Information Network for Intermodal Transport Chains on Inland Waterways

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ABSTRACT

Inland waterway transport (IWT) is focusing on medium and long distances, in order to promote strategic advantages in terms of loading capacity, security and cost effectiveness. Speed limitations on rivers and especially on channels act against transport efficiency. At present IWT is mainly used to carry out transport operations in port-to-port relations. As integrated part of supply chains and key mode of intermodal transport chains it is applied only in few and exceptional cases. So far, IWT does not exploit its full potential as strategic, future oriented transport mode.

Competitiveness of IWT as key mode could be increased against land based transport modes by raising system speed (e.g. ship speed on channels/rivers and handling times in inland terminals (ITs)) and employment of comfortable and effective workflow management and information systems in seaports as well as inland terminals (e.g. to ensure transfer of relevant information between all participants and faster port operation). Especially for ship based just-in-time container transports, these systems are fundamental for IT operation.

Therefore, WABIS (Information and Operating System for Inland Waterways) was developed with a strong relation and information exchange to BIDIS (Workflow Management System for Inland Terminals). The WABIS data base, which is used via SQL statements, builds the center of the system. A vessel traffic management and information system (VTMIS) is grouped around this kernel, providing “real time” information of vessels concerning relevant resources management (terminal state, locks) and their local traffic situation. Information for skippers and operators are introduced through “Inland ECDIS” data, used as background for the WABIS Ship Client (Bridge Model) and the WABIS Traffic Control Center. Traffic control and management are coupled with ETA predictions using ship positions from DGPS transponders and an enhanced prediction model based on “cellular automates”.

BIDIS is focused on container transport with extensions for general cargo. The System offers ship storage planning, gate application, damage handling, storage optimization and personnel planning

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for ITs. Data transfer to seaports, WABIS Ship-Clients and end-users is handled by a special application server (IPEM) transferring messages to the internal object oriented format and converting outgoing message to file based EDIFACT file format. ITs connected by BIDIS Port Clients are transferring objects via IPEM.

The present result of the software engineering process are modular object-oriented tools with dynamic functionality.

This paper will give a review of functionality of both systems, including specific module description.