
# Sailing cargo vessels - a realistic path to achieve carbon-neutral shipping

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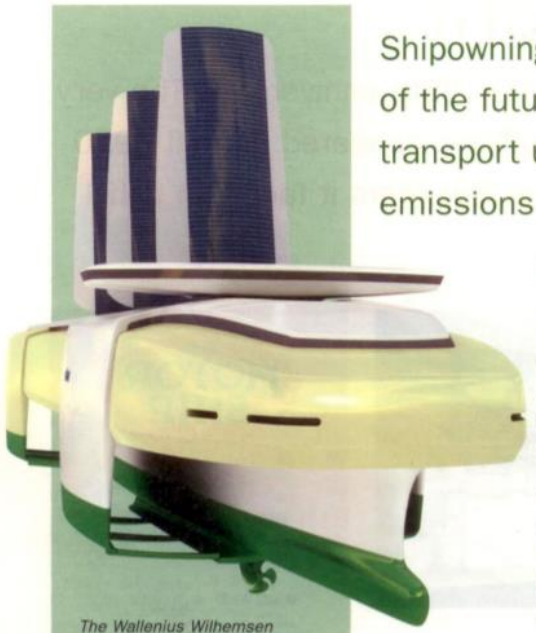
*Funding from:*

# Why now?

# Why now?

## *E/S Orcelle* – a concept



*The Wallenius Wilhemsen design is futuristic in appearance but based on sound, if advanced, thinking*

Shipowning group Wallenius Wilhelmsen has a vision of the future – an environmentally friendly ocean transport unit for 2025 that does not release any emissions into the atmosphere or the oceans

The *E/S Orcelle* uses renewable energy sources and fuel cells to generate the energy required to power the vessel. Its highly advanced design provides optimum cargo capacity to transport cars and other goods around the world more efficiently.

Sustainable shipping depends on the use of new technologies and on the utilisation of energy from renewable sources. Wallenius Wilhelmsen believes that the future of the shipping industry lies in using the energy sources already available at sea – solar, wind and wave energy.

Even so, the company is well aware that the technologies required to enable this concept vessel to become a reality

can transport 6,500 vehicles. Hence it will be capable of transporting up to 10,000 cars on eight cargo decks, three of which will be adjustable to accommodate cargo of different heights and weights.

Compared to today's vessels, the use of a pentamaran hull and renewable energy will help optimise the vessel's cargo capacity and give it a maximum deadweight of 13,000 tonnes . This is said to be around 3,000 tonnes more than the equivalent conventional vessel thanks to the use of aluminium and thermoplastic composites in its construction and the elimination of ballast water.

Conceptual work on the design began in 2004 and is ongoing and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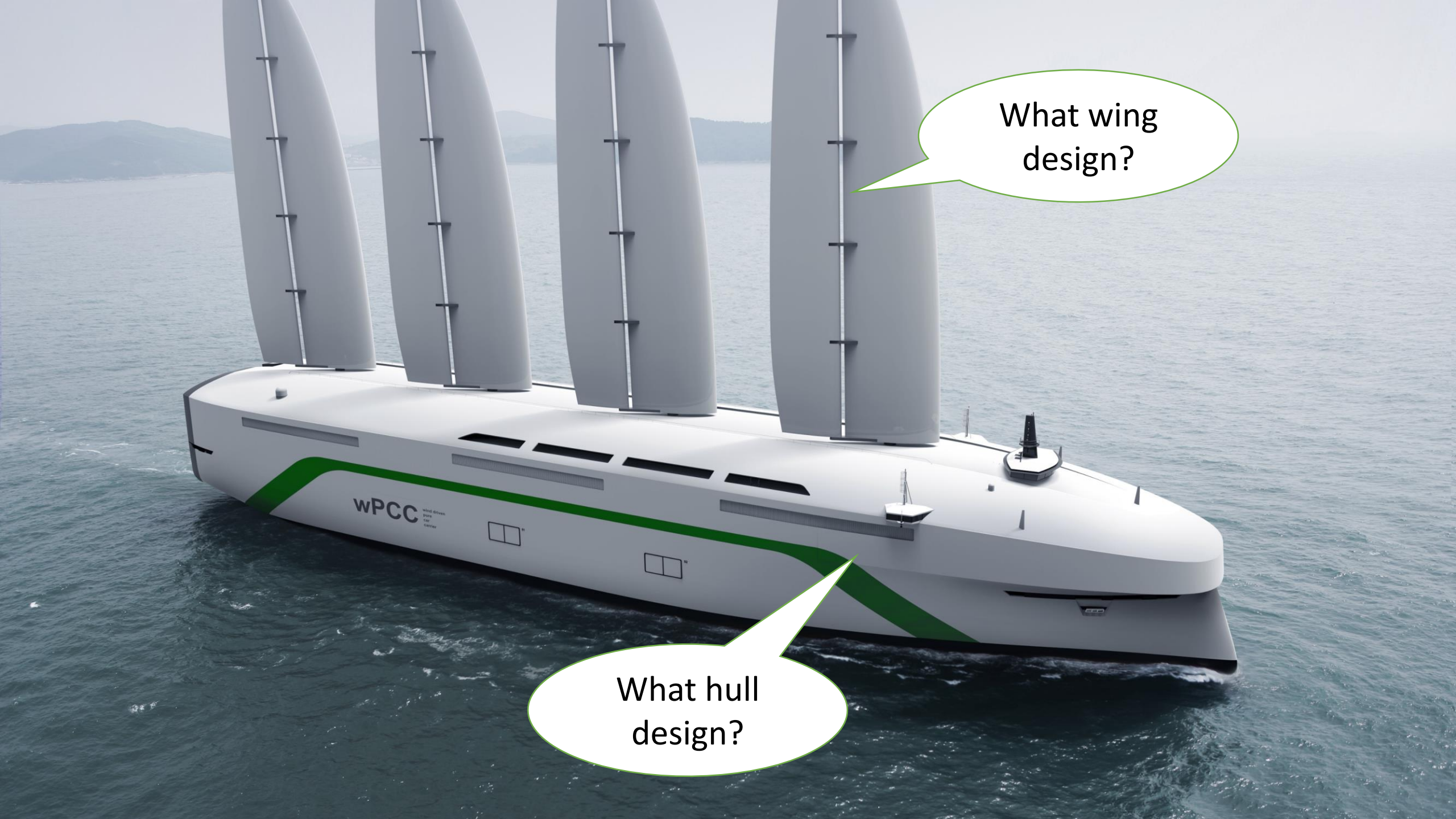
Econowind.nl

yachtcharterfleet.com


skysails.info

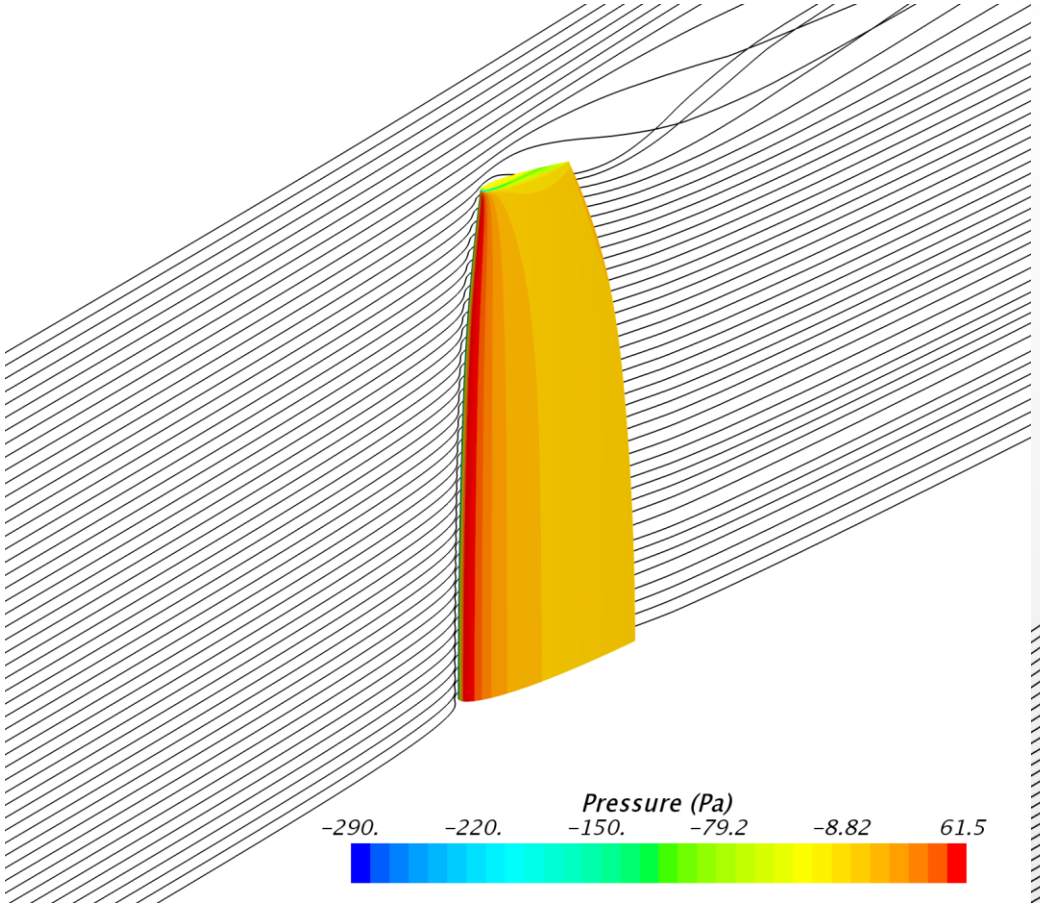

**The aim of the research project is to develop a wind powered vessel design (Proof-of-concept)**

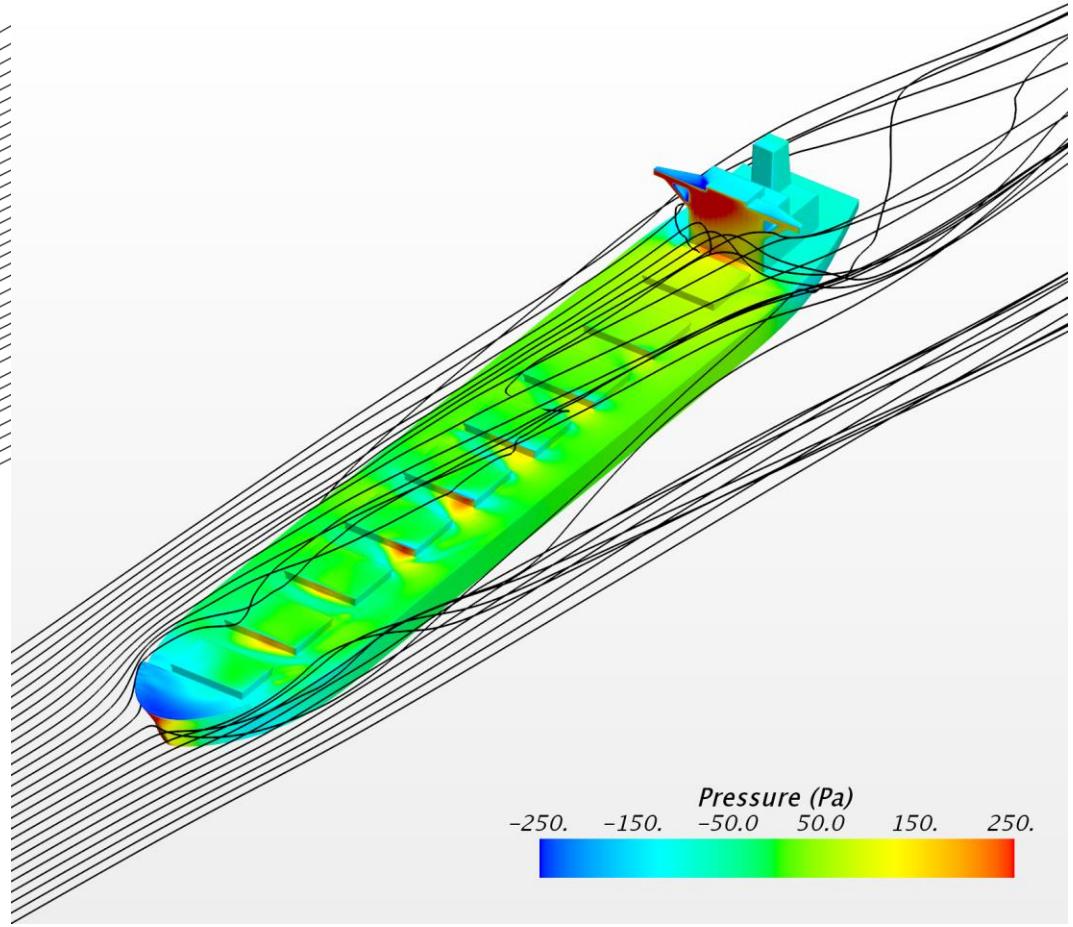

What wing design?
wPCC
What hull design?


wPCC
How control the sails?


How combine wind- and propeller propulsion?
What manoeuvring behaviour has the vessel?

# Aero- och hydro dynamics

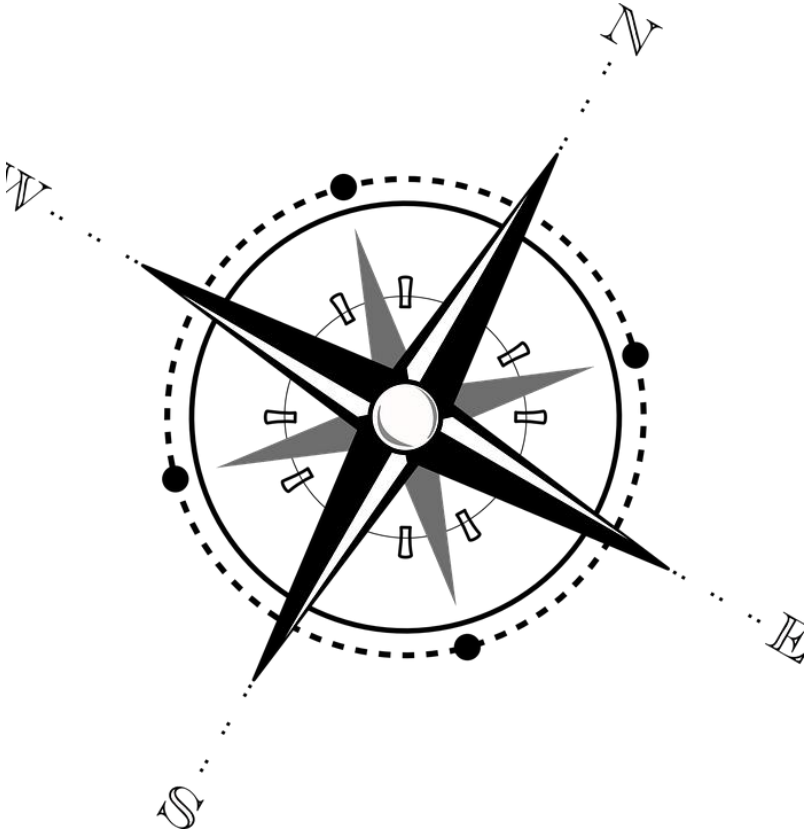


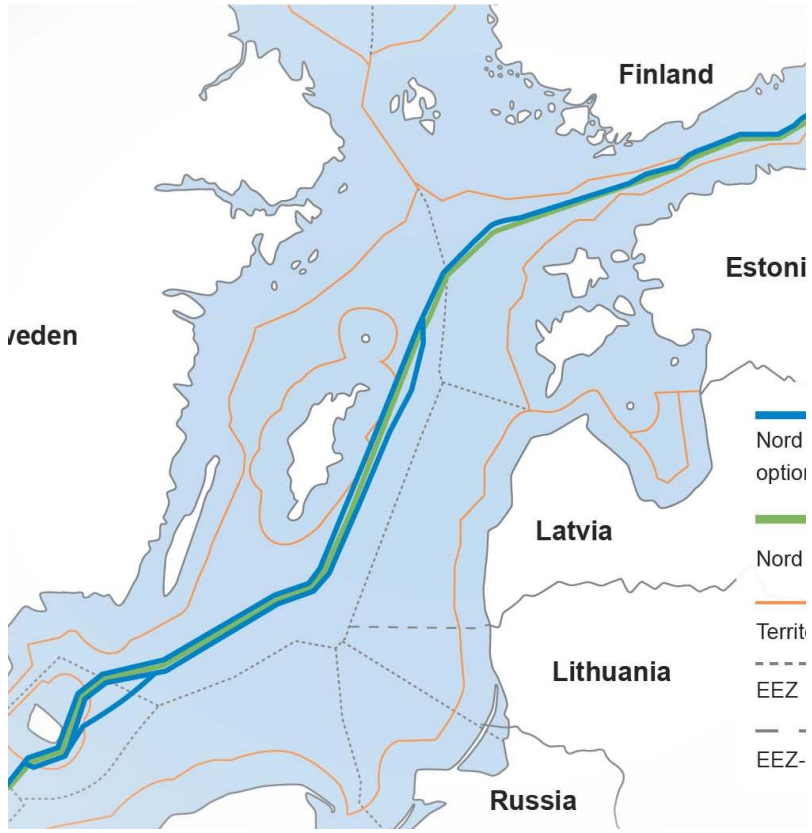



# Model tests

# Simulation

# Route optimization

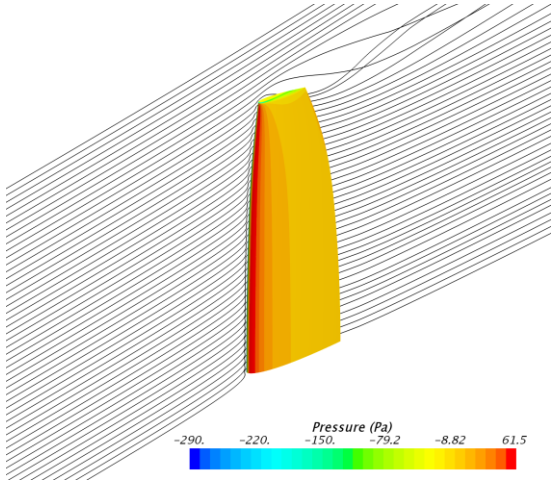



# Risk analysis

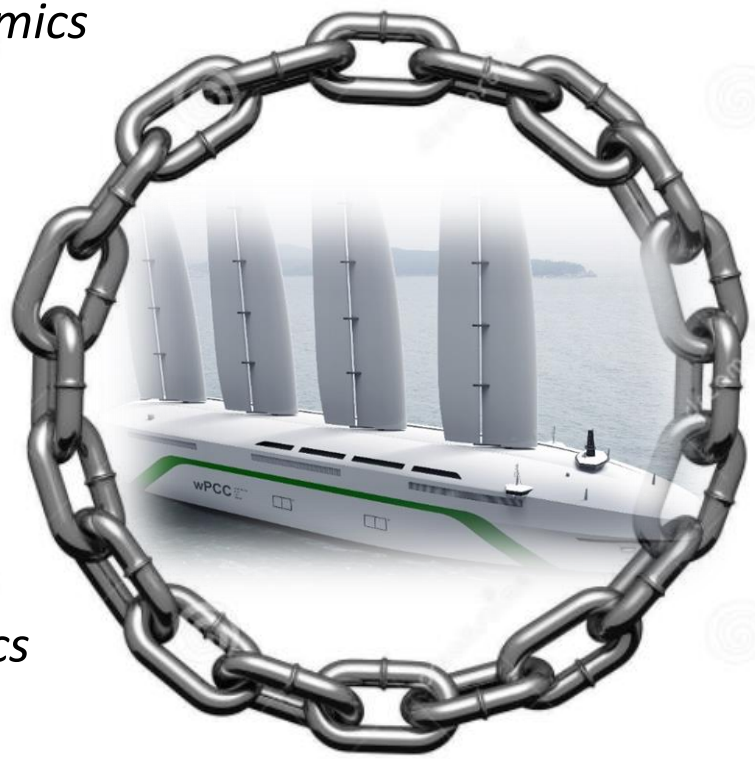

# Logistics system

# What methods are needed?

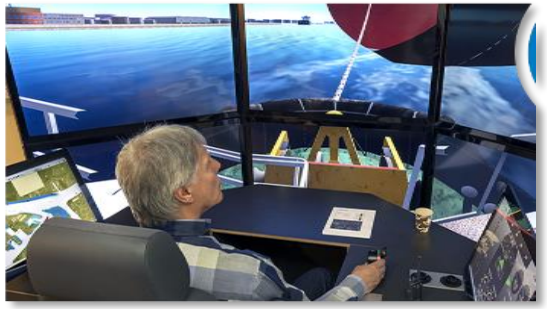
*Aero- och hydro dynamics*




*Model tests*



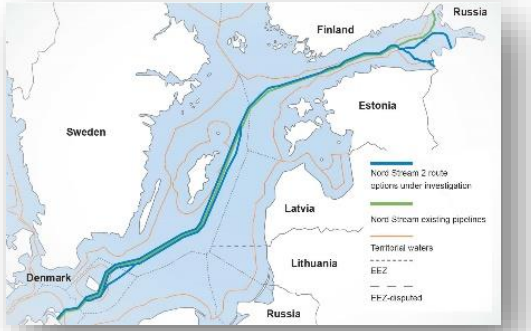

*Simulation*



*Logistics*

*Route optimization*

*Risk analysis*

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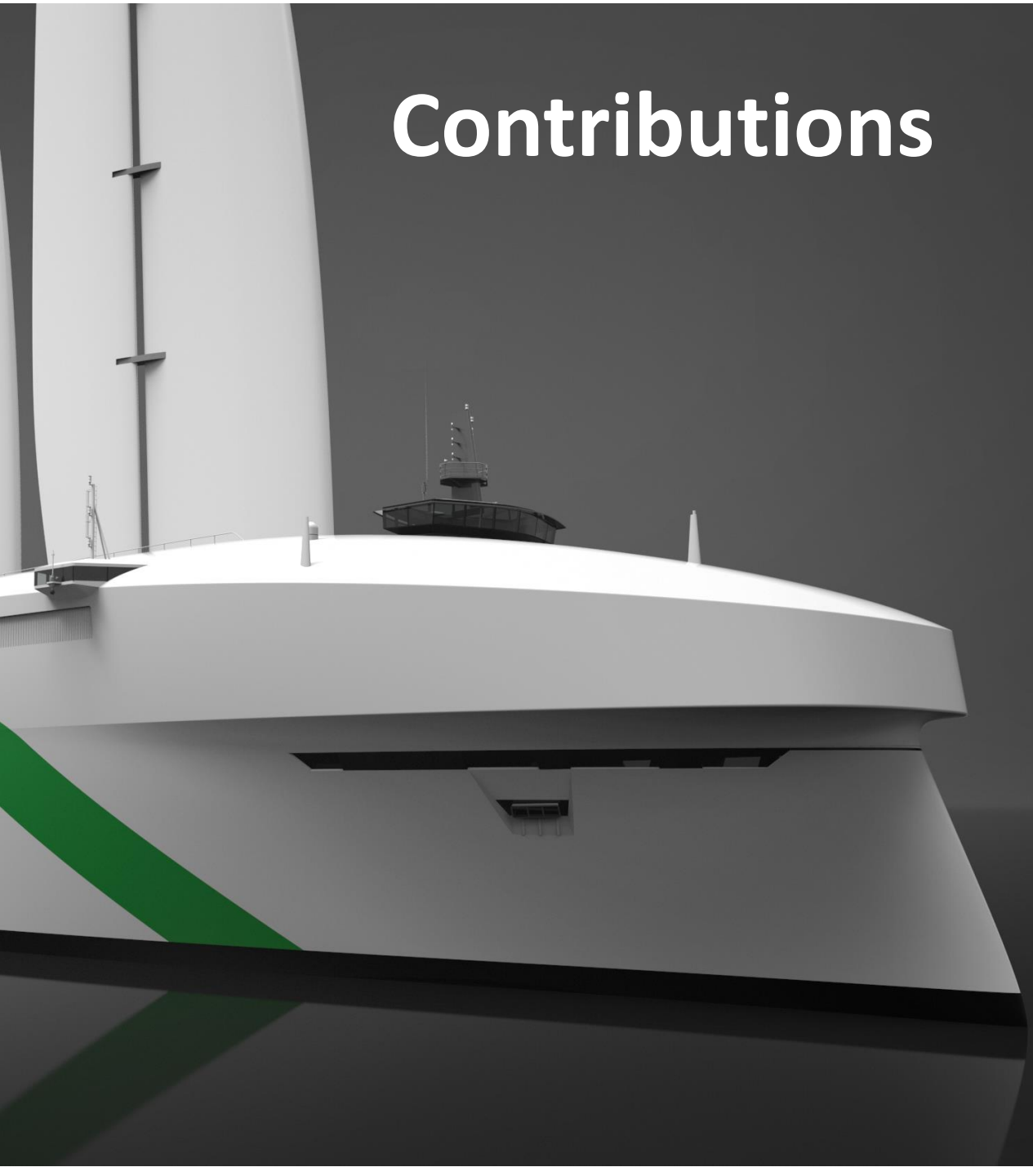

# Contributions

- Front runner – show a realistic path
- Unique competence cluster
- Expert knowledge (3 PhD exams)
- Analysis methods for design and assessments
- Upcoming expansions – new projects and demos


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*Funding from:*