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Foreword

Gert-Jan Muilerman from via donau

SPIN-TN is currently involved in a process for identification, elaboration and verification of the future set of actions dealing with human factors issues that directly and indirectly affect the efficiency and safety of the Inland Navigation system.

Work within SPIN-TN will have the task to define related topics of concern and to produce proposals for further RTD needs, actions, and promotional activities within the European Inland Waterway Transport network. The work will be split up into four distinct areas.

- New technologies and their integration
- Man-machine interfaces
- Education and Training
- Standardisation and Harmonisation

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Description of Work

Human Resources and Training:-

SPIN-TN SET TO TACKLE HUMAN RESOURCE & TRAINING ISSUES

The interlacing of human factors in Inland Navigation covers a broad spectrum of processes that starts in the process of ship and terminal design. The layout, design and operation of today is the result of working and trading practices of hundreds of years, these continue to evolve and now are influenced by modern practices and the introduction of new logistic solutions and availability of corresponding new technologies. The goal is as always to enhance efficiency and

improve economic output.

Modern practices require the introduction of innovative technologies and devices that replace, though often quaint, outdated customs and habits handed down over generations. User acceptance of the crew is both crucial and decisive for success of the modern practices. In particular are issues related to:-

- User-friendliness of the man-machine interface
- Easiness and efficiency of the education and training

Both these issues have to be planned and analysed carefully, they then need to be tested to

ensure that mass implementation is successful and does not result in an additional burden to the crew with the consequence of reduced efficiency and/or safety.

REVIEW OF NEW TECHNOLOGIES AND THEIR INTEGRATION

New technologies and techniques under development or recently applied on inland vessel and inland navigation are to be reviewed. The results will provide an overview of the most critical issues that need to be overcome, as well as on the most promising solutions, in regard to logistic solutions, operational procedures and technical devices.



IMPACT ON MAN-MACHINE INTERFACE

The effects on numerous processes following the introduction of new procedures or devices must provide reduced workload for the crew; otherwise the resulting impact could be detrimental to efficiency and safety. However, there is a fine balance between automating too much so that the skipper has little interaction, and thereby loses experience to too little assistance where he is rushed off his feet. The right balance provides assistance and relief that also keeps him aware and ready to properly react in any emergency situation. This Working Paper reviews and evaluates the effects of human-machine interfaces of various new inland navigation technologies.

EDUCATION AND TRAINING

There will be two outputs from this theme, one on Education Programmes (for future professionals)

and one on Training programmes (for existing professionals). The programmes of education and practical experience for the crew have to follow logistical and technical developments. Special attention should also be paid to social aspects with an aim to encourage young people into the profession.

Existing professionals will also require ongoing training in order to be efficient and confident in the use of new technologies and services. For this part SPIN-TN will focus on appropriate disciplines, subjects, fields, learning methods and processes should be used which best matched the profile(s) of IWT professionals and their working environment. An aspect of this work will be to determine the issues related to the probable reduction of minimal crew as a result of introduction of new practices and technology.

STANDARDISATION AND HARMONISATION

There are several aspects of standardisation and harmonisation related to the crew; these include their ability to:-

- Navigate the ship on various sectors of the European waterway network (specific nautical conditions on Rhine, Elbe, Danube),
- Operate different ship types (size classes, single vessels or trains),
- Communicate with other parties in various geographical (linguistic) areas (language skills, communication procedures).

This work will identify the main recommendations for a strategy that is aimed at improving human resource capabilities.



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Abbreviation/acronyms list

AVV	Adviesdienst Verkeer en Vervoer (Transport Research Centre for the Ministry of Transport, Public Works and Water Management in the Netherlands)
DG-TREN	Directorate-General for Energy and Transport
EC	European Commission
EU	European Union
FDC	France Développement Conseil
IWT	Inland Waterway Transport
PBV	Promotie Binnenvaart Vlaanderen VZW (Inland shipping promotion Flanders)
RTD	Research and Technology Development
SPIN	Strategies to Promote Inland Navigation
SPIN-TN	SPIN Thematic Network
VBD	Europäisches Entwicklungszentrum für Binnen- und Küstenschifffahrt e.V. Duisburg (European development centre for inland and coastal navigation)
via donau	Donau Transport Entwicklungsgesellschaft mbH für Telematik und Donauschifffahrt-via donau (Development Agency of the Austrian Federal Ministry of Transport, Innovation and Technology)

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