



platform for the implementation of NAIADES

# RIS Implementation Support and Assistance

Grant Agreement: **TREN/FP7/TR/218362**  
(Sub)workpackage: **SWP 5.2. D5.7**  
Author: **DVS**  
Version (date): **31/10/2012**



## Document history

Document version (date)	Comments (changes compared to previous version)	Authorised by
27-07-09	First draft CBA	Nora Schmorak
19-10-09	Discussion SWP 5.2 partners	
01-11-10	Final draft annexes 2 - 8	Nora Schmorak
10-04-12	First draft report	Nora Schmorak/ Roeland van Bockel
15-06-12	Final draft report	Roeland van Bockel
10-7-2012	Acceptance of final draft report Dissemination to EC	Andreas Baeck Gert-Jan Muilerman
31-10-2012	Revised final report based on EC comments	Roeland van Bockel
05-11-2012	Dissemination to EC	Gert-Jan Muilerman

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## INTRODUCTION

Based on its working programme (Technical Annex), PLATINA, SWP 5.2 assisted the European RIS community in its endeavours to implement RIS between Mid 2008 – Mid 2012. The major results are elaborated in this deliverable D 5.7 “RIS implementation support”.

The aim of the report is to inform on the major activities of PLATINA SWP 5.2 while supporting European RIS implementation, especially the RIS Community related to the RIS Expert Groups. This report provides an overview of some specific activities executed by the PLATINA SWP 5.2 team - RIS portal and measuring RIS implementation – and provides an overall description of the context in which the PLATINA SWP 5.2 executed its (RIS) work.

This report contains three chapters:

1. A description of the major PLATINA RIS implementation activities.
2. A general analysis of the RIS community workflow.
3. Conclusions and recommendations – towards a shared EU vision on RIS

Annex 1 contains the minutes of the kick-off meeting with the (co)chairpersons of the RIS Expert Groups. In the following 8 annexes the various aspects of an in depth study of PLATINA on how to measure RIS implementation are elaborated: - this study started in 2009 and was concluded in beginning 2011.

The PLATINA SWP 5.2 (RIS) team consisted of representatives of five PLATINA partners: CRUP, VNF, CETMEF via donau, and DVS (project leader)<sup>1</sup>. CRUP was mainly active developing the first version of the RIS webportal and the web interface for the RIS Expert Groups. VNF and CETMEF contributed providing some input to PLATINA RIS attempt to measure RIS implementation and to the D5.4 deliverable “Required hardware and software on board of vessels”. Via donau participated in all RIS Common Issues meetings organised by PLATINA SWP 5.2. Furthermore, via donau contributed content to the RIS portal (D5.9),

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<sup>1</sup> CRUP = Croatian, Centar Za Razvoj Unutarnje Plovidbe; VNF = Voies Navigable de France, CETMEF = Le Centre d'Études Techniques Maritimes et Fluviales; DVS = NL Dienst Verkeer en Scheepvaart (Rijkswaterstaat)

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subcontracted work on the maintenance of the ENC Register (D 5.3), provided substantial input in delivering a draft version for a new RIS Encoding Guide (D5.15), and co-operated discussing various opportunities to develop a suitable method to measure RIS implementation, including developing and execution of a questionnaire to monitor RIS implementation status (D5.7). Based on the latter, via donau drafted a (PLATINA) expert opinion document on RIS implementation in September 2011, including the outcome of a questionnaire. This document was directly communicated with the EC and not coordinated with the PLATINA SWP team. The same counts for the activities via donau communicating the major conclusions of the outcome of the questionnaire to the EU RIS Committee on 1 March 2011 in Brussels.

This report is written by the DVS PLATINA RIS team, which executed most SWP 5.2 work. The format of this report has been chosen to put the RIS implementation work in an overall policy context, aimed at communicating the knowledge and insights obtained between 2008-2012. In addition, this document aims at providing some insights to the Marco Polo Lot 3 RIS policy evaluation team for their work<sup>2</sup>, starting autumn 2012.

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<sup>2</sup> Marco Polo tender - Issued 13 March 2012, [http://www.ris.eu/news/marco\\_polo\\_call\\_](http://www.ris.eu/news/marco_polo_call_)

## 1. PLATINA RIS IMPLEMENTATION ACTIVITIES

### 1.1 Introduction

As a kick-off to its work, PLATINA SWP 5.2 organised a meeting with all (co)chairpersons of the Expert Groups (EGs) – at the request of the EC - on how to best assist the RIS Expert Groups (EGs) in their work and what common RIS issues should be prioritised. This meeting was held on 28 July 2008 in Brussels. The participants were the chairpersons of the EG on NtS, VTT and Inland ECDIS, the co-chairman of the EG ERI, the EC RIS project officer and PLATINA SWP 5.2 representatives. The major outcome of the meeting<sup>3</sup> was a list of issues of which the participants requested direct involvement of PLATINA.

On implementation support - communication and assistance specifically – the need was expressed that PLATINA would especially focus on:

1. Developing a web infrastructure, general and in specific, for the EGs covering:
  - Publication of standards at one point (one-stop-shop).
  - Promotion/advertisement of RIS and making things easier to find.
  - Interactive portal identifying the information needed and where to get it.
2. More information and interaction amongst the RIS community members, i.e.:
  - Platform for interchange.
  - Interface/monitoring between the EU and the PIANC<sup>4</sup> group that was revising the RIS guidelines.

In addition to the specific RIS Implementation Support issues, the meeting identified the need to:

- Assist in the work of the EGs, i.e. developing Terms of Reference for the work of the EGs secretarial assistance for some EGs<sup>5</sup>.
- Develop a sustainable support structure to the EG for the period after PLATINA.<sup>6</sup>

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<sup>3</sup> Meeting minutes attached in Annex 1

<sup>4</sup> PIANC is The World Association for Waterborne Transport Infrastructure (PIANC)

<sup>5</sup> Being executed by PLATINA since End 2008 – PLATINA D5.6

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- Develop an ENC Register, execute ENC Register maintenance and support ENC distribution free of charge.<sup>7</sup>
  - Establish RIS Reference Data Management Services<sup>8</sup>.

The identification of a Cost-Benefit Analysis (CBA) of RIS implementation - including an inventory of what has been produced on the subject within the EU Member States - was not identified as a major concern by the participants of the 28 July 2008 meeting.

In short, the three most important implementation issues covered in this chapter are:

1. RIS webportals.
2. Information exchange.
3. Measuring RIS implementation.

## 1.2 Execution of implementation support tasks by PLATINA

### 1.2.1 RIS webportals

The basic structure of web portals was developed between 2008 – 2009 by CRUP and DVS, and approved by the EC. The RIS portal structure was revised in 2010/2011. The web interfaces cover:

- The RIS portal – [www.ris.eu](http://www.ris.eu) – general information on RIS, also aimed as distribution channel for news items and keeping the RIS community up to date on various developments.
- The expert group portal – [www.eg-ris.eu](http://www.eg-ris.eu) – a specialized portal for the EG members to disseminate information and keep a library.

Since 2010, both RIS portals are fully managed by DVS (webmaster). The RIS Expert Group portal allows access rights to all members of the RIS Expert Groups.

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<sup>6</sup> A PLATINA (D 5.6) report on this issue to the EC was written in close co-operation with the chairpersons of EGs and some additional RIS experts (disseminated to the EC in October 2011).

<sup>7</sup> PLATINA D 5.2 and D 5.3 reports. In 2011, in the framework of PLATINA, via donau outsourced work on ENC Register Maintenance to 7Cs.

<sup>8</sup> PLATINA D 5.14 and D 5.15 reports.

### **1.2.2. Information exchange**

To enable more information exchange amongst RIS Community members, RIS Common Issues meeting have been organised and chaired yearly by the PLATINA SWP 5.2 team in close co-operation with the chairpersons of the EGs. Three meetings have been organised since 2009 and fit into the RIS week programming. The RIS week is organised twice a year – June and November - and allows various EG meetings to convene in the same place and same week. It assembles the various members of the RIS EGs and facilitates all experts to meet and discuss pending issues of shared interests in a plenary session.

During the PLATINA lifetime, the three Common Issues meetings were organised during the annual RIS week in November.<sup>9</sup> Some major issues, which featured the agenda, were:

- EU and national project overview.
- Key RIS technologies (PLATINA produced a document).<sup>10</sup>
- Measuring RIS implementation.
- RIS webstructure.
- Implementation issues.
- RIS strategy.

The issue of the revision of the PIANC RIS Guidelines was partly discussed in the Common Issues meeting. Between 2008-2010, the PLATINA SWP 5.2 was lead by Cas Willems, who also acted as chairman of the PIANC WG 128 on the revision of the RIS Guidelines. This allowed the SWP 5.2 team to develop a close connection between the work of the various EGs and the PIANC WG 128.

### **1.2.3. Cost-Benefit Analysis of RIS implementation (CBA).**

Between 2009 - 2011, the most appropriate method to evaluate the implementation of RIS has been discussed between the various SWP 5.2. partners. Based on these discussions, it

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<sup>9</sup> the Common Issues meeting minutes can be accessed through  
[http://www.ris.eu/library/publications/common\\_issues\\_meetings](http://www.ris.eu/library/publications/common_issues_meetings)

<sup>10</sup> Document is incorporated in the RIS portal -  
[http://www.ris.eu/docs/File/453/ris\\_key\\_technologies\\_and\\_their\\_harmonised\\_use\\_in\\_ris\\_services\\_2011.pdf](http://www.ris.eu/docs/File/453/ris_key_technologies_and_their_harmonised_use_in_ris_services_2011.pdf)

has been identified that measuring RIS implementation could be done in two complementary ways, namely:

- Cost Benefit Analysis (CBA)<sup>11</sup> towards the monetary quantification of both costs and benefits in terms of outcome (i.e. safety, emissions, etc) of RIS implementation
- Strategic Performance Indicators (SPINS)<sup>12</sup> As a mean for monitoring of implementation progress towards pre-defined implementation targets.

After two years of discussion, the issue how to pursue a validated method to measure implementation could not be resolved amongst the PLATINA SWP 5.2 partners. Two major problems emerged:

- A balance could not be found between measuring technology implementation progress and measuring implementation progress of the services as available to the users.
- Comparison between countries is difficult. The structure of the inland waterways in the different countries involved is different. To illustrate this: Germany, Belgium and the Netherlands have a complicated, quite dense system of waterways that is managed by different bodies, whereas in most Danube and riparian countries there is only one waterway that is managed by one authority and has few users. The first mentioned countries perceive RIS as a technical issue as well as an organisational issue. To the other countries, RIS is primarily a technical issue.

During the Common Issues meeting in November 2010, PLATINA confronted the various RIS experts with the question: "How to measure RIS implementation?" As an outcome of the meeting, it was agreed that PLATINA would send a questionnaire to the experts in the various countries to be filled out and assist PLATINA in measuring RIS implementation. This questionnaire<sup>13</sup> was developed and presented during the Common Issues meeting by via donau. The major results of the questionnaire – which was sent to the various participants after the meeting - were compiled by via donau. A summary of the findings was presented to the EU RIS Committee on 1 March 2011.<sup>14</sup> Within the context of PLATINA SWP 5.2, via

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<sup>11</sup> The most important sources being: INDRIS - Assessment on the basis of INDRIS of the Rhine, Seine and Danube demonstrators, COMPRIS Economic Assessment (2006), SPIN-TN Assessment RIS implementation (2006)

<sup>12</sup> The most important finding of this studies have been assembled in a PLATINA Background Information paper on Measuring RIS Implementation. (attached to this report)

<sup>13</sup> Published on [http://www.ris.eu/docs/File/386/draft\\_questionnaire\\_ris\\_implementation\\_2011.xls](http://www.ris.eu/docs/File/386/draft_questionnaire_ris_implementation_2011.xls)

<sup>14</sup> See [http://www.ris.eu/docs/File/386/ris\\_implementation\\_status\\_overview\\_baeck\\_riscommittee\\_march\\_2011.ppt](http://www.ris.eu/docs/File/386/ris_implementation_status_overview_baeck_riscommittee_march_2011.ppt)

donau provided a document that was based on the outcome of the questionnaire. This document was discussed in Spring 2011. To the DVS representatives in SWP 5.2, the document did not provide a tangible outcome on the status of the various services on the waterways. To consult on how to proceed, the document was presented to various RIS experts during a meeting on 14 June 2011 in Rotterdam - hosting the (co) chairmen of the Expert Groups and several RIS experts. It was concluded during this meeting that the results of the questionnaire did not substantially cover all aspects of RIS and were too focussed on RIS technologies. Furthermore, the RIS experts were of the opinion that measuring RIS implementation is already partly done by the various RIS EGs, reporting on a yearly basis about the status of RIS technology implementation.

The results of all PLATINA endeavour to develop a suitable method to measure RIS implementation are attached to this report in annex 2 to 9.

## 2. GENERAL ANALYSIS OF THE RIS COMMUNITY WORKFLOW

The PLATINA SWP 5.2 team was comprised of RIS experts and general transport policy people. Therefore, the starting point for the PLATINA SWP 5.2 team was difficult; - the various participants covered different perceptions not sharing a common vision and having different interests. Some participating RIS experts were already involved in the RIS community for a long period, contributing to many national and European RIS projects, most being technology driven. Other SWP 5.2 participants had assembled their experiences in the general policy domain and transport modelling. For them it proved difficult to get a grip onto the essentials of various RIS issues.

In general, discussions within the RIS community are very detailed and seldom connected to overall transport policy issues, like ITS, e-Freight and Single Window.

They seem to fail an overall and comprehensive policy context. Furthermore, a clear answer from the RIS expert community to the question: “Does RIS provide value for money?” in general policy terms remains to be unresolved, as yet<sup>15</sup>.

This chapter elaborates on the content of RIS and its organisational embeddings.

### 2.1 RIS content

The basic concept of RIS is to foster efficient IWT by improving its:

- Safety record - less incidents and enhanced calamity abatement
- Economic performance – logistic performance and more interconnectivity in the supply chain
- Sustainability record – reduce carbon footprint

<sup>15</sup> See previous chapter on this issue

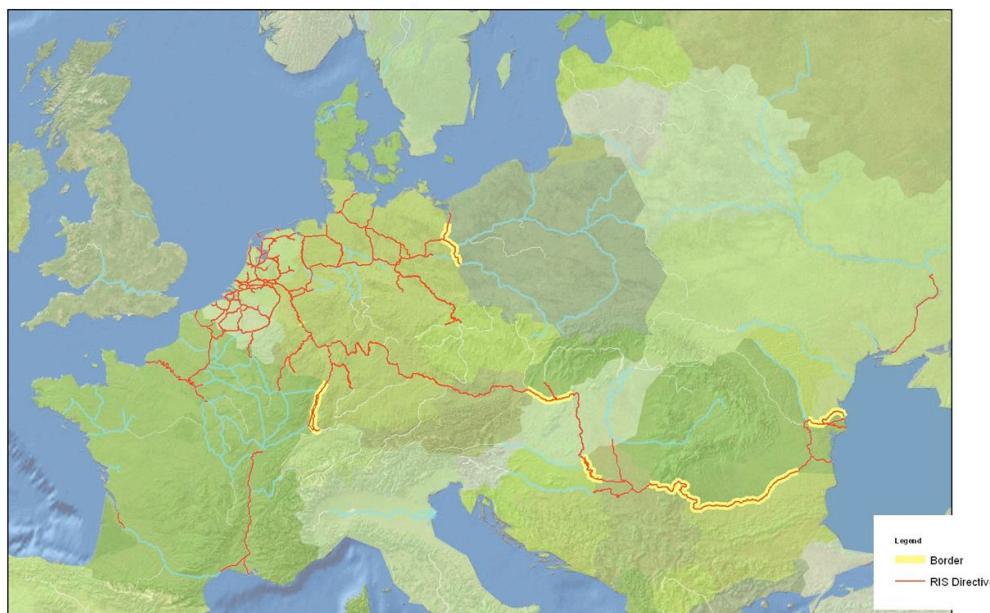
In the EC RIS Framework Directive 2005/44/EC, the various services are described, being fairway information, traffic information, traffic management, calamity abatement, transport management, statistics and customs, and waterway charges.

In generic terms, easier to understand for laymen, RIS provides IWT with services that help to increase the IWT performance in the supply chain, actively contributing to more visibility, transparency, velocity, safety, and reliability.

In practice, RIS focuses on digitally obtaining, assembling and providing data about:

- Inland waterways from Waterway class IV onwards
- Vessels (from Waterway class IV onwards and ENI numbered vessels)
- Cargo (for vessels Waterway Class IV onwards)
- Voyage information (for vessels on Waterway Class IV onwards)
- Vessel position information (for vessels on Waterway Class IV onwards).

The coverage of the RIS directive on the EU waterways can be illustrated as follows (source IRIS Masterplan 2006 - the IRIS Masterplan elaborates on the RIS directives)



The standards necessary to create a harmonized RIS approach throughout Europe relate to:

- Electronic Nautical Charts (preparation by the Inland ECDIS Expert Group)

- Electronic Reporting (ERI Expert Group)
- Tracking and Tracing (VTT Expert Group)
- Notices to skippers (NtS Expert Group).

In general, the work done by the RIS Expert Groups relates to standards which should be implemented by public bodies. The importance for business is to have hardware and software on board of a vessel ready to receive the information provided by governments, public bodies or business (some companies have developed software and hardware to allow digital data being readable on board of vessels). It is important for public authorities that a sufficient amount of vessels is able to receive and provide information, as to pursue RIS service objectives.<sup>16</sup>

## 2.2 Organisational issues

The European RIS community consists of app. 50 people, experts from both public and private sector, working for IWT. Overall, these people develop their RIS skills and co-operate and meet by means of:

- Projects:
  - Execution of national government projects (often being co-financed by EU funds)
  - Execution of European projects (based on very detailed descriptions, also the identification of issues to be studied and executed take place as a starting point for a new project development)
- Development of standards (RIS Expert Groups) - in the expert groups also the identification of important issues to be discussed takes place.
- Discussions on RIS issues in various international organisations, sometimes leading to adoption of resolutions or legislation (CCR, Danube Commission, UNECE, PIANC)
- EU RIS Committee (met once in 2008-2012).
- Bilateral discussions, sometimes involving additional countries

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<sup>16</sup> PLATINA report D 5.4 provides an inventory of required hardware and software on board of vessels

### 2.2.1. Projects

On the Danube:

Within the Danube region, via donau serves as principal stakeholder and actor developing and executing international projects. Thereby, for nearly a decade, they also set the scene towards developing state-of-the-art RIS in Centre and Eastern Europe, training people and coordinating several overall EU RIS project (like IRIS Europe). The focus of the Danube projects is to cover the interests of all Danube countries and riparian states.

On the Rhine:

In general, the Netherlands have been the major beneficiary of EU RIS funds in the EU since 2000. This is especially the case for the Rhine-corridor. Till 2001, the Netherlands were the principal actor developing RIS in Europe. Between 2001-2006, the Netherlands developed several EU projects in co-operation with via donau. Since 2006, the NL have lost their focus to actively participate in EU wide RIS projects. The major reasons being national implementation problems, restricted national financial resources, and lack of substantial breakthrough implementation. In Germany, RIS is primarily a national issue, whereby national legal restrictions and organisational issues limit the ability to actively promote RIS on an international scale. France and Belgium (Flanders) have been quite active obtaining EC money to implement national RIS issues. Their approach towards enhanced international RIS co-operation is limited.

In general, one can say that in Western Europe international co-operation between countries has refocused on cross-bordering issues only. In the Danube region, international co-operation has a multilateral approach. Not in the least due to the EC Danube strategy and the via donau efforts to connect countries and stakeholders on RIS issues along the Danube and connecting waterways.

### 2.2.2. RIS expert groups

Some 40 – 50 experts and stakeholders participate in the work of the RIS expert groups. The work is voluntary and the final products (proposals for standards) are provided to all

international organisations, including the EC.<sup>17</sup> The EC has no hierarchical sphere of influence on the work of the Expert Groups, nor does the EC finance the activities of the EGs per se. The (co)chairpersons of the EGs are free to develop their own agendas. Apart from the need for new standards and the actual work to develop standards, the EGs discuss various RIS issues. They have no formal influence on the projects proposed to and being agreed by the EC for co-financing. This is sometimes frustrating to them as it prevents the EGs from setting a European RIS agenda.

### **2.2.3. Discussion on RIS in international organisations**

PLATINA SWP 5.2 has had no involvement with the various international bodies concerned, but the EC. In 2011, PIANC published its new RIS Guidelines. These Guidelines were approved in a Resolution by the UNECE and adopted by the CCNR and Danube Commission (DC). The CCNR has developed its RIS strategy and approved several standards being proposed by the EGs. Also the UNECE and DC approved several standards. The DC has also supported the activities of the NEWADA (EU financed) project concerning the development of a FIS for the Danube region. PLATINA (EU financed) project took initiative towards development of a EU FIS portal on the basis of NEWADA results. As these two projects were not coordinated from the start, attempts to foster co-operation in a later stage proved to be impossible. Within the IRIS Europe III project (EC financed), the results of the NEWADA project will be taken up again for the Danube region. Non coordination of these two EU financed FIS projects illustrate the difficulty to develop a consolidated EU RIS approach being supported by all international organisations.

### **2.2.4. EU RIS Committee**

During PLATINA SWP 5.2 lifetime, the RIS Committee only met once, 1 March 2011. SWP 5.2 was not invited to contribute to the meeting. Therefore, it was difficult to judge for the PLATINA team, the executive power of the RIS Committee to guide and steer various EU developments is difficult to identify.<sup>18</sup>

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<sup>17</sup> PLATINA has described the functioning of the RIS Expert Groups in its report D 5.6

<sup>18</sup> The correlation of the RIS Committee and the RIS Joint Steering Platform, announced in May 2012 in the Commission Staff Working Document should help defining a strategy for RIS development and implementation

### 2.3 The European RIS community

For PLATINA SWP 5.2, co-operation with the RIS community was not difficult. RIS experts in general are very willing to share knowledge and several of the RIS experts also contributed substantially to the PLATINA SWP 5.2 workflow, also European Hull Data Base. The difficulties of PLATINA SWP5.2 started when trying to centre the attention to services instead of technologies. It has been observed that the focus of the RIS experts work is rather putting technology in place than on establishing suitable services for companies in the logistic chain.

<sup>19</sup>From a policy point of view, the RIS community can be considered as a closed and autonomous network. The communication skills to cross the bridge between technology and policy issues appear insufficient. It is striking that most communication on RIS is either very detailed, and technical, or a repetition of abstract marketing terms on the importance of RIS for transport in Europe.<sup>20</sup>

Within the context of the RIS community several questions have been identified, but not being clearly answered. The answer to several of these questions would allow the RIS community to better interact with a wider audience, i.e. policy people. Some questions that come to mind are:

- How much money has been spent on RIS implementation until now?<sup>21</sup>
- What services have been implemented on the whole EC RIS Framework directive territory?
- Are the European waterways already been fully digitally interconnected to allow for integrated services?
- What is the interest of companies in RIS (what functionalities do they want to provide)?
- Do the business representatives in the RIS community cover the logistic chain operators?

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<sup>19</sup> It is interesting to note that many RIS experts speak of RIS services, instead of RIS, when discussing what RIS should deliver. The abbreviation of S in RIS stands for Services, not Technology

<sup>20</sup> In general, press releases on RIS project often contain generic descriptions on the importance of a project by not being clear what concrete services are being put in place and their benefits for governments and business

<sup>21</sup> The RIS portal provides an overview of the RIS projects in Europe, including the RIS project co-financed by the EC. The sum of all could be identified as the total amount being spent by the EC, although some finalised EC co-financed projects are not included. The projects being listed in the RIS portal are not covering all projects. Not all projects wanted to contribute.

- How much do stakeholders, being either public or private, want to invest in RIS?
- What's the Return on Investment of RIS and is that interesting for private parties?
- Does RIS provide value for money ?

The EC seems to have reserved sufficient resources till 2020 to (co)finance RIS projects and assist national RIS implementation efforts in Europe. However, an emerging issue is whether only monetary resources are going to be a sufficient instrument to solve the actual RIS implementation bottlenecks. The European RIS community should put efforts in bridging the gap between the RIS technology driven community and both the transport policy domain and logistic chain needs. A sufficient integration of the various stakeholders into the RIS community needs to be established. European financial can only be given if national administrations also pay their share. Therefore national long term commitment is essential.

## 2.4 Additional observations

### 2.4.1. EC Finance

An interesting RIS implementation bottleneck is that not all countries seem to be either able or willing to independently finance their own RIS human resources, expertise. In case the EC would stop supporting EU RIS projects within Europe, several countries would seize to develop and implement RIS in their countries thus reducing on manpower, i.e. Czech Republic, Slovakia, Romania, Bulgaria and Hungary. Some other countries would seriously have problems maintaining its current human resources, e.g. Austria. By and large, EC funds to support RIS implementation in Western European countries appears to have little to no effect on their national human resources. Overall, international RIS co-operation would be jeopardized if the EC were to decide to diminish its available RIS budget.<sup>22</sup>

### 2.4.2. Leadership

In general, no organisation appears to be in the driver's seat within the European RIS community. The EC has provided substantial funds to develop various issues and a vision to

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<sup>22</sup> This is an observation based on various discussions with national experts during the PLATINA project 2008-2012. A quantitative survey has not been executed.

the future, e.g. IRIS Masterplan 2006.<sup>23</sup> Aspects of this IRIS Masterplan have been taken up in various countries and in EU funded projects, also the PLATINA project. By large, some visionary RIS projects mentioned in the IRIS Masterplan have not been executed yet. Ideas like a European Position Information Services lack sufficient EC legal backing and commitment of the logistics service operators<sup>24</sup>.

Perceiving the RIS workflow from an organisational point of view, it is impossible to clearly answer the question "Who is in charge of a European RIS policy?" An interesting additional question would be to ask the various EU Member States whether they would like to invest in RIS in case the European Commission would not continue funding RIS.

## 2.5. RIS SWOT analysis

To identify the strengths and vulnerabilities of the RIS implementation, the PLATINA SWP 5.2 team<sup>25</sup> has conducted a SWOT analysis. The value of this SWOT analysis is to mirror the performance of the EU RIS Community and provide a steppingstone to assess the work of the EU RIS Community and define possible actions.

STRONG	WEAKNESS
Technology (knowledge)	Not transparent, i.e. results
Commitment	RIS-centred
Energy	Inward looking
Endurance	Few logistic companies participate

<sup>23</sup> In Annex 6 a discussion paper has been added which identifies several issues on RIS and also describes several EU RIS projects.

<sup>24</sup> Abbreviation EPIS. PLATINA report D 2.7 provides a full description of the PLATINA EPIS (pilot)project, the minimum system requirements and the EPIS connection to the Dutch, Austrian, Slovakian, Hungarian and Belgium data input. In practice, a logistic pilot project – RISING, co-financed by the EC - connecting EPIS to Euroports proved difficult to accomplish as the Belgian (Flemish) authorities have not established a functioning Information Service on the Albert canal.

<sup>25</sup> DVS

STRONG	WEAKNESS
Smart in obtaining money for projects Team work International oriented Detail driven Solidarity	Afraid of showing vulnerabilities Limited communication skills No structural finances for Expert Groups EG group work depends on few people High costs for national implementation
OPPORTUNITY	THREAT
Sufficient EU project money Strong concept Synchromodality Use assets to define the value of the achievements EU ITS Agenda and national agenda	Isolation - Stand alone National budget restrictions No clear winner project Only experts can understand Incapable to bridge communication gap with policy (cross the bridge)

### 3. TOWARDS A SHARED EU VISION ON RIS

#### 3.1 Analysis (conclusions)

The current RIS implementation is based on EC legislation, supported by national administrations and EC funding, and executed by commercial parties. A very motivated group of experts acts as technical advisors in the implementation process. In addition several international organisations are involved. Neither a person nor an organisation is in charge of RIS in Europe.

Most people involved in the European RIS community have their origins in public administrations. The result being that RIS has evolved as a safety and environmental issue rather than an economic issue.

So far, RIS implementation efforts have not incorporated cutting edge logistic operational knowledge and practices. There are several reasons:

- The unawareness of many operators in the logistic chain of the benefits of RIS<sup>26</sup>.
- The potential business returns on investing in RIS is unclear.
- Seeking competitive advantage, major logistic service providers, also shippers and terminal operators, rather develop their own ITS systems, including RIS applications, than apply generic RIS systems.

To the general public and several national administrations, the value added of substantial investments into RIS implementation is not clear. Within various national administrations, high ranking civil servants find it hard to identify themselves as a RIS stakeholder<sup>27</sup>, thus decline to actively participate and put RIS on the policy agenda. Only in a few countries<sup>28</sup> a very close co-operation between the policy and the executive domain has been established. This is not the case for the EU as a whole. To overcome this burden, a wide communication gap has to be bridged.

<sup>26</sup> A study of the IRIS Europe II project identified a limited knowledge of companies on RIS

<sup>27</sup> E.g. the Netherlands

<sup>28</sup> E.g Austria

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In practice, the professional RIS experts that dominate the RIS expert groups workflow function rather autonomous. This makes it difficult for various newcomers, including logistic operators and policy people, to get actively involved in the RIS work processes. The described problem of not being able to establishing a suitable method to measure RIS implementation<sup>29</sup> clearly illustrates the immaturity of the RIS community to effectively cope with issue of policy legitimating and committing all operators within the logistic chain.

A first step towards establishing and promoting RIS as a mature service enhancing IWT competitiveness is to develop a shared vision on the merits of RIS, implementation milestones and the path towards an effective implementation process of RIS. How to reach a shared EU RIS vision?

### **3.2 Developing a shared EU RIS vision**

Some steps can be identified on how to develop a shared EU RIS vision. The basis of the work is to:

- Define the various stakeholders.
- Identify their involvement in the logistic chain.
- Define their problems and objectives and
- Discuss their willingness to invest and to co-operate in the EU RIS Community.

Three important pre-condition for a successful approach towards establishing a shared RIS EU vision would be:

- Strategic and tactic steering on a European level of the RIS implementation work
- Commitment on a National and European level for the long term.
- Connecting the current EU RIS Expert Community to a broader supply chain management expertise.

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<sup>29</sup> See chapter 1 and annexes 2-9

### **3.2.1 RIS strategy**

A shared vision is based on a strategy. Probably such a strategy should go beyond the scope of the RIS Framework Directive. It should also incorporate various issues related to the EU Digital Society Agenda and the Inspire Directive<sup>30</sup>. This has not been established yet.

As an overarching perspective to develop a RIS strategy, it is proposed to focus on the flow of information relating IWT's involvement in the supply chain. IWT and its information needs are to be perceived from an integrated logistics approach, whereby IWT acts as a part of the supply chain rather than as an independent transport mode.

A possible strategy should first be based on an identification of the possible holes interconnecting the various transport services on a European scale, how to close those holes in the current logistics practices relating ITS, what is the role IWT can play and to determine how RIS fits in.<sup>31</sup>

To engage in this discussion reaches beyond the scope of the current (policy) discussions on RIS.

### **3.2.2 Connecting all stakeholders**

The development of a RIS strategy can be a time consuming and complicated action. Not in the least, because the strategy will cover various policy objectives, like safety, security, sustainability, single window, and e-Freight. Most likely this strategy should be developed in the context of a EU NAIADES II policy. To connect all stakeholders, the following steps to interact and commit the various stakeholders developing a shared (common) EU RIS vision are proposed:

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<sup>30</sup> 2007/2/EC EC Directive of 14 March 2007 establishing an Infrastructure for Spatial Information in the European Community (INSPIRE)

<sup>31</sup> The EC eFreigh7 policy might cover this issue

1. Identify the problems experienced while implementing RIS and identifying opportunities to improve.
2. Discuss with the logistics operators and public policy bodies their needs, requirements and plans on how RIS could serve them.
3. Decide on what to do, based on executing the following steps:
  - a. Identification of the role of IWT in the various freight flows and impact of ITS
  - b. Commitment of the stakeholders to develop an approach
  - c. Identify common interests of the stakeholders
  - d. Formulate project team to develop possible solutions and
  - e. Develop tailor made solutions
4. Develop the Rules of Play, possible also the required minimum RIS Rule of Law.
5. Identify opportunities for RIS to interconnect with other transport modes and strengthening the overall performance of IWT.
6. Develop and implement a system to Monitor and Measure Performance.

Pre-conditions for a RIS shared vision are strategic and tactical leadership on EU level, and national commitment.

## ANNEX 1 MEETING MINUTES PLATINA SWP 5.2 MEETING EC & EXPERT GROUPS

Date	28 July 2008
Location	Brussels, Austrian Representative Office
Planned duration	10.30 – 17.00 hrs
Participants	<p><b>DG-TREN</b>  Astrid Schlewing</p> <p><b>Chairpersons RIS Expert Groups:</b></p> <ul style="list-style-type: none"> <li>• Johan Torfs (Jos van Splunder – apologies)</li> <li>• Bernd Birkhuber</li> <li>• Lucia Karpatyova</li> <li>• Lea Kuiters</li> </ul> <p><b>PLATINA consortium:</b></p> <ul style="list-style-type: none"> <li>• Roeland van Bockel (DVS)</li> <li>• Anja Hannema (DVS)</li> <li>• Nora Schmorak (DVS)</li> <li>• Andreas Baeck (via donau)</li> </ul>
Author minutes	Nora Schmorak

### Presentation SWP 5.2 projectleader (not attached)

After discussion on deliverables the following key issues have been identified:

#### **D5.2 Technical Specification for support of ENC Tool Production (task 5.2.3)**

- Background information for the specification of work concerning the maintenance of parts of the ENC/ECDIS standard. This maintenance is now being done on voluntary base and will be tender in the near future. The tendering can but doesn't have to be part of PLATINA. Astrid Schlewing will try to find extra financing for the tendering.
- A sustainable solution for maintenance of ENC standard after PLATINA should be developed. The maintenance procedure will include the incorporation of new data (which doesn't mean that a special procedure will be developed for new data).

#### **D5.3 Implementation support Fairway Information Services (task 5.2.1)**

- Inventory of the current ENC data availability and distribution mechanisms and differences between member states.
- Analysis on advantages and disadvantages of the different approaches (both technical and organizational issues).

Goal: Provide the EC and the RIS committee with arguments in favour of the free distribution of ENC's.

PLATINA will supply this deliverable to the EC. After a discussion of the results in the RIS committee, need for additional information could follow.

#### **D5.4 Implementation support for Traffic Management (task 5.2.1)**

New developments (since COMPRIS) should be monitored. An update is recommended.

#### **D5.6 Definition of workflows and responsibilities of support structure (task 5.2.2)**

Discussed during the presentations of the chairmen Expert Groups (see A2).

#### **D5.7 Implementation support: communication and assistance (task 5.2.1)**

- Publication of standards at one point (one stop shopping)
- Promotion/advertisement and making things easier to find
- Platform for interchange
- Extra focus needed on countries which are currently not (enough) involved in RIS developments like Poland and Luxemburg.
- Interactive portal (Question& Answer): What information do you need? Where to get it.

Request of the EC:

- Study on the compatibility of equipment for RIS (AIS vs. AIIP) including discussion on history (how it is been solved until now) and perspectives in case of new developments.  
Goal: Gathering arguments against the need for amendment of the EU Directive. New developments have to meet the functional requirements.
- Cost-benefit aspects of RIS implementation including an inventory of what has been produced on the subject within the EU Member States.
- Interface/monitoring between the EU and the PIANC group that is revising the RIS guidelines (Cas Willems is chairman)

#### **D5.9 Specification of a RIS community portal (task 5.2.4)**

- PLATINA should start by setting up the requirements for a community portal (one stop shop).
- Base portal on concepts of Content Management
- Lobby for solutions after PLATINA (operation of tools and services)

#### **D5.14 RIS Reference Data (task 5.2.3)**

- There are redundancies and uncertainties in reference data to solve. A platform for "final saying" on reference data is recommended.
- A sustainable solution for the maintenance and provision of reference data is needed.
- Periodical updates of tables needed (based on updates international groups) en updates procedures
- Recommendations about how to go further after PLATINA

#### **D5.15 Harmonized RIS Index (task 5.2.3)**

- System control on compatibility with the standards (formats) en consistency

#### **Presentation Expert Groups (co)chairmen:**

(Complete presentations not attached)

Expectations to take in account within PLATINA:

#### **Johan Torfs (ERI)**

- Consolidation of current developments: The centralized Hull Database in the SSR-corridor, The data maintenance tool of the ERI-working group; The position information server of the COMPRIS-projects
- Taking into account the work done by previous projects and results & recommendation of previous projects (INDRIS, COMPRIS, IRIS Masterplan and IRIS)
- First steps in order to solve the issues with respect to privacy regulations with third-countries related to the Inland Waterway and the expected RIS-services(also the non-safe harbor countries)
- An inventory and first steps to uniformize and harmonize the regulations with respect to inland waterway transport and inland waterway management.
- Further development of the ERI Data Maintenance Tool in such a way it can also be used by the other expert groups
- A position paper with respect to Position Information Services
- Extend the Data Management and Maintenance Procedures published by the ERI-expert group

#### **Bernd Birlhuber (Inland ECDIS)**

- Website and Discussion forum ienc.openecdis.org when setting up RIS portal
- Availability, pricing and distribution of ENCs
- Preparing technical specifications/ToR tender for maintenance standard
- Development of Quality Indicators (Bonus system for IENC content, that is not part of the legal minimum requirements)
- Need for secretariat (112 hrs within 3 months)
- Budget plans for RIS expert groups
- Maintenance of websites (who / what)
- Support for the operation of the Inland ENC Register, the maintenance of the digital parts of the standard and implementation of the RIS Index.

#### **Lucia Karpatyova (NtS)**

- Management of reference data (fairway hectometers, NtS reference data, RIS indexes). Common line needed in maintenance of the reference data.
- Establishment of the single access point for RIS support in terms of portal / web site for Governmental organisations and Industry. Important: inclusion of FAQ's and Question & Answer and based on Content Management.
- Administrative support

#### **Lea Kuiters (Tracking & Tracing)**

- Make the expert groups more "professional"
  - Clear status, tasks and responsibilities
  - Make use of experts: Participants on voluntary base; Possibility to hire experts
  - Administrative and organisational support
  - Support PR, make RIS issues and work of expert groups public

- Streamline the existing maintenance procedures
  - Change requests, time schedules, process
  - Reference databases
- Support expert group website

**Next important steps and meetings:**

- PLATINA has a standing invitation for assistance at Expert Group meetings (based on agenda).
- PLATINA takes in account the discussed issues when setting up the implementation plan of SW5.2. PLATINA is meant as an instrument for supporting the Expert Groups in seeking sustainable solutions in close cooperation with them and assisting the Expert Groups during the PLATINA lifetime where and when needed. This will be Four priorities have been defined:
  - Community Portal
  - Reference data management
  - Maintenance procedures
  - ToR of the Expert Groups
- Implementation plan SW5.2 will be distributed for comments through the PLATINA management committee and the EC.

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## ANNEX 2 MEASURING RIS IMPLEMENTATION

Various methods have been developed to measure policy implementation. In various fields, Strategic Performance Indicators have proved to be effective measure instruments. Not in the least to allow management to judge whether the "*present situation*" of RIS implementation sufficiently connects to the "*desirable situation*". The description of policy implementation depends on the availability of measurable goals.

Strategic Performance Indicator (SPIN) is a clear measurement of performance towards a strategic goal. As a SPIN seeks progress towards a strategic goal, not any performance measurement or fact & figure (F&F) is a SPIN.

The importance of a SPIN is:

- To check progress in time.
- To communicate progress to stakeholders.
- To confirm priorities.
- To compel progress: measurements influence people's behaviour and attitude.

A SPIN must be a clearly defined measurement (it must be FABRIC), i.e:

- **Focussed** - Restricted to a few strategically important objectives. (No information overload).
- **Appropriate** - Uncomplicated and understood by stakeholders.
- **Balanced** - Providing a balanced view, relating to financial performance, efficiency and improvement.
- **Robust** – remaining relevant over time.
- **Integrated** - owned by stakeholders (Communicated and Agreed upon).
- **Cost effective** - Data collection costs should be proportional to benefits.

The pursued strategic goals should be rather SMART targeted:

- **Specific** - concrete and well-defined.
- **Measurable** - by means of management information systems, surveys, evaluation studies, peer reviews, national and/or international statistics.
- **Achievable** – within a budget, time horizon, past performance and benchmark.
- **Relevant** - aligned with and contributing to higher general goals and objectives.
- **Time-bound** – defining what will be achieved and on what time horizon

## ANNEX 3. WHAT TYPES OF SPINS CAN BE USED FOR RIS?

### 3.1. SPIN Indicators

Table 1 sets out the basic indicators that can be used based on individual elements.

*Table 1 Basic SPIN indicators*

INDICATORS			
Costs/ Funding	RIS Input	RIS Output	RIS Outcome
Monetary resource that go into the RIS implementation process	Resources that go into the RIS implementation process	What comes out of the process of implementation	What happens as a result of the implementation of RIS
	Manpower	RIS services:	- Safety
	Systems: i.e. - VHF - Radar - ENC - AIS	FIS, CAS, TM ... (see annex 1)	- Reliability - Efficiency -Image/ competitiveness (see annex 1)
	Infrastructure		
	Economy	Efficiency	Effectiveness
	←	COST EFFICIENCY	→

The most complete view of performance is provided by relating the elements to each other providing insight in the „Economy“, „Efficiency“, „Effectiveness“ and/or „Cost Efficiency“ of the process as well as monitoring the elements individually.

On measuring:

- Monitoring input data may be useful for financial oversight to allocate resources but it reveals little about the process and its results, their quality and impact.
- Budget data can be relatively easily collected, like it's been done for the RIS Master Plan.

- Data on outputs are more likely to be available than outcomes and also easier to survey. Moreover, the outcome of RIS implementation is difficult to isolate from other external factors. However, it should be in principle possible to measure outcome based on focused pre/post RIS cost benefits studies. Chapter 4 describes a proposal for the measurement of benefits of RIS.

On the one hand, a set of indicators should provide a comprehensive assessment of the progress towards the goals. On the other hand, an excessive number of indicators can produce a substantial administrative burden. The challenge is balancing parsimony, comprehensiveness, and accountability.

### **3.2. Developing a first set of Indicators (Critical Success Factors)**

The SPINs set proposed aims at a clear overview of :

- Missing RIS output (i.e. Coverage of RIS services) and
- Input (money resources and equipment)

with respect to what the RIS Directive stipulates.

This overview can be used by the different RIS stakeholders as follows:

1. By the EC as basis for decision-making on budget allocation for the next years
2. By the Member States as a basis for decision-making on National budget allocation
3. By the industry as a basis for enhanced logistical interoperability and product development

Key to creating a useful initial list of performance indicators is to view the objectives in all its aspects and from all perspectives. This can be achieved by identifying the so called “critical success factor” (CSF). CSFs are the actions enabling the achievement of an objective. Having a list of CFS is relatively easy to define performance measurements and/or select the most promising ones.

Based on this objective the following CFS (critical success factors) shoiuld be monitored periodically:

**Table 2**

CSF <sup>32</sup>	Explanation
Sufficient equipment on board for RIS purposes.	<p>Users need equipment enabling them the use of RIS services ( AIS, IECDIS/ENC devices and radar).</p> <p>More RIS users lead to more added value of RIS.</p>
Provision of data for navigation and voyage planning in accessible electronic format	<p>The RIS directive stipulates the following data to be provided to users (article 3.a):</p> <ul style="list-style-type: none"> <li>● Waterway axis with waterway axis with kilometer indication,</li> <li>● Restrictions for vessels or convoys in terms of length, width, draught and air draught, operation times of restricting structures, in particular locks and bridges, location of ports and transhipment sites,</li> <li>● Reference data for water level gauges relevant to navigation indication, .</li> </ul>
ENC coverage for class Va and higher	According to RIS Directive art 3b. The Directive names explicitly the inclusion within ENCs of depth data.
Enabling Electronic Reporting in compliance to ERI standard.	According to RIS Directive art 3c.
Enabling NtS (according to std)	RIS Directive art 3.d
Enabling VTT	RIS Directive art 3.e
Others CFS from the EU perspective?	

<sup>32</sup> The CSFs mentioned relate to the RIS Directive. Other CSFs have not been identified. To obtain more insight on more CSFs specific panels should be established to discuss input from the various stakeholders.

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## ANNEX 4. PROPOSED STEPS FOR SPINS DEFINITION

Selecting appropriate and useful performance indicators is a fairly straightforward process, which requires careful thought, iterative refining, collaboration, and consensus building. A stepwise description of the process, within two phases, is described here. In practice some steps be undertaken simultaneously.

### 4.1. First Phase - Definition

Phase 1 consists of the following steps:

#### 1. Clarify objectives.

The first step is to carefully consider the result desired and review the precise intention of the strategic objective, possible use of the indicators and support by stakeholders. Good performance indicators start with good results statements that people can understand and agree on.

The various goals of measuring performance are:

- To determine budget allocations from European Perspective towards fully compliance with the RIS Directive;
- To promote transparency between and accountability of Member States;
- To measure deviation between countries;
- To promote faster implementation ;
- To identify the specific targets for change. Who or what are they? I.e. RIS authorities, RIS providers, MS decision-makers, EC...

#### 2. Determination of what will and can be measured within a first trial set?

Based on step 1 and discussion within SWP 5.2 and the EC (see questions in table 2) a first selection of SPINs can be established.

#### 3. Interact and involve the Member States

The responsible persons within the different EU Member States will be informed on the planned process and goals. Collaborating closely with the Member States at each step of the process has many benefits.

In order to assess each possible indicator from previous step, the following information will be gathered:

- A SMART definition of the indicator in relationship to the goal being assessed
- A method of obtaining the data incl. estimates of effort for introduction and updating indicator

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When selecting the best indicators, we will evaluate the feasible indicators on the basis of the already mentioned “FABRIC” criteria.

#### **4. Finalizing SPIN set**

The selection will be discussed with the EC project officer. Targets and actions of (not) meeting the targets will be jointly defined.

##### **4.2. Second Phase - Implementation and Evaluation**

The final set will be published via the RIS portal and made public through discussions at important RIS events. After one year the first set SPINS will be evaluated. This can lead to adjustments of the SPINS to be included in a final PLATINA deliverable.

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## ANNEX 5. MEASURING OUTCOME: COST BENEFIT ANALYSIS

### Introduction

Annex 4 already stated that the measurement of process outcomes is a difficult task, needing a special methodology. It is therefore not cost-efficient to define Strategic Performance Indicators for periodically quantification, on the basis of RIS benefits. However, measurement of benefits and its relationship to implementation costs, is a commonly used practise while evaluating macro-economic and societal pros and cons of infrastructural investments.

Several CBA have been performed in the past years. The most relevant ones are those carried out within the European projects INCARNATION, INDRIS, COMPRIS and SPIN. The results of these studies have contributed to reach commitment for the implementation of RIS so far. However, they all base their results on expert judgement and expectations.

We are now somewhere half the way of the objective as stated by the RIS Directive: isn't it time for a ex post CBA as a mean of evaluating the results until now?

The SWP5.2 partners agree that an evaluation of the benefits based on the implementation results until now, would be very useful both to learn from the experiences so far and to achieve political commitment for further RIS implementation.

RIS implementation is already for some years in progress towards the objective as stated by the RIS Directive. PLATINA SWP5.2 believes that the EC should consider the possibility of evaluating the reached Cost-Benefits ratios on the basis of RIS users experiences.

This chapter describes a proposal for such an ex post Cost Benefits Analysis proceeded by an evaluation of the performed ex-ante analysis, including an overview of results and assumptions.

Based on discussions with the PLATINA experts in Cost Benefits Analysis, a possible approach for evaluation of the results has been set up. This approach is the subject of the second part of the document, which describes a proposal for the verification of results and assumptions on the basis of actual costs and RIS users experiences.

### 5.1 Evaluation of performed studies

An overview of the available Cost Benefits Analysis, is essential for the set up of an ex post evaluation. A review of the most relevant performed ex ante studies, including a comparison of approaches, assumptions and results is helpful in order to avoid double work and the repetition of mistakes.

#### 5.1.1. Description of the studies

**INCARNATION:** The consulted document is the final report as issued by ISSUS (Institute of Ship Operation, Sea Transport and Simulation), Germany

Regarding costs-benefits analysis, the contribution of this project consists of a damage costs survey, based on an accident database for the river Wall and a survey of benefits for AIS and Fairway Information System.

The limitation of this result makes a comparison of B/C ratios with other studies not relevant.

**INDRIS:** The costs-benefits analysis presented in the final report of INDRIS makes use of the available data for the stretch on the Dutch part of the Rhine from Zaltbommel to Lobith. The results of the study have not been extrapolated to the EU network and are therefore only applicable for the above mentioned area.

Three types of groups have been considered for the Cost Benefits analysis within INDRIS:

- Private parties such as skippers who use the waterway
- Waterway authorities
- The society as a whole

The first group is assumed to make and earn back their investments in a rather short period of time. The benefits of RIS for this group are related to improved management of the vessel and the reliability of transport that can be improved by voyage planning and draft management. These improvements are taken into account by reducing fuel consumption and reduction of waiting times at locks in a RIS covered area. The costs are due to implementation of RIS ship-borne equipment like AIS, computer, ECDIS and voyage planning software and communication devices.

The second group is responsible for traffic management and management of the infrastructure. Their costs are related to implementation of RIS centre, inland ECDIS as well as RIS systems at locks. The benefits for this group relate to the reduction of dredging work, replacing VTS-centres by RIS centres, smaller investments in deceleration works and delay of investment of locks could derive benefits.

The third group is the society as a whole. A societal C/B analysis sums up all benefits and costs, independent of the beneficiary or the costs bearing parties.

**COMPRIS:** The available document is the deliverable 12.1: Report on socio-economic assessment of RIS (30/03/2006).

The objective of the study is to assess RIS costs and benefits for the different actors groups. This involves a dedicated Cost/Benefit analysis for private actors groups and a Cost/Benefit for the public aspects of RIS.

Because COMPRIS is a follow-up project of INDRIS, it builds on the methodology defined within INDRIS but foresees a wider application as presented below.

COMPRIS determined the related capital (initial investment) cost, the lifetime of the investment, the financial rates, the yearly operating cost according to the level/intensity of use, and assumptions related to the level of the fleet equipped with. The determination of the costs have been done on the basis of four “clusters”, namely:

- Logistical Support;
- Supporting Services for Navigation;

- ERI / Cross Border; and,
- Navigation on-board.

This provides a figure of the total (capital and operating) costs.

From the definition of RIS the following relationships have been derived:

- The first basic relationship to be highlighted is between RIS on one hand and on the other side safety and capacity of the waterway traffic. In other words, the relationships between the level of information and knowledge provided to the waterway users and the reduction of the risk and of the number of accidents as well as the reduction of the time delays and the use of optimum drafts. This should be independent of whatever geographical area is considered;
- The second basic relationship is the saving of costs in infrastructure investment that is the result of implementation of RIS. Many locks have large deceleration works that are necessary for mooring inland vessels that have to wait for a lock cycle. By precise planning of the RTA's, based on ETA's send by skippers the number of waiting vessels can be reduced and hence the length of the deceleration works can be reduced. The planning messages that are a part of RIS might help this process. Furthermore by positively affecting the traffic flows through locks it is possible to make the traffic supply through a lock more uniform over the day, implying a better usage of the locks. This would imply that the lock might be operated for a longer period without renewal or replacement of the lock. The investment costs may be reduced;
- The third basic relationship is a medium/long term effect of RIS: by improving the reliability of inland navigation, RIS would allow a modal shift, what would induce effects benefiting communities larger than the sole waterway users. These effects concern less gas exhaust, less congestion, less atmospheric pollution and related societal costs, less road infrastructure heavy maintenance fees, etc.

These three relationships induce the hypothesis that the different target groups that are benefiting from RIS could be broadly grouped into three:

- A first group benefiting from the direct short-term positive effects of RIS. In reality they are the skippers, the shippers, the commercial parties, etc. We will name this set of target groups: the private parties. This Group is the core beneficiary of the direct effects due to an improvement of safety and capacity (efficiency) of inland navigation;
- A second group that is composed by the beneficiaries of the infra-structural effects of RIS; the competent authorities;
- A third group that is composed by the core beneficiaries of the medium/long term positive effects of RIS: the community as a whole. The public authorities may represent this Group. We will name this Group: the Community. Of course, it is really the beneficiary of the wide range positive effects a modal shift would induce.

The approach as set up by COMPRIS can be summarised as follows:

**Step 1.** For each of the “clusters” different types of benefits have been linked to the following RIS services:

- Traffic management.
- Incidents and emergencies.
- Voyage planning.
- Transport management.
- Port management.

- Terminal management.
- Enforcement tasks.
- Provision of statistics.

**Step 2.** The above-determined benefits have been sorted out according to the targeted actors groups.

- For each of the couple *benefit/actor group*, the value of the impact have been estimated on monetary terms. This value (which can be cost reduction) should be ideally quantified for each year within the considered lifetime of the related investment and should ideally consider assumptions related to the level of the fleet equipped with RIS;
- Aggregation (using any suitable method) and determination of the total benefit that a given “cluster” could bring to a given actors group eventually sorted out, whenever possible, according to term (short, medium or long).

**Step 3.** Cost/benefit ratios have been calculated.

The above results allow the calculation of the C/B ratios in different combination figures, i.e.: Per “cluster”; per “cluster” and actor group.

**Step 4.** Consolidation/extrapolation of the costs and benefits of RIS under the different assumptions in order to derive an indicative figure for the EU network.

The COMPRIS report, however does not record any result of the fourth step. Neither B/C ratios nor net present values have been founded for the EU network.

**SPIN:** This review is based on the SPIN working paper "Assessment of the implementation of RIS in Europe". Benefits and the costs have been quantified and appraised by means of a clear and extendable analysis model. The model includes data for the interconnected main waterways of Europe:

- Rhine corridor
- East West corridor
- South East corridor
- North South corridor

Three scenario's have been calculated:

- Base scenario: implementation of “Fairway Information Service”(FIS) and Traffic Information
- Optimized scenario: implementation of FIS, Traffic Information, Traffic Management, Calamity abatement support, information for transport logistics
- Moderate scenario: idem “Optimized scenario”, but with lower paced development of planning software.

The main costs of RIS implementation concern:

- Off shore investment costs
- On board investment costs

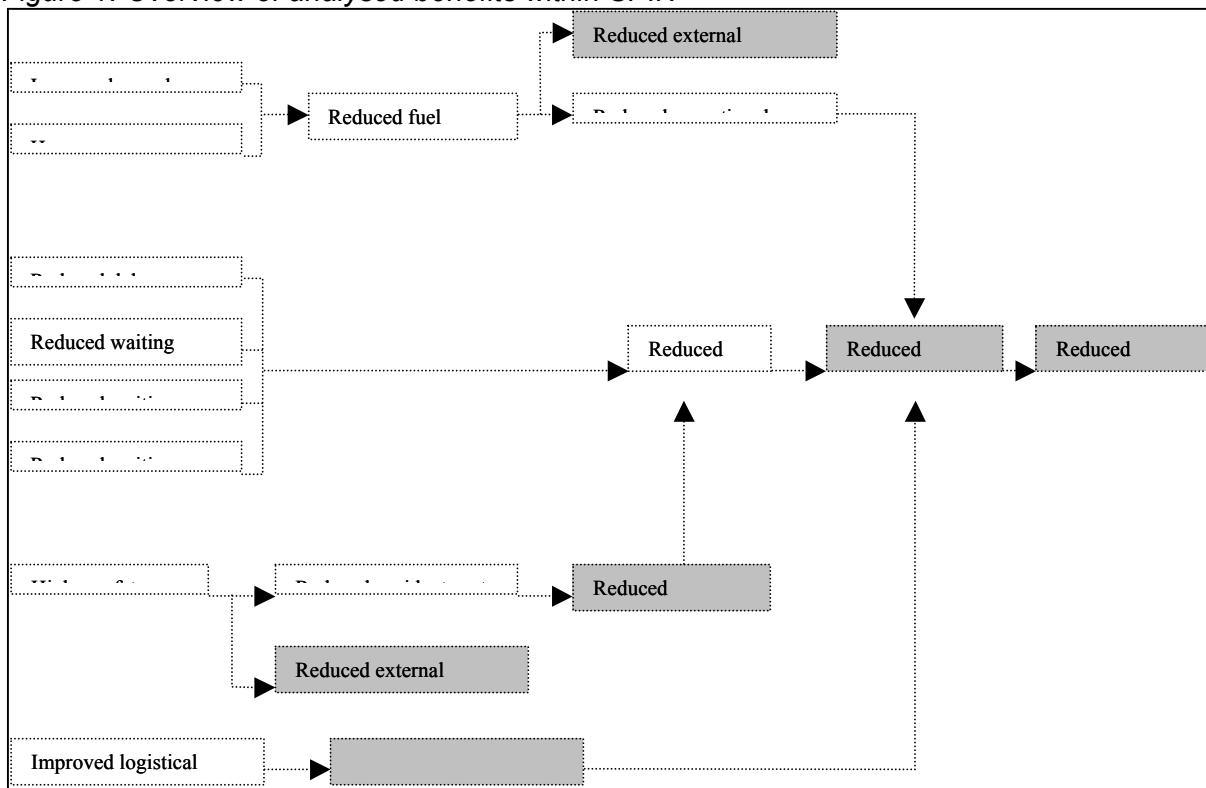
The land-side costs deal with the equipment that is used for regional Vessel Traffic management Centers and ECDIS centers for data preparation. Costs of these centers include capital costs (equipment, housing, and mortgage) and operational costs (maintenance, communication, power, personnel).

Figure 1 summarizes the benefits of RIS as analysed by the SPIN study. The benefits in the grey areas have been included in the CBA. These items have been quantified and appraised.

Some effects could not be taken in account due to lack of information sources:

- More efficient custom and law enforcement procedures
- More efficient lock and bridge operation
- More effective waterway maintenance
- More efficient statistical data collection
- Improved efficiency at terminals
- Improved security.

*Figure 1. Overview of analysed benefits within SPIN*



The study also clarifies who benefits from the RIS.

*Table 1. Groups of RIS beneficiaries as considered within SPIN*

<b>Actor</b>	<b>Benefit</b>
Skippers	Reduced transport costs
Cargo shippers	Reduced logistical costs
Society	Reduced external costs

However, the B/C ratios per actor have been not explicitly quantified so that a direct comparison with other studies is not possible.

### 5.1.2 Results of the studies

The review of assumptions and methodologies makes clear that a comparison between studies results, is not an easy task.

This conclusion is mainly based on the following:

- The limited scope of the INCARNATION CBA (only damage costs and a benefits of AIS and FIS) makes a comparison of B/C ratios not relevant.
- COMPRIS and INDRIS group the users in a different way while SPIN does not make B/C ratios explicit for the different users. A comparison of results on user level is therefore not possible,
- Neither INDRIS nor COMPRIS extrapolate the results to the EU network making a comparison of costs and/or benefits in absolute terms not possible.
- COMPRIS does not present an overall B/C ratio and does not calculate Net Present Values, making the comparison with any other study very difficult.

Therefore, the only possible comparable results are the B/C that have been reached within INDRIS respectively SPIN.

#### Overall C/B ratios and NPV of SPIN and INDRIS

	CBA ratio (B/C)	Net present value (B-C in M EUR)
SPIN: Base scenario	3	602
SPIN: Optimized scenario	7,4	1.947
SPIN: Moderate scenario	5,4	1.318
INDRIS	5,9	339

These results are based on the following assumptions:

Assumption INDRIS
<ul style="list-style-type: none"> <li>• Since the social costs are very high for road transport in heavy populated areas, large benefits have been assumed for modal shift as a consequence of the improvement in reliability of IWT.</li> <li>• Benefits due to reduction fuel consumption and waiting times at locks in a RIS covered area, reduction of dredging work, replacing VTS-centres by RIS centres, smaller investments in deceleration works and delay of investment of locks could derive benefits.</li> <li>• Costs are related to implementation of RIS centre, inland ECDIS as well as</li> </ul>

RIS systems at locks and RIS ship-borne equipment

- During first 5 years both VTS and RIS systems are operational and during this time, the costs are extremely high.

### **Assumptions SPIN**

- The model leads to general results that include all the interconnected main waterways of Europe:
  - Rhine corridor
  - East West corridor
  - South East corridor
  - North South corridor
- The assumptions have been made explicit by means of percentages (so-called elasticities). These percentages quantify the changes as consequence of the implementation of RIS.
- The input data consist of 1) transport volumes (tonnes) and transport performance (tkm), 2) fleet data, 3) stand by costs, 4) operating costs, 5) external costs, 6) off shore investment costs, 7) on board investment costs.
- 3 scenario's have been calculated:
  1. Base scenario: implementation of "Fairway Information Service"(FIS) and Traffic Information
  2. Optimized scenario: implementation of FIS, Traffic Information, Traffic Management, Calamity abatement support, information for transport logistics
  3. Moderate scenario: idem "Optimized scenario", but with lower paced development of planning software.

Based on the effects that have been taken into account and the assumed implementation pace, one would expect the INDRIS results to correspond with the SPIN base scenario.

However, the B/C ratio as estimated in INDRIS matches the best the moderate scenario of SPIN.

Moreover, the INDRIS estimation of benefit distribution between private and public stakeholders corresponds with the one in the SPIN moderate scenario. SPIN states that the logistics costs reductions for shippers and the total cost reductions for skippers form the largest part of the benefits in the moderate scenario while INDRIS estimates a B/C ratio for private parties of 4,66 versus 1.03 for competent authorities.

#### **5.1.3 Conclusions from the evaluation**

The general conclusion from the above comparisons is that a clear and structured methodology, common assumptions and definitions are essential for summing up efforts into general results.

The performed studies estimate costs and benefits per actor and RIS service. The approaches used until now are not essentially different but they all make their own choices

based on practical considerations in relationship with the available data and information, at hand at that time. Therefore, the methodologies used, define and regroup benefits on different ways and make different assumptions of the expected changes on the basis of other data and own common sense.

However, it can be concluded that all the performed studies come to very high CBA ratio's, making RIS a promising infrastructural project for inland navigation.

The most comprehensive, extendible and well-documented study is the one performed within SPIN.

## 5.2 Proposal for ex-post Cost Benefit Analysis

The evaluation discussed in the previous paragraphs makes clear that it is very difficult to isolate and measure the benefits of RIS based on available statistics. The studies also agree on the fact that the implementation costs per actor is relatively easy to assess but that the benefits of RIS implementation can only be estimated based on assumptions, modelling and expert judgement.

These assumptions need to be checked based on field experiences. RIS is getting implemented in more and more areas and an increasingly quantity of both users and authorities are experiencing the effects of RIS. This mean a better chance to assess the RIS benefits. It is proposes to base an ex post evaluation by means of the SPIN model. The SPIN model is a comprehensive model, well documented and extendible if needed in order to include other costs and benefits and other services and actors. SPIN makes assumptions explicitly and easier to evaluate. Moreover, the SPIN-model includes three different scenarios of RIS implementation levels, which are very useful for an evaluation such as the one PLATINA advises to perform.

Until now, the benefits have been calculated by means of predictions (expert judgement and/or model estimations). One could make use of other sources of information like:

- Measurements, outcome results from field measurement through studies and/or statistics.
- Estimates made by people directly involved in the field by mean of surveys (questionnaires, interviews).

### 5.2.1 General approach

The proposed approach is to measure the actual situation and use it as input in a model in order to forecast the benefits of 100% RIS coverage.

Only model parameters/assumptions can be measured. The most comprehensive but feasible approach leading to useful and accurate estimations of the model parameters is as follows:

1. Perform a survey based on questionnaires among the RIS users in order to evaluate qualitatively the RIS benefits. Such a survey can be easily performed by means of internet questionnaire and has as goal the evaluation of the benefit items to take in account in the model and the definition of a group users experiencing benefits from RIS. This group is therefore the target within step 2.

2. Carry out interviews among part of the surveyed group in step 1, in order to quantify the model parameters.
3. Gather available measurements and statistics from National and International studies.

Discuss the results with RIS expert in order to explain result and make them plausible.

While estimating the RIS benefits, one should pay special attention in filtering the effect of RIS out of all other possible changes in the considered area. Therefore, it is recommended to make use of those survey results, which concern areas where RIS services have recently been implemented (not more than 2 years but not less than 6 months). For this purpose, it is useful to have an overview of implemented RIS services per country and area (including implementation date).

The SPIN model has the following advantages:

- It is based on an evaluation of performed CBA until 2006, both on European and National level.
- It identifies and conceptualises the main categories of costs and benefits.
- The cost-benefits categories can be extended if needed on a relatively simple way, depending on the available data. For instance, the model does not take in account cost reductions of terminal operators, benefits for water administrations and costs of shippers. These issues could be included if relevant and if there are information sources available.
- The spatial scope of the model is the enlarged European Union and relevant third countries.
- An available sensitivity analysis on the parameter settings offers the possibility to define the most relevant cost and benefits where to put more effort in the evaluation.
- It is well documented and the calculations are easy to reproduce.

### 5.2.2 Recommended sources for cost update

The table here below sums up the recommended sources for an update of the costs to the base year 2008.

Input for SPIN	Source (*)
Transport Volumes	Platina 5.1 covers these figures
Fleet data	Is covered by a study of NEA "cost structure in inland waterway transportation" (December 2009) Also: BIVAS statistics (Rhine)
Market shares of typical	Data are collected by Panteia-NEA for various reports

vessels	
Standby costs, operating costs, external costs, fuel costs	Is covered by a study of NEA "cost structure in inland waterway transportation".
Costs for landside investments	Update based on Masterplan IRIS
Costs for on-board investments	Known by companies who sell it
Discount rate	Differs between nations. PLATINA recommends the use of the EC discount rate
Counts of passing vessels by locks per type vessel	BIVAS for NL, Belgium and France Locks counts in Danube countries German studies for the Rhine

(\*) Year for input data is 2008.

### 5.2.2 Recommended method for measuring benefits

SPIN quantifies for three different scenarios the benefits of RIS implementation by means of the following parameters:

The goal of the measurements should be therefore an estimation of:

- Fuel consumption (vessel utilisation and homogeneous speed)
- Reduced delays (at terminals, at locks, during operation and at borders)
- Reduced accident probability/risks
- Reduced logistics costs

Expressed in percentage after operative RIS versus before RIS implementation for 2 scenarios (base and optimal):

Skippers are offered basic information such as partial Inland ECDIS charts and online Notices to Skippers (water level and ice reports as standardised and downloadable messages). The scenario reflects the minimum requirements as described in the EU RIS Directive 2005/44/EC.

RIS offers tracking and tracing services, which allow better scheduling and dispatching of vessels and their crew. In addition, Inland ECDIS charts for major ports and all waterways higher than Class III have been made available. Dedicated voyage planning software has been developed and adopted within one year. Both voyage planning and ECDIS/Notices to Skippers information source allow improved trip planning and draught planning. Tracking and

tracing as well as electronic ship reporting simplify the positioning of vessels and facilitate the exchange of data between supply chain partners. For instance, costs of waiting at borders can be reduced due to border controls and customs clearance through electronic data exchange. Through pre-announcement, RIS enables the minimisation of non-productive waiting times at locks and transhipment locations. This immediately results in significant cost reductions. The implementation of traffic management and calamity abatement services reduces the number of incidents and accidents as well as the costs occurring after accidents.

Based on these 2 scenarios it is possible to estimate the model settings for other moderate scenarios, based on expert judgement.

The proposal is to evaluate these parameters based on the following steps.

1. Internet questionnaires (annex 7),
2. Interviews with end users (annex 8),
3. Collection and analysis of available data
4. Sessions with experts.

### **Step 1. Internet questionnaires**

Firstly, a survey based on Internet questionnaires should be performed. The advantage of such a survey is the fact that a relatively large group of end users can be reached on a cost effective manner.<sup>33</sup> The disadvantage is that it is not possible to quantify benefits by this mean. Only a qualitative indication of the benefits can be reached. It is therefore a way of evaluating the benefit items to take in account in the model and a first step in the quantification of the model parameters by mean of tracing RIS users experiencing benefits.

Annex 4.a includes a draft questionnaire for this purpose. PLATINA has tested this questionnaire under a small group panel user of Rijkswaterstaat (RIS authority of the Netherlands). The conclusion reached by means of this test is that this questionnaire can be used for the survey of RIS experiences under RIS users but not for the quantification of the experienced benefits.

### **Step 2. In-depth interviews**

Based on the results of the questionnaires, it is recommended to make a selection of users for interviews. The selection should only include users indicating to experience benefits from RIS.

Annex 5 includes a first set up of questions for in-depth interviews. This question list should be first tested on field before full-scale surveying.

### **Step 3. Collection of available measurements**

The next step should lead to an overview of available measurements from both National and International sources, quantifying the effect of making traffic and transport data available to

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<sup>33</sup> Estimated costs of an internet questionnaire under up to 500 users: EU 2000

skippers and logistics parties. These results are important for the explanation of results from the survey and making the end results of the CBA, plausible.

Regarding the benefits for logistics parties, Rising is currently performing important work. The Rising CBA includes an extensive ex ante survey of benefits for logistical actors such as shippers, terminal and barge operators. The survey method is based on the SPIN model in combination with in-depth interviews. The results of this study are expected before the end of 2010.

Another example of important source of data to take in account, is the ongoing pilot „Logistic chain fairway information Rotterdam Antwerpen” (LIVRA). LIVRA is a Dutch initiative aiming at the assessment of the effect of data exchange between National authorities, skippers and logistic parties on the logistic chain performance. The pilot includes measurements of voyage time before and after making information available. These results, planned for the end of 2010, will be very useful for an eventual validation of RIS benefits.

#### **Step 4. Expert Judgment**

The last step in the quantification of RIS benefits is the test of results on the basis of expert judgement. The aim of the discussion is to quantify first the benefits and then to compare and explain large differences between experts and RIS users opinions.

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## ANNEX 6. STRATEGIC BENEFITS OF RIS

The aim of the RIS Directive is to establish a common framework for river information services (RIS) in order to increase the safety, reliability and efficiency of inland waterway transport. RIS can thus improve the competitiveness of this cheap, economical and environmentally friendly transport mode.

The RIS comprises services such as:

1. Information on fairways: the information systems contain geographical, hydrological and administrative data that are used by boat masters and fleet managers to plan, execute and monitor a voyage (e.g., water levels, traffic signs, opening hours of locks.);
2. Traffic information services: these consist of tactical traffic information (display of the present vessel characteristics and movements on a limited part of the waterway) and strategic traffic information (display of vessels and their characteristics over a larger geographical area, including forecasts and analyses of future traffic situations);
3. Traffic management: this is aimed at optimising the use of the infrastructure as well as facilitating safe navigation. Currently, the "VTS centres" (vessel traffic service centres) are designed to improve the safety and efficiency of vessel traffic and to protect the environment;
4. Calamity abatement services: these services are responsible for registering vessels and their transport data at the beginning of a trip and updating the data during the voyage with the help of a ship reporting system. In the event of an accident, the responsible authorities are capable of providing the data immediately to the rescue and emergency teams;
5. Information for transport management: this information includes estimated times of arrival (ETAs) provided by boat masters and fleet managers based on fairway information making it possible to plan resources for port and terminal processes. Lastly, the information on cargo and fleet management basically comprises two types of information: information on the vessels and the fleet and detailed information on the cargo transported;
6. Statistics and customs services: the RIS will improve and facilitate the collection of inland waterway statistical data in the Member States;
7. Waterway charges and port dues: the travel data of the ship can be used to automatically calculate the charge and initiate the invoicing procedure.

In order to set up the RIS, the Member States must take the necessary **measures to implement the River Information Services** and the principles for their development. They must:

- Supply to RIS users all relevant data concerning navigation on the inland waterways referred to in the previous paragraph;
- Ensure that electronic charts suitable for navigational purposes are available to RIS users;
- Enable, as far as ship reporting is required by national or international regulations, the competent authorities to receive electronic ship reports on the voyage and cargo data of ships;
- Ensure that notices to boat masters, including water level and ice reports for the inland waterways, are provided as standardised, encoded and downloadable messages; the standard message must contain at least the information needed for safe navigation;
- Establish RIS centres according to regional necessities;
- Make available the VHF channels for the purposes of automatic identification systems as determined in the Basel agreement;
- Encourage boat masters, operators or agents of vessels navigating on their waterways, shippers or owners of goods carried on board such vessels to make full use of these new services.

source:

[http://europa.eu/legislation\\_summaries/transport/waterborne\\_transport/l24239\\_en.htm](http://europa.eu/legislation_summaries/transport/waterborne_transport/l24239_en.htm)

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## ANNEX 7. INTERNET QUESTIONNAIRE RIS BENEFITS

Dear member of the Inland Waterways sector;

Could we please have your opinion about the benefits of River Information Services (RIS)?

RIS is a package of services for the stakeholders of the Inland Waterways Sector, aiming at optimal traffic and transportation processes. RIS improves among other things the efficiency of transportation and reduces risks. RIS streamlines information exchange between the competent authorities and the inland waterways users. For this purpose, an European communication standard has been developed. On this manner, RIS supports the traffic management on European inland waterways. RIS facilitates as well the management of transportation, by means of transport and logistics data exchange. RIS strengthens the competitive position of the sector.

If you are active within the IWT sector, you are either directly or indirectly a RIS user. RIS includes though, on-board equipment such as nautical charts (ENC), Inland ECDIS applications and AIS. Notices to Skippers are RIS services as well as the communication around incident and traffic management. These are only examples of the broad package RIS services you may frequently be in contact with.

The knowledge about the benefits of RIS helps the waterways authorities in Europe to evaluate possible further developments and improvements. The political decision to deploy RIS is currently based on expert assessments of these benefits. We hope now to assess these benefits on actual experiences of inland waterway users, that means YOU. Your opinion and insight are therefore essential.

The questionnaire takes around 20 to 30 minutes of your time. We request you to fill in the green marked fields according to the instructions besides the questions.

Do you know colleagues in your surroundings who would be willing to complete this survey?  
Feel please then at liberty to send them a mail with the questionnaire.  
Please, send the completed questionnaire before ??? to ??@???.??.

We sincerely thank you in advance for your valuable help!

## Internet questionnaire „Benefits of River Information System (RIS)“

### 1. Personal data:

Man/Woman:

Age:

Years in the Inland Waterway sector:

(Please, fill in the fields)

### 2. Are you a RIS user?

(Please, fill in: Yes, No or don't know)

### 3. Which is your main activity within the inland waterways sector?

- Skipper ([go to question 4](#))
- Shipper ([go to question 8](#))
- Logistic services ([go to question 8](#))
- Other, namely..... ([go to question 8](#))

(Please, place a cross in one or more fields)

**If you are a skipper go please to question 4, otherwise go to question 8**

### 4. What type of vessel you navigate with?

- 4.a Type
- 4.b Load capacity
- 4.c Usually transported good sort (i.e. Bulk, liquids, chemicals, containers)
- 4.d Do you transport hazardous cargo? (Yes/No)

(Please, fill in the fields)

ton/TEU

### 5. In which areas do you navigate most frequently?

- Belgium
- Belgium, France
- Belgium, Nederlands
- Belgium, Nederlands, Germany
- Belgium, Nederlands, Germany and further on Rhein-Main-Donau
- Nederlands
- Nederland, Germany
- Nederland, Germany and further on Rhein-Main-Donau
- Germany
- Germany and further on Rhein-Main-Donau
- Germany, Luxembourg, France
- Other, namely.....

(Please, place a cross in one or more fields)

### 6. What IT equipment do you (usually) have on board?

- Radar
- ENC/ECDIS

(Please, place a cross in one or more fields)

Internet  
GSM  
GPS  
VHF  
Other, namely .....


**7. What applications do you use usually?**

Electronic Reporting (time of arrival, reservations, cargo, reports, etc.)  
Navigating programs  
Planning Programs  
Tracking and tracing  
Communication Programs terminals  
Communications programs with customers  
Other, namely ... ....

(Please, place a cross in one or more fields)


**8. Is RIS, in your opinion, an important step forward for the IWT sector?**

Please, explain your answer

(Please, fill in: Yes, No or don't know)


**9. What are for you clear advantages of RIS services and/or having equipment on board?**

Better/More information available  
Efficiency  
More safety  
Other, namely.....  
I don't know

(Please, place a cross in one or more fields)


**10. Compared to a situation without RIS services/ equipment on board, do you notice an improvement due to this equipment?**

Less risk of accidents  
Less fuel consumption  
Less waiting time at terminals  
Less waiting time at locks, etc.  
Less waiting time at country borders  
Less delay as consequence of accidents  
Less delay as consequence of waterwayblocks  
Other improvement, namely .....

(Please, place a cross in one or more fields)

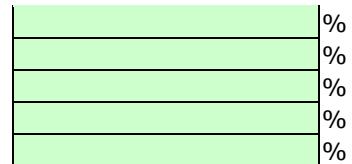

**11. Can you estimate the percentage of improvement due to RIS services/ equipment on board:**

Less risk of accidents  
Less fuel consumption  
Less waiting time at terminals

(Please fill in percentages )

%
%
%

Less waiting time at locks, etc.  
 Less waiting time at country borders  
 Less delay as consequence of accidents  
 Less delay as consequence of waterwayblocks  
 Other improvement, namely .....



*12. Compared to a situation without RIS/equipment on board, do you notice a reduction in logistics costs?*

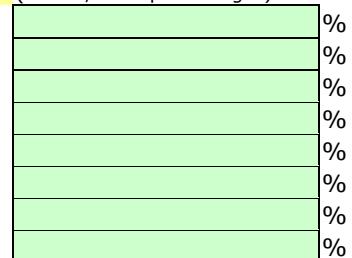
Please, explain your answer

(Please, fill in: Yes, No or don't know)

*13. Can you estimate the percentage of improvement due to RIS services/ equipment on board:*

Less risk of accidents  
 Less fuel consumption  
 Less waiting time at terminals  
 Less waiting time at locks, etc.  
 Less waiting time at country borders  
 Less delay as consequence of accidents  
 Less delay as consequence of waterwayblocks  
 Other improvement, namely .....

(Please, fill in percentages)



*14. What are for you the most important current RIS services?*

(Please, fill in the fields)

*15. What is your biggest wish regarding IWT services?*

(Please, fill in your wish)

*16. Further remarks;*

(Please, fill in your remarks)

Thank you very much for your time.

We keep you informed about RIS developments through the RIS portal ([www.ris.eu](http://www.ris.eu)).

Kind regards,

## ANNEX 8. SET UP IN-DEPTH INTERVIEWS

The interview starts with a reference to the questionnaire and the benefits that the RIS user has indicated to experience. The interviewer should explore by means of open questions in which situations and ways, the user experiences these benefits.

The quantification of the benefits can be reached during the interview by positioning the RIS user in concrete scenarios, i.e.:

- Imagine you had no Inland ECDIS charts on board and NtS on line but only a radar on-board and eventually a GSM for communication with the shipper (there are no RIS centres).

A.1 how should you operate to deliver cargo from A to B

A.2 how does a shipper operate

- Imagine now you are offered only basic information such as partial Inland ECDIS charts and online Notices to Skippers (water level and ice reports as standardised and downloadable messages).

B1. What is the difference with A in terms of operation?

B2. What is the difference in terms of fuel consumption, delays and logistics costs?

- At last imagine that RIS offers:

1. Tracking and tracing services
2. Inland ECDIS charts for major ports and all waterways higher than Class III
3. Dedicated voyage planning software (ECDIS/Notices to Skippers information)
4. ERI simplify the positioning of vessels and facilitate the exchange of data between supply chain partners. For instance,
5. Traffic management and calamity abatement services are implemented

B1. What is the difference with B in terms of operation?

B2. What is the difference in terms of fuel consumption, delays and logistics costs?

## ANNEX 9. SET UP OF EXPERT DISCUSSIONS

Target group: RIS experts and authorities representatives

Goal:

Agreement on quantified RIS benefits (as expressed in the SPIN model):

- Fuel consumption (vessel utilisation and homogeneous speed)
- Reduced delays (at terminals, at locks, during operation and at borders)
- Reduced accident probability/risks
- Reduced logistics costs

The results must be expressed in percentage after operative RIS versus before RIS implementation for 2 scenarios (base and optimal):

1. Skippers are offered basic information such as partial Inland ECDIS charts and online Notices to Skippers (water level and ice reports as standardised and downloadable messages). The scenario reflects the minimum requirements as described in the EU RIS Directive 2005/44/EC.
2. RIS offers tracking and tracing services, which allow better scheduling and dispatching of vessels and their crew. In addition, Inland ECDIS charts for major ports and all waterways higher than Class III have been made available. Dedicated voyage planning software has been developed and adopted within one year. Both voyage planning and ECDIS/Notices to Skippers information source allow improved trip planning and draught planning. Tracking and tracing as well as electronic ship reporting simplify the positioning of vessels and facilitate the exchange of data between supply chain partners. For instance, costs of waiting at borders can be reduced due to border controls and customs clearance through electronic data exchange. Through pre-announcement, RIS enables the minimisation of non-productive waiting times at locks and transhipment locations. This immediately results in significant cost reductions. The implementation of traffic management and calamity abatement services reduces the number of incidents and accidents as well as the costs occurring after accidents.

Note: based on these 2 scenarios it is possible to estimate the model settings for other moderate scenarios.

The discussion can be based on the following questions:

- A. What if there is no RIS: no Inland ECDIS charts on board and NtS on line. The skipper has only a radar on-board and eventually a GSM for communication with the shipper (there are no RIS centres).
  - A.1 how does a skipper operate to deliver cargo from A to B
  - A.2 how does a shipper operate

- 
- B. What if RIS Basic scenario: Inland ECDIS on board and NtS on line. The skipper has access to these services and can communicate with the shipper and the authorities/RIS centre.
    - B1. What is the difference in terms of operation?
    - B2. What is the difference in terms of fuel consumption, delays and logistics costs?
    - B3. Can we agree on figures in terms of percentage improvement?
  - C. What if RIS Optimal scenario: see description above.
    - C1. What is the difference in terms of operation?
    - C2. What is the difference in terms of fuel consumption, delays and logistics costs?
    - C3. Can we agree on figures in terms of percentage improvement?
  - D. Comparison between discussion results and the results from the performed questionnaire and interviews with RIS user.
  - E. Discussion on remarkable differences and agreement on definitive quantification of benefits.

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