e-Navigation for Inland Waterways

Terms of Reference

1. Background

In the first decade of the 21st century River Information Services have been developed to deal with the information services supporting traffic management and transport management. RIS has become mature and is in an implementation stage throughout the world.

In the maritime world ship and shore based stakeholders are more and more making use of systems to improve the safety, security, reliability and efficiency of waterborne transport. It is seen as essential to develop in the implementation of these technologies a more integrated and coordinated approach to avoid that in the future the added value of these technologies will hamper. Consequently there is, in the development of new systems, a growing need for:

- ❑ Standardization and harmonisation
- ❑ Efficient and simplified solutions,
- ❑ Interoperability.
- ❑ Reduced burden to the users of systems
- ❑ Interaction and coordination between stakeholders and their systems throughout the transport chain.

In recent years the above mentioned experiences has lead to several conceptual developments that will have a relevant influence on the application of modern technology and information systems in the maritime domain.

2. Conceptual developments

2.1. e-Navigation

The Maritime Safety Committee of IMO (International Maritime Organisation) initiated the development of a vision with respect to e-Navigation using existing and future supporting systems for navigation of vessels. During a session of the IMO Maritime Safety Committee held from in 2008 the strategy for the development and implementation of e-Navigation was approved.

e-Navigation is defined as:

> "*the harmonised collection, integration, exchange, presentation and analysis of marine information onboard and ashore by electronic means to enhance berth to berth navigation and related services for safety and security at sea and protection of the marine environment*"

The core objectives of the e-Navigation concept are to :

- ❑ Facilitate safe and secure navigation of vessels having regard to hydrographic, meteorological and navigational information and risks;
- ❑ Facilitate vessel traffic observation and management from shore/coastal facilities, where appropriate;
- ❑ Facilitate communications, including data exchange, among ship to ship, ship to shore, shore to ship, shore to shore and other users;
- ❑ Provide opportunities for improving the efficiency of transport and logistics;

1.1. *Vessel Traffic Management (VTM)*

In recent years it became quite clear that the traditional traffic management instruments, measures and services as defined under the umbrella of VTS (Vessel Traffic Services) will not be sufficient to satisfy the needs of the stakeholders in the public and private maritime domain. However, these instruments and measures should be incorporated into a new wider concept of Vessel Traffic Management (VTM).

IALA installed as a working group of their VTS committee to define and develop this VTM concept. The working definition of VTM is defined as:

> *"Vessel Traffic Management is the functional framework of harmonized measures and services to enhance the safety, security, efficiency of shipping and the protection of the marine environment in all navigable waters".*

1.2. *e-Maritime*

With a view to improving the efficiency of maritime transport in Europe and ensuring its long term competitiveness, the European Commission has published a Communications: (COM92009) 8 – Strategic goals and recommendations for the EU's maritime transport policy until 2018. In this communication it called for the development of the e-Maritime concept

> *e-Maritime represents a set of policies, strategies and capabilities facilitating online or electronic interactions between all different stakeholders involved in the development of an efficient and sustainable waterborne transport system throughout Europe, fully integrated within the transport logistic chains.*

Specific e-Maritime challenges include:

- ❑ Simplification of administrative procedures in maritime transport
- ❑ Improvements in port and ship security and safety increasingly relies on integrating 'intelligent' surveillance / monitoring systems in proactive and remedial safety and security management processes spanning across collaborating authorities and transport stakeholders.
- ❑ Cross regional operational systems are needed with 'optimised' electronic interfaces between different organizations and their security or safety systems.
- ❑ Integrating Maritime transport in the logistics chain and in particular electronic exchange of messages and data should be developed.

2. Objectives of the Working Group

The working group is required to investigate and advise PIANC on the following topics based upon the report prepared by PIANC WG125 and to consider the technical issues associated with the integration and associated development of RIS in a seamless manner to the above three concepts :

- ❑ Whether inland navigation could benefit from the developments in the maritime environment.
- ❑ What the implications for River Information Services and the PIANC guidelines on RIS are
- ❑ Whether there is a need to have a special working group in PIANC on the translation of the maritime developments and the definition of guidelines on these developments for the benefit of inland navigation.
- ❑ In what way the required interaction between maritime transport and inland navigation in this context can be guaranteed to safeguard the required interoperability of future maritime and inland navigation systems.
- ❑ Provide a definition of e-navigation for Inland Waterways
- ❑ Identify where possible the scale of benefits, costs of the elements and the risks.

4. Final Product

The findings of the Working Group will be published in a report that will from the basis of future dialogue with operators, regulators and users of RIS to continue the future development and implementation of RIS systems that will interface with VTM and the development and use of both e-Navigation and E-Maritime as outlined above.
The report will be widely circulated and via the PIANC website and by direct communication with major stakeholders such as the EU, IMO and IALA.

It is intended that the report will deal with the technical and infrastructure matters relating to the development of e-Navigation and not deal with the associated political or administrative challenges.

5. Desirable Background or Experience of Working Group Members.

The background and experience may include the following:
- a. Operators and managers of existing waterways
- b. Consultants, system suppliers and engineers
- c. Vessel owners and operators
- d. Representatives of regulatory bodies
- e. Promoters of improvement or new RIS services
- f. IMO and IALA represenatives
- g. Inland Port Operators and Authorities, River/naviagtion Commisions, IAPH, IWAI etc,

6. Relevance for Countries in Transition

The results will provide help and guidance to designers, operators and promoters to develop and operate safely and economically viable, new or existing waterways throughout the world.

7. Climate Change

During the preparation of the report, the possible impacts of Climate Change should be considered and any findings and/or recommendations should be made accordingly.