# Preparation of EUSDR "flagship project“: **Innovative Danube Vessel**

- Study commissioned by PAC 1a (via donau) on behalf of DG REGIO
- Overall objective: **Elaboration** and **development** of **innovative vessel** and **technology solutions** with high potential for implementation on the Danube
- Analysis of **solutions** derived **from existing R&D projects** with respect to their potential for implementation and further development in the Danube region
- **Provision** of **recommendations** for further **technology development** within the framework of the Danube Region Strategy
- Project duration: 18 months (until end of 2013)

Figure 3.2: Main engine with complete installation. Figure 3.3: Exhaust output section.

Figure 3.4: Urea injection and PM filter burner. Figure 3.5: Urea tank in the aft ship.

# Innovative Danube Vessel

Via donau has commissioned a consortium of inland waterway shipping experts to elaborate guidelines and recommendations for the
INNOVATIVE DANUBE VESSEL.

**"INNOVATIVE**" is understood in this case to be

"BETTER than the existing fleet",

both in terms of

ENERGY EFFICIENCY and

COST EFFICIENCY.

SCHIFFBAUTECHNISCHE VERSUCHSANSTALT IN WIEN GMBH
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МАШИНСКИ ФАКУЛТЕТ | MAŠINSKI FAKULTET | FACULTY OF MECHANICAL ENGINEERING

# Innovative Danube Vessel

- The identification and selection of promising technical and operational solutions will be based on performance indicators reflecting economic efficiency and environmental performance.
- The assessment of the proposed solutions will deliver costs-benefit assumptions, ranking of impact, clustering into short-, mid-, and long-term perspectives, and the description of necessary legal and market framework.
- The assessment of technologies and of vessel concepts will involve experts from vessel operators in order to ensure high practicability of the proposed solutions as well as further market acceptance.
- The results of the study shall enable vessel operators to invest into improved vessels in order to gain in efficiency and to reduce adverse environmental impact of navigation to a minimum

# Innovative Danube Vessel

## Some of the results obtained at mid- time of the project:

- Sufficient draught is essential for energy- and cost-efficient ship operation
- Any improvement on the Danube waterway conditions pays off in ship efficiency
- Or reversely: Ship design and technology will not compensate insufficient waterway conditions.

# Innovative Danube Vessel

## Innovative designs have to be prepared for two ship types:

**The push boat keeps the essential role in bulk transport, and is required**

- **to have 100 % fuel stores at a draught of max. T = 2,00 m**
- **and full performance and min stores at a draught of T = 1,60 m**

# Innovative Danube Vessel

## Innovative designs have to be prepared for two ship types:

**The self-propelled motor vessel will take more and more part in transport.**

- **Fully operational at a draught of less than 1,60 m**
- **High payload capacity**
- **Ability to push a single barge**

# Innovative Danube Vessel

## Shortlist of innovative devices:

1. WWF-Danube Vessels
2. Adjustable tunnel
3. LNG as fuel for inland navigating vessels
4. Engine systems for the use of LNG
5. Line Shaft type Contra Rotating Propeller
7. MoveIT!
8. Smooth
9. Streamline
10. NEWS

# Innovative Danube Vessel

## LNG as single fuel or as dual-use utilization

LNG (Liquefied natural gas) is expected to be essential to reduce

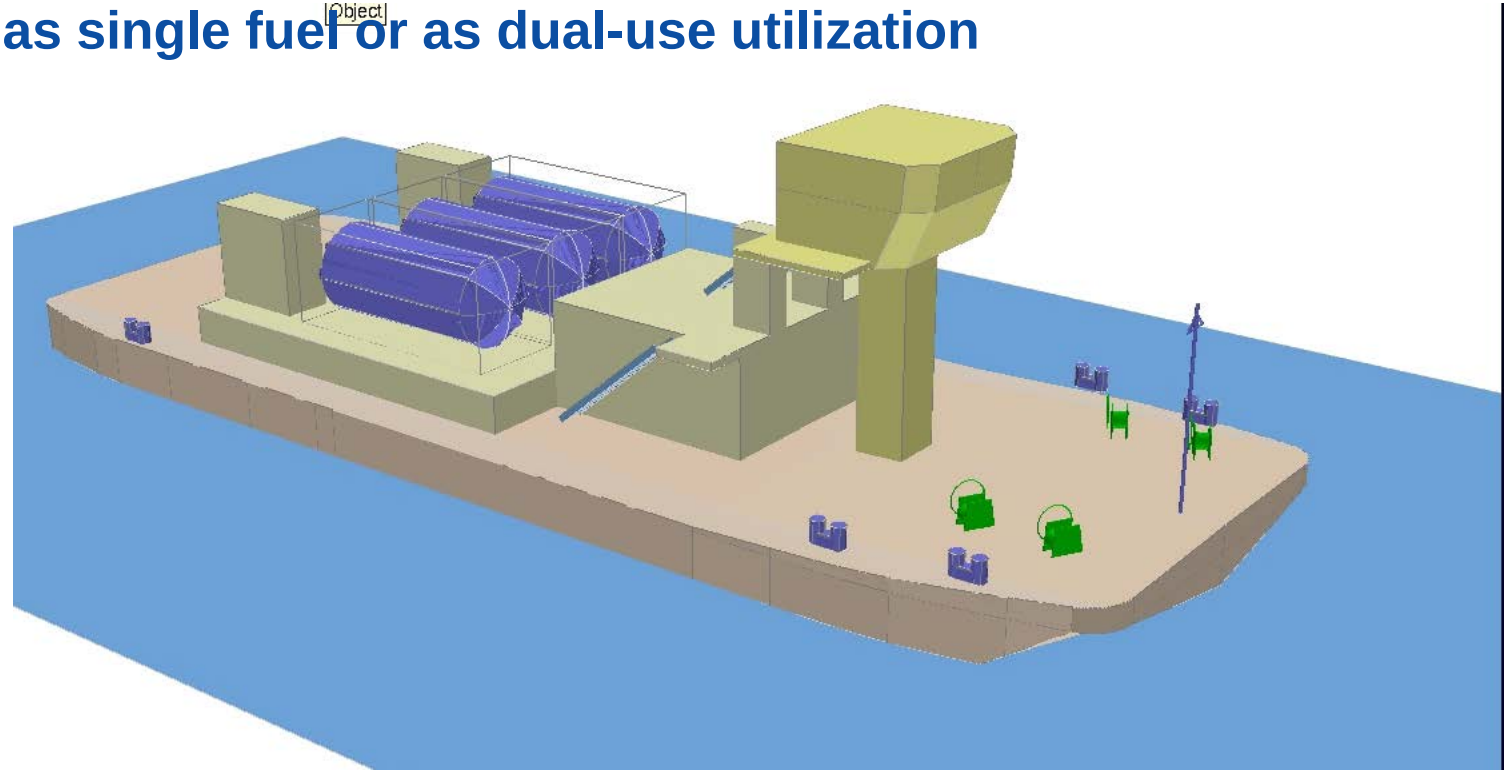
- the cost
- and environmental impact

of the inland waterway transport

But this has a big impact on ship design

# Innovative Danube Vessel

## LNG as single fuel or as dual-use utilization



## big impact on ship design

# Innovative Danube Vessel

**The benefit of innovative ships compared to the existing fleet will become evident by**

- **advantages in cost and performance**
- **Reduced environmental impact**
- **Stimulation for the modernisation of the Danube fleet**

# Innovative Danube Vessel

**As result of these design parameters we obtain that the new pushers and motor vessels will be**

- **adopted to the existing waterway condition**
- **will take full advantage of oncoming waterway improvements**
- **are competitive at European level**

The project started work in September 2012 and will deliver results in December 2013.