between private & public partners

- Cybersecurity

More than ten years after the adoption and transposition of the RIS Directive in Europe, an important level of experience has been accumulated at EU, Member State and stakeholder's level. At the same time, important IT and technological developments took place. RIS has been recently included in the Digital Inland Waterway Area strategy (DINA), whose aim is to interconnect and unlock the potential of information systems on infrastructure, people, vessels, management and cargo components of inland waterway transport.
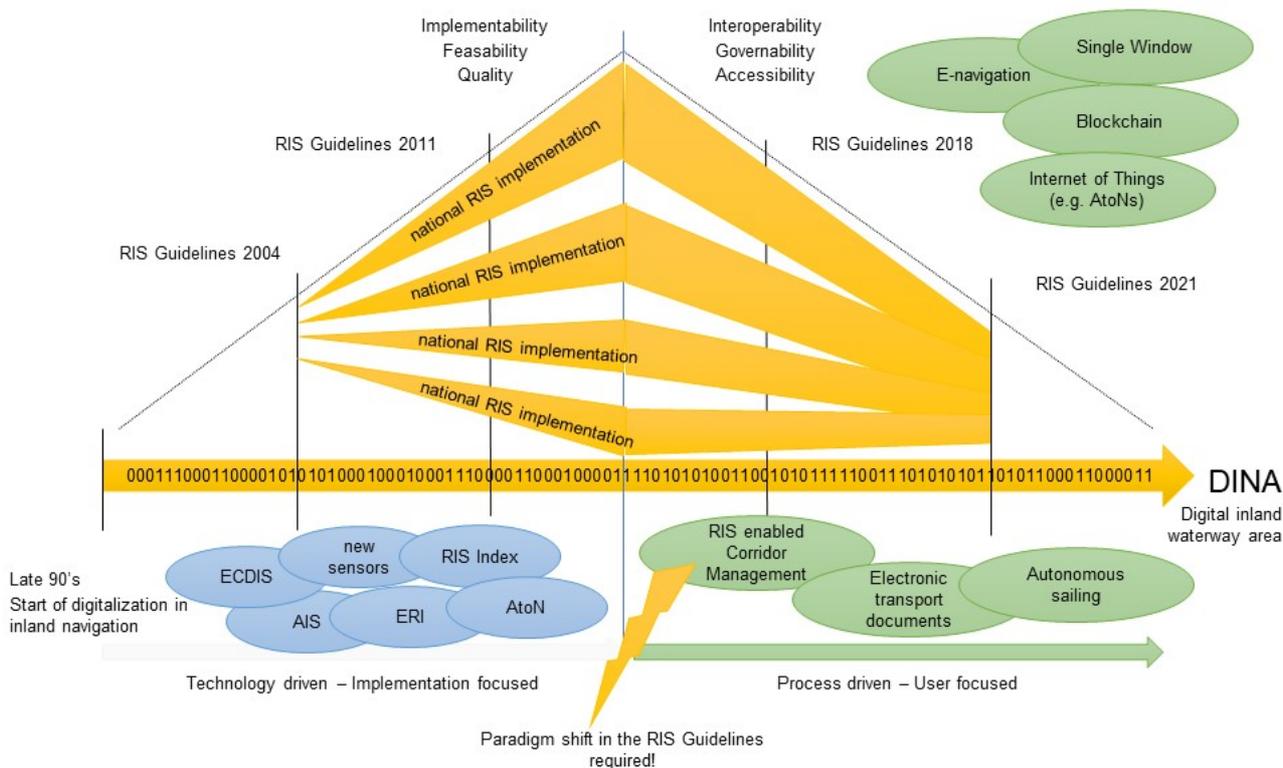
Figure 2: The evolution of the RIS Guidelines towards DINA

4. Globalisation of the RIS guidelines

The concept of River Information Services has originated from Europe, and so does the principle of RIS enabled Corridor Management. It was soon recognized that RIS can also bring benefits to waterway users on other continents, thus waterway authorities around the world started with the implementation of RIS in their domain. In the framework of PIANC there has always been a good cooperation between Europe and the USA on the development of RIS towards a worldwide concept.

It became obvious that the RIS Guidelines need to become a tool suitable for guiding the worldwide implementation of RIS and taking due consideration of developments in other transport domains. For this reason, the new RIS Guidelines 2018 are currently transformed into guidelines for stakeholders in the inland waterborne transport domain all over the world.

In those cases where RIS are deemed to be necessary for the safety of traffic flow, the protection of the environment, the efficiency of transport and to augment the traffic on the waterways while keeping the safety at least on the same level, the competent authority should provide the necessary expertise and arrange funding to provide the desired levels of technology and expertise to meet the objectives.

The RIS services, and their relation with the RIS Key Technologies, can be seen as a layered model presented in **Figure 3** The implementation of RIS should contain a least Fairway Information Services and in the next step it can be extended with traffic information, then with traffic management as the primary services. Based on these three primary services the other services can be implemented.

Figure 3: RIS Services implementation sequence

Eventually RIS can be part of a Multi-modal cloud for traffic and transport information services enabling efficient transport throughout the different modalities available at and during the transport of goods. The information needed before, during and after transport will be an open information infrastructure with role based access for registered and controlled information sharing.
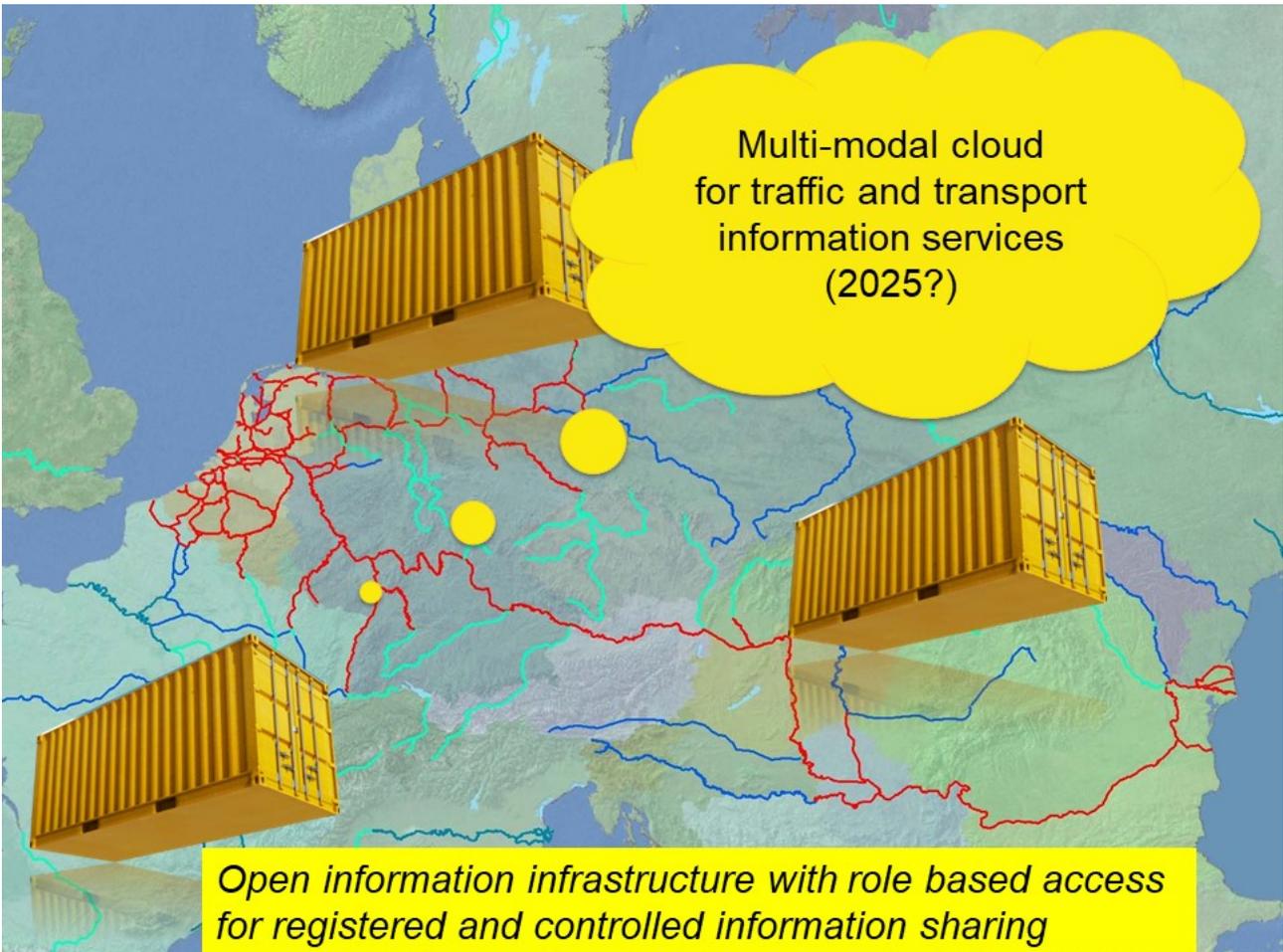
Figure 4: Multi-modal cloud

5. Presentation of the Guidelines edition 2018 in their practical context

The contribution of the PIANC WG125 team to the PIANC World congress provides insights into the recent developments of RIS in Europe and the USA, and the important role of PIANC WG125 in transforming the concept of Corridor Management into a practical guideline for the application of RIS in smart transport management solutions in the inland waterborne transport domain. The presentation will not be restricted to the theory of the Guidelines but will be highlighted with an inside view of practical and operational systems and application.

Presented by: Jürgen Trögl

Topics: 1.7 - River Information Services (RIS, IAS, ...)