

Inland navigation needs targeted innovation to compete with other modes of transports

Three big priorities of the European Commission in the current term have a strong link to innovation and rely on it to be achieved: „Jobs, growth and investment“, „Digital Single Market“ and „Energy Union and Climate“. The transport in general is high on the list of innovation priorities. And competitiveness, digitalisation as well as greening are the key innovation aspects particularly for the inland waterborne transport (IWT) agenda.

“After ensuring the fair-way conditions, comprehensive and targeted innovation is the pre-requisite for improving further competitiveness of inland water transport”



Manfred Seitz

EIBIP, the European Platform of Innovation Centres, and regional Innovation Transfer Centres were established with the start-up support from EC/DG Move to promote the uptake of innovation by the inland waterborne transport sector where this is hampered by a demonstrated market failure.

The work shall target barriers vessel owners and other IWT stakeholders face by facilitating market transfer of innovation and covering technological, organisational and financing aspects. Promotion and awareness activities, as well as the implementation of concrete business cases and projects will be conducted to facilitate this uptake.



Lucia Karpatyova

“I believe that INDanube will become a successful platform where IWT stakeholders will receive valuable advice on greening and innovation solutions.”

INDanube – Centre for Innovation Transfer in Inland Navigation in the Danube Region

INDanube, established in January 2016 as one of the innovation centres of the European Inland Barging Innovation Platform, shall play an important role as facilitator and promoter of innovation in inland waterway transport on the Danube and its navigable tributaries.



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European Inland Barging Innovation Platform (EIBIP)

The European Inland Barging Innovation Platform (EIBIP) is a European platform of regional innovation transfer and facilitation centres to promote the uptake of innovation by the Inland Waterway Transport sector. The EIBIP was set up by EC/DG Move as part of the contract which provides the financial start-up support to regional centres.

The EIBIP network consists of three new Innovation Centres covering Germany (D-ZIB), France (BATELIA) and the Danube region (INDanube) as well as the pre-existing Innovation Lab (EICB) from the Netherlands.

The main activities shall cover monitoring, facilitating, accelerating and initiating project deployments.

INDanube

The Danube innovation transfer centre is established as virtual infrastructure hosted by Pro Danube Management GmbH (PDM). It conducts promotion and awareness activities, and supports implementation of concrete projects to facilitate innovation uptake. In particular, fuel efficiency, emission of pollutants and unexploited potential market share are key areas where more innovation can lead to improvements.

Website: www.indanube.eu

INDanube regional partners



In order to reach out to key stakeholders in the region, Pro Danube Management GmbH made arrangements with three regional organisations with proved expertise which through EIBIP receive a mandate to carry out innovation uptake activities in IWT as partners of INDanube.

- **Waterborne transport development agency** (Slovakia) in charge of the promotion and further development of inland navigation sector in Slovakia. Contact person: Martin Boroš, martin.boros@arvd.gov.sk.

- **National Association of Radio Distress-Signalling and Infocommunications „RSOE“** (Hungary) provider of the River Information Services in Hungary and promotor of inland navigation in Hungary. Contact person: Csaba Kovacs, csaba.kovacs@rsoe.hu.
- **Pro Danube Romania** (Romania) is a non-profit association acting as facilitator and promoter of IWT on the Lower Danube in order to strengthen its role in intermodal transport and logistics. Contact person: Silviu Meterna, meterna@prodanube.ro.



EIBIP tools

The Innovation Centres (ICs) will further develop and deploy tools which have been elaborated in EU-funded research and innovation projects. ICs will ensure the update of these tools and will promote their use in the IWT industry.

Econaut CO₂ - calculator

The Econaut enables the IWT operators to determine their CO₂ emissions. It calculates the amount of CO₂ emissions per tonne on the basis of the following information: (i) transported tonnage, (ii) distance travelled, (iii) fuel consumption. The Econaut is available as the App (available for iOS and Android) and as the web-based tool.

Link: www.econaut.nl

IWT Greening tool

The objective of the IWT Greening Tool is to offer vessel owners and operators, policy makers as well as other inland waterborne stakeholders state-of-the-art information about different retrofit greening technologies currently available for application on existing vessels.

Link: eibip.eu/greening-tool

Funding database

EIBIP provides an online database containing information on public funding possibilities for IWT projects. The database was built on the work done within the scope of the Platina II project and will be maintained by EIBIP with the regional support of Innovation Centres.

Link: www.indanube.eu/funding

Green deal for Danube river transport

The Danube region needs smart, sustainable and inclusive growth based on an eco-efficient and reliable transport system. The Danube waterway can provide cost-effective logistics solutions to many industries to support their competitiveness and to ensure economic growth and the creation of jobs.

The high economic potentials for turning the Danube into a core logistic axis are withheld by numerous shortcomings in infrastructure, unfavourable regulatory framework and structural problems of the IWT sector. A targeted, long-term cooperation of public and private sector with firm commitments is

needed to break the vicious cycle of degradation of infrastructure and reduction of transport demand. The “Green Deal for Danube river transport” forms this new policy and business framework to improve efficiency and environmental performance of Danube waterway transport system.

GREEN DEAL FOR DANUBE RIVER TRANSPORT

National Governments of Danube States			Vessel & Fleet Operators	Ports & Terminal Operators	Danube IWT Users & Logistics Operators
Reduction Administrative Barriers	Infrastructure & Maintenance	State Aid Fleet & Terminal Modernisation	Fleet modernisation Programmes and Projects	Development Strategy & Action Plan and Implementation projects (Danube port network)	MoU - Innovative Danube Logistics / Pilot & Deployment Projects
Existing EU Programmes • National Programmes • Lead Projects • Financing Schemes					
EUSDR PA1A • Danube Corridor Plan • Danube Innovation Centre (INDanube - EIBIP)					

National governments

Pre-condition for success of the Green Deal is the commitment of the Danube States to rehabilitate existing and invest into additional infrastructure and to ensure a state-of-the-art fairway maintenance. Essential elements are:

- Dialogue and political commitment of national governments
- Rehabilitation of existing and investments into new infrastructure and fairway maintenance
- Elimination of extensive bureaucracy creating administrative barriers
- Creation of fleet and port modernisation support schemes
- Facilitation of (cooperation) projects generating best-practice examples

Innovative Danube Ports Platform

The commitment of transport users to use green IWT services and setting-up innovative Danube IWT logistics services shall be demonstrated with the help of a Memorandum of Understanding (MoU) and deployment projects. Essential elements are:

- Dialogue and commitment of port operators for elaboration of a “Danube Ports Development Strategy & Action Plan”
- Establishment of the permanent working platform of Danube ports (DAPHNE)
- Facilitation of cooperation and pilot projects generating best-practice examples

Green Danube Fleet Platform

Fleet and barge operators shall elaborate a “Green Danube Fleet Action Program”, which will list foreseen fleet investments and create a pipeline of projects, to help to define volume and focus of national fleet modernisation support schemes and EU support. Essential elements are:

- Dialogue and commitment of fleet operators for a “Green Danube Fleet Action Program”
- Establishment of a permanent working platform of Danube fleet operators
- Elaboration of a “Green Danube Fleet Action Programme” and its promotion
- Facilitation of research and innovation projects concerning green technologies
- Facilitation of implementation projects

Innovative Danube Logistics

The commitment of transport users to use green IWT services as well as setting-up innovative Danube IWT logistics services shall be demonstrated with the help of a MoU and concrete deployment projects. Essential elements are:

- Dialogue and commitment of transport users and logistics operators to use IWT
- Increase of awareness for IWT among transport users and logistics operators
- Facilitation of research, innovation and pilot projects addressing new logistics concepts, cargo flows & vessel concepts

Innovation priorities addressed by INDanube

Fuel efficiency, emission of pollutants and unexploited potential market share are key areas where more innovation can lead to improvements.

Greening the fleet

Inland waterborne transport is the most environmentally friendly mode of transport in terms of greenhouse gas (GHG) emissions per tonne-kilometre. Shipping more goods on water reduces GHG and traffic congestion.



Inland vessels offer an enormous carrying capacity per transport unit and inland waterways still offer a high infrastructure capacity. However, there is still a significant potential in reduction of energy use (up to 10 or 20%) and pollutant emissions (up to 80%), in particular with regard to existing vessels, and a large modal shift potential towards a sustainable and high performing transport mode. INDanube addresses these topics through facilitation of projects targeting:

Use of alternative fuels

- LNG as fuel for long-distance inland vessels: supporting R&I activities (i) improve-

ment of power management system & catalyst solutions to reduce methane slip, (ii) cost reduction of related equipment, (iii) deployment of bunkering infrastructure projects

- Bio-fuels and other alternative fuels with primary focus on hydrogen: supporting R&I activities and projects and facilitation of regulatory framework

Air pollutant emission reduction

- Use and deployment of after treatment systems for existing diesel engines
- Awareness raising for new engine concepts & alternative optimisation solutions
- Facilitate introduction of on-board emissions & fuel consumption measurements

Reduction of energy consumption

- Promote energy efficient navigation
- Use of energy efficient ship design
- Facilitation and deployment of hybrid and electric propulsion

Cross-cutting activities

- Facilitation of fleet modernisation support schemes and financing solutions
- Awareness raising for alternative fuels
- Establishment of an Alternative Fuels Platform

New logistic and vessel concepts



Inland waterborne transport offers a variety of freight forwarding solutions, however, it is not always sufficiently considered as part of the logistic chain solution. New logistic and vessel concepts shall enable better use of existing and free capacities and lead to a revitalised image of IWT among stakeholders by means of demonstrating reliability and predictability – next to well-emphasized cost-effectiveness and environmental friendliness. INDanube addresses these topics through facilitation of projects targeting:

New logistic concepts

- Facilitate further deployment of RIS as supporting tool for transport management: (i) value added services for logistics stakeholders and their active involvement: real-time cargo position and ETA, (ii) mini-

mise, harmonise and digitalise reporting requirements, (iii) software interfaces towards logistics stakeholders, (iv) international exchange of RIS data.

- Digital market places for cargo flows: create awareness for existing and contribute to further development of digital market places & linking them to other modalities

New cargo flows

- Offer other opportunities for a modal shift towards IWT such as: (i) (containerised) LNG as cargo, (ii) cold/food chain transport, (iii) continental cargo flows, (iv) Danubia-combi (all kind of transport units transported by so-called FLATS - standardised "loading platforms"). Besides new cargo flows, the precondition is knowledge of logistics service operators about IWT and its integration into the transport and logistics systems.

New vessel concepts

- Automation of navigation and vessel-trains: use of vessel-trains or autopilot with aim to optimise vessel operation focusing on research, regulatory framework and education

Innovation Insights

This section will bring information about new innovative initiatives and projects with positive impact on inland navigation in Danube region.

DANTE - Improving administrative procedures and processes for Danube IWT

DANTE aims at identifying and eliminating administrative barriers for inland waterway transport on the Danube and its navigable tributaries as a joint initiative of the private sector and the national public authorities responsible for these barriers. Good practices and guidelines for effective administration of IWT activities shall be developed with regard to the identified barriers.

The [monitoring system for collecting user experiences](#) (supported by an online tool) will be a key element for successful project implementation.

Link: www.interreg-danube.eu/dante

DAPhNE - Danube Ports Network

The project aims to facilitate a balanced development of Danube Ports as eco-friendly, well accessible multimodal hubs for the transport system of the region and to turn Danube Ports into buzzing economic centres functioning as catalysts for economic growth and creation of high value jobs. The project will establish a well-managed and permanent working platform which tackles the most urgent insufficiencies with the help of guidelines, recommendations and concrete pilot activities based on best practices and leading into an overall development strategy and action plan.

Link: www.interreg-danube.eu/daphne

Efficient Navigation Tool shall support skippers in their decisions

First tests with the on-board trip advisory tool, giving recommendations for the skipper during a certain voyage, started on the Danube as part of the activities of the EU-funded project PROMINENT.

The Romanian fleet operator NAVROM equipped, with the help of the EU-funded project PROMINENT, ten of its vessels sailing up to Austria and Germany with measurement equipment to measure and deliver the fairway (depth, flow velocity) and the vessel data (position, speed, engine performance, etc.). The data is collected in a consolidated database of the PROMINENT project. The database serves the purposes to collect data (i) from the exhaust gas emission measurements and (ii) the vessel and fairway data for energy efficient navigation.

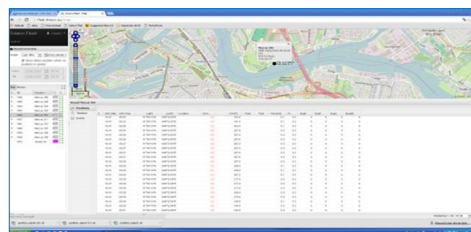
This data, in combination with dedicated model tests for some vessels, is the basis for models that will serve the on-board trip advisory tool, giving recommendations for the skipper during a certain voyage. The first prototype of the on-board tool is under finalisation. The prototype provides the real time modelling and makes use of fairway related data received from waterway management organisations from Germany and Austria, collected as well in the database.

The results are now being implemented in the ship performance model for the Efficient

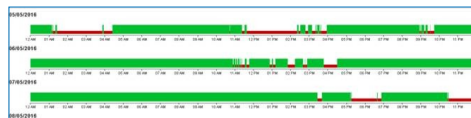
Navigation Tool (ENAT). Two tools are to be pilot deployed:

- On-board tool for energy efficient navigation (trip advisory tool predicting fuel consumption in relation to sailing speed and arrival time)
- Land based tool for evaluation of ship performance by fleet managers

Both tools will be web-based applications available from all kind of electronic devices.



Land-based tool for evaluation of ship performance



Engine performance monitoring user interface

Website: www.prominent-iwt.eu

Supporting activities offered to stakeholders

INDanube was established to carry out awareness activities and supports implementation of concrete projects to facilitate innovation uptake in inland navigation in the Danube region.

INDanube addresses its activities towards (i) vessel and fleet operators, transport users and logistics service providers, (ii) national public authorities and administration as well as European services, and (iii) media together with the wider public.

INDanube supports interested stakeholders by executing various activities such as:

- Innovation projects' facilitation: initiation and development of R&I cooperation projects—potentially leading to a funding application, project management
- Direct company consulting: pilot projects related innovation consulting, technical consulting (via industry experts), financing / funding consulting, project support
- Dissemination and communication: on-line information provision, regular publi-

cations, promotion of best-practice examples, facilitation of events, press releases and media coverage

- Networking: establishment and support of an 'Inland Waterway Innovation Network'
- Training: technical assistance to authorities and support of further development of dedicated IWT training (cooperation with training and education institutes)
- Innovation monitoring: identification and presentation (on-line) of innovation solutions, best-practice examples, etc.
- Innovation strategies: elaboration of an innovation uptake strategy for Danube IWT and facilitation of its implementation

Do you have questions or need support for your innovation project?

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Upcoming events

GreenCoast: Umweltschutz im Wattenmeer durch Green-Shipping- und GreenPort-Ansätze (in German)

Venue: Norden, Germany 24.4.2017

Port Info Day (in the framework of the Munich Logistics Fair)

Venue: Munich, Germany 9-12.5.2017

LNG Roadmap: LNG as driving force for cross-border cooperation (in English)

Venue: Düsseldorf, Germany 31.5.2017

Natural Gas for Inland Shipping (in English)

Venue: Strasbourg 21.6.2017

Port Policy Day (in the framework of the 6th EUSDR Annual Forum)

Venue: Budapest, Hungary 18.10.2017

Transport Research Arena

Venue: Vienna, Austria 16-19.4.2018

Should your event be promoted in the Danube inland water transport community? Are you interested in more information about events and regular update?

Contact us on: office@indanube.eu

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