

## AN INDUSTRY-EDUCATION-RESEARCH COOPERATION FOR INLAND WATERWAY LOGISTICS

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Due to the access to mobility and to the worldwide availability of goods from each part of the world, personal life standards have radically changed within the last years. During the last decades, mobility and transport have been increasing dramatically and simultaneously, destructive effects on environment and people such as air pollution have been caused. Nevertheless, road transport – which induces the highest external costs due to accidents, noise, congestions and emissions – was used for 75.5% of freight transports in the European Union. Only 18.4% of the transports were done by train and 6.2 % by inland waterway in the European Union in 2015. It is hypnotized that the amount of transported freight will further increase and a switch to railway and inland waterways is needed to cope with this increased amount. In addition, from an economical perspective trucks operate on higher emission levels which requires a switch to sustainable transport modes such as inland waterways or railways (Eurostat 2017, European Commission, 2011). Results previous studies show that people in logistics industry lack knowledge on inland waterway logistics. Throughout Europe, only an insignificant part of study programs contains teaching units about inland navigation (Breinbauer, et al., 2012).

Due to this lack of knowledge, the competence centre REWWay (Research and Education in Inland Waterway Logistics) was built in cooperation between viadonau, Österreichische Wasserstraßen GmbH, as the responsible institution for maintaining of the Austrian Danube section and the Logistikum Steyr as research- and education institute of the Upper Austrian University of Applied Sciences in the field of logistics. REWWay aims to foster the generation of knowledge and the integration of inland waterway and eco-friendly transport into logistics education. REWWay allows an enhanced integration of inland waterway in education and training through a provision of high-quality teaching material and trainings. These teaching offers are free of charge available at the REWWay website. All those offers have been provided in order to increase people's awareness and knowledge on inland waterway transport and thus, support a modal shift towards inland waterway transport.

As a first step a literature review on inland waterway logistics and education and training was conducted. For this, schools focusing on (transport) logistics in Europe across the Rhine-Main Danube Canal were identified with desktop research. Second, an international study including expert interviews and focus groups with important stakeholders from industry and the educational sector was conducted. The aim of those workshops and interviews was to find out about the current status, needs and requirements of inland waterway logistics education. Afterwards, target group oriented key success factors with regard to logistics education and training on inland navigation and eco-friendly transport were evaluated. In total, 27 representatives from 21 institutions (vocational schools, upper schools with/without focus on logistics, universities and universities of applied sciences) participated at the market study.

Results suggest that a variety of key success factors for teaching materials and offers on logistics education and training on inland navigation have to be fulfilled to reach educational institutions best. The overall outcome of the market study was that participants from all institutions are willing to spend more time on the topic of inland navigation and eco-friendly transport if high quality material is available and well prepared (Putz, Schauer 2014). Interviewed teachers and university lecturers show a high demand for films, PowerPoint slides, lecture notes and case studies which support students in active and self-decided learning. In fact, a high learning success can be realized through the active-involvement of students and diversified lessons or material which is claimed for logistics education

(van Hoek, 2001; Gravier and Farris, 2008; Wu, 2007). Moreover, there is a need to enhanced cross-linking with the industry through field trips or external speakers. Besides, the provision of training offers for teachers to support familiarity with inland waterway was pointed out.

Based on the results of the first market study, a portfolio of learning offers had been developed since June 2013. These offers includes learning units for specific topics, a film library with questions and answers, case studies, cost and time calculations, an e-learning platform ([www.ines-danube.org](http://www.ines-danube.org)), a list of interesting field trips and contact points in Europe and presentations slides (from very basic level up to expert level). Trainings were held for educators on inland waterway in general and the integration of these offers in education. All those offers are available in English (and German) on the REWWay website. After the first two years of the launch of the website, google analytics show more than 43,000 downloaded learning packages or units.

In line with the results of Gravier and Farris(2008) a major requirement is the collaboration between industry and the educational sector. A recent is a workshop, which was organized in Duisburg (Germany) at the largest inland port in Europe in October 2017 organized by the Logistikum. More than 60 people from industry, educational institutes and research discussed about the future of inland waterway transportation in Europe.

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