

Invitation to final Blue INNOship conference

Blue INNOship has the pleasure of inviting you to the final conference, where the partners in Blue INNOship will present their results from the partnership.

Blue INNOship has been a huge success and the activities in the partnership has led to verified decrease in emissions from the participating shipowners and the development of technologies and designs that improve, optimize or change the way we do things in the maritime industry.

The conference will consist of a number of short sessions of approximately one hour each, where the project managers will present their work. After each session there will be a possibility to have informal one-to-one talks with the project managers in the break-out area.

The conference is held at DTU on Tuesday, March 19 from 09.30 – 16.15.

*The conference is free to participate in
and you are more than welcome to share the invitation in your network.*

For registration, please email magnus@blainno.dk.

Full schedule will be available next week, but please sign up today.

About Blue INNOship

Blue INNOship is Denmark's largest maritime innovation project where the focus has been on creating growth and employment in the Blue Denmark through development of green and energy-efficient solutions.

Blue INNOship consisted of app. 35 partners covering suppliers, shipowners, consultants, universities and schools, GTS institutions, authorities and classification societies, who worked together in 5 work packages.

The activities in Blue INNOship is funded by the project partners, Innovation Fund Denmark, the Danish Maritime Fund and D/S Orient's Fund.

Projects in Blue INNOship

Work Package 1 - Ship Design & Propeller Solutions

Controllable Pre-Swirl Fins

To optimize the propulsion system on vessels by improving the working environment for the propeller. The benefits from this will be fuel oil savings and consequently lower emissions. Furthermore propeller noise will be reduced.

This will be done by developing controllable pre-swirl fins – today this type of solution does not exist.

To develop a tested concept and solution for controllable pre-swirl fins, that optimizes the inflow (wakefield) to the propeller. The design must match both market needs, customer needs and business requirements.

Participants: MAN Energy Solutions, A.P. Moller-Maersk, OSK-ShipTech, DTU Mechanical Engineering

The project is supported by the Danish Maritime Fund and Orient's Fund.

Dynamic propeller shaft speed control

The project is expected to develop and test a solution that can be implemented on two-stroke engines on large seagoing vessels. The technology has the potential of improving total propulsion efficiency by 2-3% predicted for North Atlantic passage and reducing fuel consumption and emissions accordingly.

Participants: A.P. Moller-Maersk, Propeller Control ApS, Wärtsila Lyngsø Marine, DTU Mechanical Engineering, DTU Electrical Engineering

The project is supported by the Danish Maritime Fund.

Trailer Cat

The project introduces a new concept of a Ro-Ro (Roll-on-Roll-off) vessel designed in a catamaran-configuration for large-volume maritime transport of un-accompanied road trailers and other classes of rolling cargo.

The goal is to confirm the task to achieve a cost reduction of 50% per trailer and a CO2 emission reduction of 70% per trailer compared with large conventional Ro-Ro vessels in use today on a route of approx. 120 nautical miles.

The intention is to develop a business case that will enable an operator and/or investor to start negotiations with partners as well as with customers, ports, shipyards, and authorities.

Participants: OSK – ShipTech, Claus Kruse IVS, Bureau Veritas, Tetraplan, Transmar, DBI, CBS, DTU Mechanical Engineering

VanishProp

The overall goal of the project is to improve energy efficiency and sustainability when propelling a variety of marine small crafts; ships, submarines, drones, ROVs and yachts through water. Furthermore, hopefully proving the innovative functionality, durability and efficiency of a propulsion system that can completely disappear when it is not engaged.

Participants: Esmar Engineering, OSK-ShipTech

Work Package 2 - Performance & Monitoring

Vessel Performance Decision Support

To develop a platform to support the processes around the optimization efficient ship operation with special focus on energy efficiency and environmental performance.

To develop a performance management platform which will provide decision support for ship management, ship owner and ship operator companies. The platform will be designed to support the optimization of the transport and energy efficiency in technical and operational functions as well as supporting the development of human awareness on energy efficiency. Further, the platform will support shipping companies to document and improve environmental performance.

Participants: TORM, J. Lauritzen, Vessel Performance Solutions, FORCE Technology, Aalborg University

The project is supported by the Danish Maritime Fund and Orient's Fund.

Monitoring & performance

The aim of the project is to develop an ICT-centered (information, communication and technology) system for energy optimization of ships – with a focus on working vessels and minor ferries with flexible operation profiles. Several performance systems for optimising the energy efficiency of vessels are available in the market. The systems are developed for long distance sailing and cannot be used directly at working vessels as today's energy optimisation software systems are not suitable for vessels having unpredictable and flexible operation profiles.

Participants: University of Southern Denmark, Automation Lab, SIMAC, A2SEA, Esvagt

The project is supported by the Danish Maritime Fund.

Work Package 3 - Alternative Fuel Solutions

Gas Valve Train

The overall goal is to increase the pressure of gas injected to two-stroke engines from 30 MPa to 60 MPa.

A new gas valve train will be developed to enable the use of a higher gas pressure in two-stroke gas engines. The new gas valve train is a complex technology and each part has to be developed for a higher gas pressure and incorporated.

Participants: MAN Energy Solutions, Eltronic FuelTech, Lloyd's Register, LR-Marine, Dansk Analyse, Aalborg University, Dep. of Chemistry and Bioscience, Aalborg University, Dep. of Energy Technology

The project is supported by Orient's Fund.

Multi fuel burners for low emissions

Development of a multi fuel burner capable of burning for marine applications fulfilling new environmental requirements for NO_x, SO_x, and particles.

Participants: Alfa Laval Aalborg, Clean Combustion, DTU Chemical Engineering

The project is supported by the Danish Maritime Fund.

Reduction of methane from LNG in diesel engines

To be able to identify the causes of the high emissions of unburned methane and assign the best ways to reduce unburned methane in the exhaust from ship engines.

Participants: DTU Mechanical Engineering, DTU Chemical Engineering, MAN Energy Solutions, Danish Technological Institute

The project is supported by the Danish Maritime Fund.

Shore based small scale LNG/LBG liquefaction unit

Innovation of shore based LNG liquefaction unit which on demand can produce LNG/LBG bunker to the maritime industry.

- The liquefaction unit shall be able to connect to the Natural Gas network
- The liquefaction plants shall produce LNG on demand to feed LNG filling/bunkering solutions in Danish Ports
- It will be a modularized design and can be scaled to produce from 20-50 Ton/h
- The plant can, with a add on system, be connected directly to biogas plants and produce LBG direct
- It shall be “intelligent” and function fully automatic with short start-up and shut down cycles

Participants: Kosan Crisplant, Moving Energy, DTU Mechanical Engineering

The project is supported by the Danish Maritime Fund.

Work Package 4 - Emission Reduction Technologies

Scrubbers – Controlling PM Emissions

Investigate how emissions of PM (particular matter, black carbon, soot, etc) can be further reduced by optimising scrubber design and propose robust and practical methods for approval and control of the scrubber system.

Participants: Alfa Laval Aalborg, MAN Energy Solutions, FORCE Technology

Out docking hull performance improvement

The success criteria of this project is to identify ways to decrease the roughness of the coating surface and thereby decrease the frictional resistance (drag resistance) and increase fuel efficiency for vessels in the pristine condition (i.e. out of dry-dock).

Participants: HEMPEL, A.P. Moller-Maersk, DTU Chemical Engineering

The project is supported by the Danish Maritime Fund.

Selective Catalytic Reduction of NOx on ships

The goal of the project is to provide the tools, mathematical models and knowledge needed for the industrial partners to supply optimal and competitive SCR technology solutions for ships.

Participants: DTU Chemical Engineering, Umicore, Haldor Topsøe, Alfa Laval Aalborg, A.P. Moller-Maersk

The project is supported by the Danish Maritime Fund.

Encapsulated biocides

This project aims at controlling the leach rate of biocides. Controlled release will lead to more effective use of biocides, thereby increasing the longevity of the coating and decreasing the environmental impact. A longer lasting hull coating will lead to economic benefits for the ship owners and allow coating manufacturers to obtain premium price for their product. The more effective use of biocides will reduce the environmental impact of hull coatings.

Participants: HEMPEL, Danish Technological Institute

Work Package 5 - Servitization & Retrofit

Servitization

The goal is to build a competency at the supplier companies and the ship owners to set the financial value of the new solutions, particularly with respect to purchase price, contract price, subscription fees, maintenance fees, etc.

Establish new specific knowledge about how contracts can enable the transformation from one-off transactions to long term collaboration between supplier(s) and ship owner that encourages innovation and technical development by e.g. ensuring a balance between risk and reward.

Create specific insight into understanding how to link scale, profitability and financing of servitized solutions for the industry.

Participants: CBS Maritime, Danish Maritime

The project is supported by the Danish Maritime Fund and Orient's Fund.