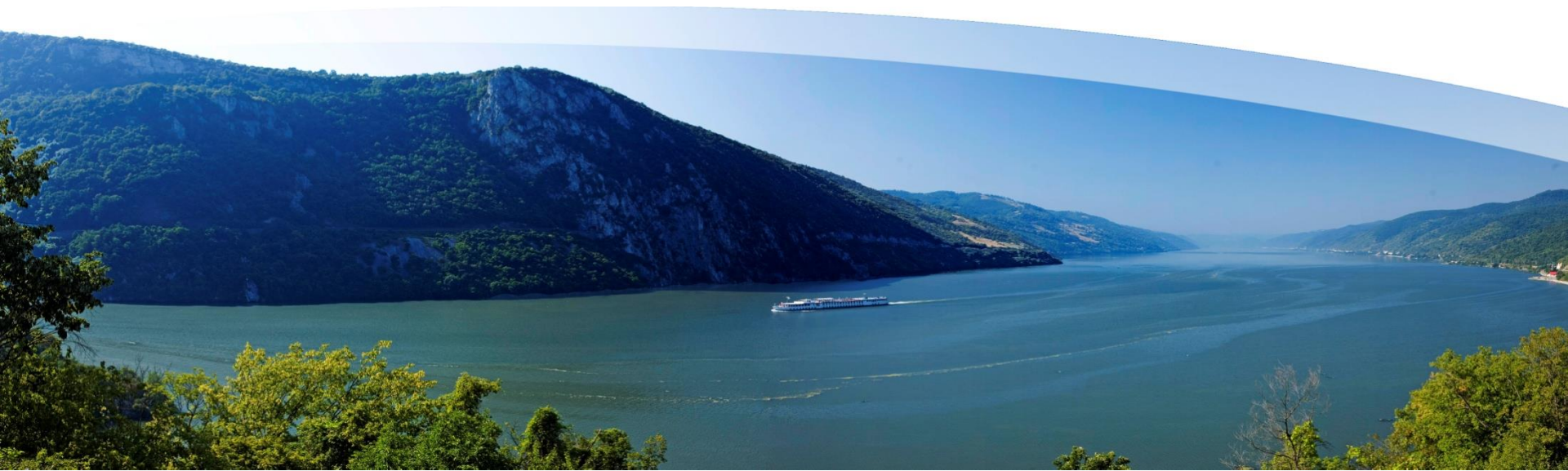


2nd EUSDR EMBEDDING WEEK

online | 12th June 2023



Key issues causing a slow modernisation rate of the Danube fleet

- **Long economic life-time of inland vessels and engines**

average age of a ship's engine before its replacement: 15-20 years (road vehicles: 5-10 years)

→ slow uptake of new engines in the fleet in a business as usual scenario

- **Small and specific market for inland vessels and engines**

engine manufacturers prefer to concentrate their R&D activities on more profitable markets

(Innovations in the larger maritime sector cannot be transferred to inland vessels, as the propulsion and engine technology is fundamentally different.)

Key issues causing a slow modernisation rate of the Danube fleet

- **Incomplete bunkering infrastructure for alternative energy carriers**

Deadlock situation: lack of demand for alternative energy carriers undermines the business case for building bunkering infrastructure and vice versa

- **High (investment) costs and a lack of business cases**

- significant investments for most greening measures
- increased complexity of the system increases maintenance costs
- most emission reduction technologies also increase operating costs
- **no business case, no return on investment can be achieved (under current framework conditions)**

Key issues causing a slow modernisation rate of the Danube fleet

- **Lack of investment capital**

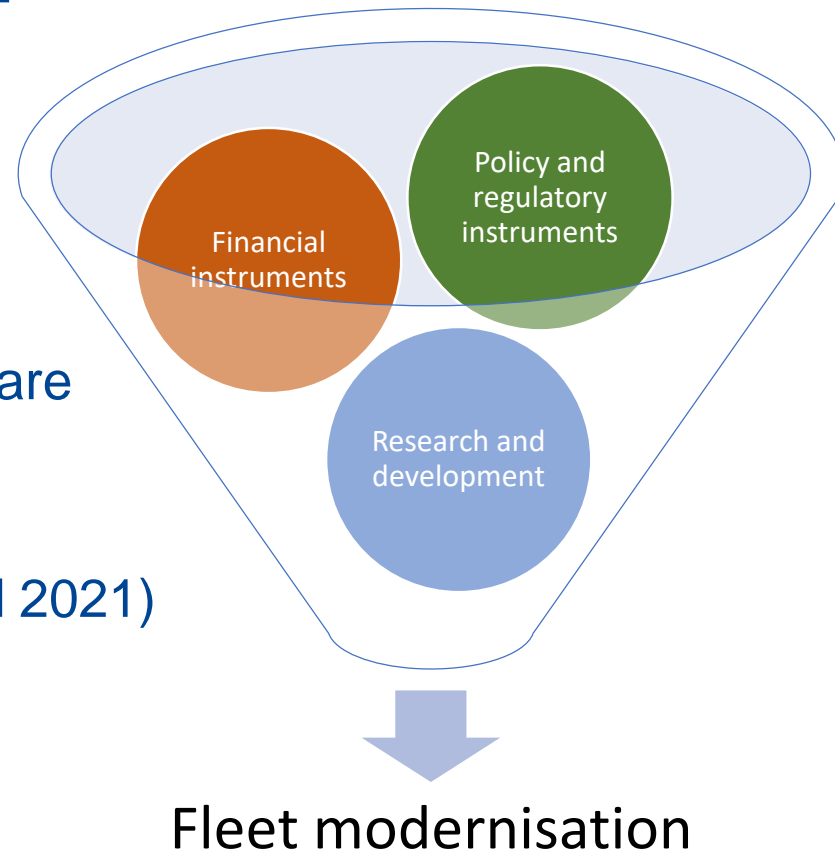
equity capital of ship owners is generally low and hydrological conditions impact the profitability of Danube navigation → financiers are hesitant to invest in new technologies and in companies with a low equity ratio and/or uncertain business prospects

→ The vast majority of ship owners is not in a position to make greening investments without any kind of support.

How to achieve the transition towards zero-emission navigation?

A combination of different instruments is needed (some are already put in place):

PA1a Strategy on Fleet
Modernisation (2019, updated 2021)



Research and development

- **Strategic Research Agenda**

“Strategic Research Agenda for Inland Waterways Transport” released on 24 January 2019, elaborated by the inland waterway transport sector, laying down future research and innovation needs

- **R&D projects (mainly within Horizon Europe Programme, also CEF)**

big technological leaps are unlikely to happen in the small IWT sector internally; development in other sectors need to be monitored as well



- **PROMINENT - Promoting Innovation in the Inland Waterways Transport Sector (2015 – 2018, H2020)**



promising "greening" technologies were developed further; efforts were made to standardise and modularise the most promising environmentally friendly technologies and concepts

- **SYNERGETICS – Synergies for Green Transformation of Inland and Coastal Shipping (2023 – 2026, HEu)**



application-oriented collaborative project looking at ways to reduce emissions in inland and coastal shipping through retrofit solutions

- **H2 meets H2O (2022 – 2023, FFG (Austria))**

exploratory project, primarily implemented in the Austria-Bavaria region, examining the use of H2 as a climate-neutral fuel and as a transport good

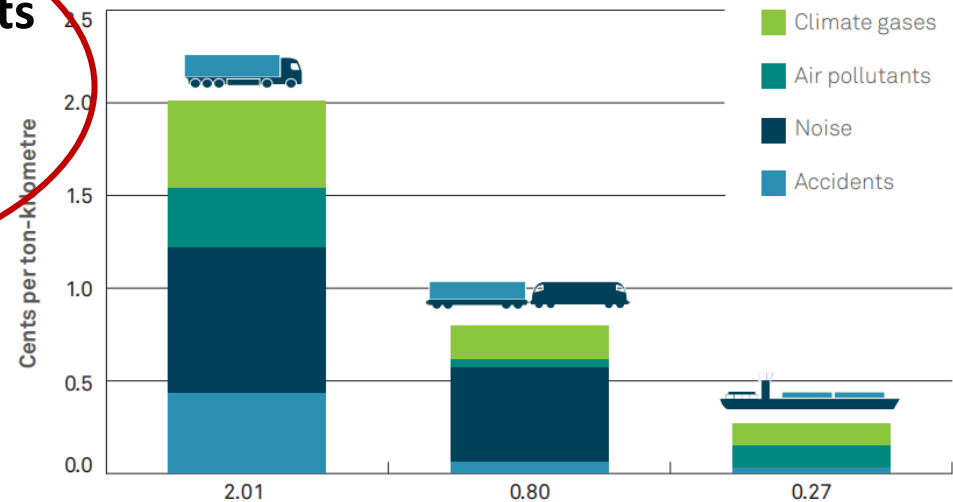
R&D projects:

- Usually cooperations of leading research institutions in the field of ship hydrodynamics and energy transition, innovation centres and shipping industry associations, shipbuilding industry, engine manufacturers and technology providers as well as regulatory bodies and vessel owners.
- Current grant schemes at national and European level mainly concern the first few pilot vessels to demonstrate innovative techniques and proof of concept; no roll-out options.

Policy and regulatory instruments

- Internalisation of external costs**

fair pricing would lead to new business cases for investment (Europe-wide approach needed)



The sum of external costs for inland vessels is by far the lowest (average values for selected transports of bulk goods)

Source: PLANCO Consulting & Bundesanstalt für Gewässerkunde 2007

- Clear and ambitious emission target setting**

that apply to both new vessels and the legacy fleet and their engines

Policy and regulatory instruments

- **Regulations and rules that keep pace with technological development**

faster, cheaper and more standardised type approval procedures
could induce faster modernization

- **Environmental zones**

- already applied in some ports in Western Europe
- would give shippers the tool to “earn back” investments through reduced port fees

- **Voluntary covenants between public and private parties**

to define a more reliable pathway towards zero emission and raise investment security for private parties



Financial instruments

- **National grant schemes (if possible supported by Cohesion Fund)** (existing in some countries)

limitations with regard to size of the scheme, duration and funding rate; difficult selection of eligible items

→ coordinated approach among European countries would be needed

- **European Greening Fund** (not existing)

several ways could be considered how the fund can be filled (EU grants, environmental surcharges on diesel, ...)

- **Loans by private banks**

SMEs often have difficulties in providing sufficient financial securities

→ additional instruments, such as public guarantees or loans with longer pay-back periods needed

Financial instruments

- **InvestEU**
- **Green Shipping Guarantee programme of the European Investment Bank (EIB)**
 - primarily aimed at and used by the maritime sector, but would also be open for inland waterway transport
 - But: concerns loans for investments/business plans that have a positive business case
- **Fiscal incentives** (existing in some countries)
 - especially interesting in case of greening technologies with a negative return on investment, such as after-treatment systems
- **Innovation Fund of DG CLIMA**

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