



ECOPRODIGI

Harnessing Digitalisation for the Benefit of Maritime Industry

2.12.2020

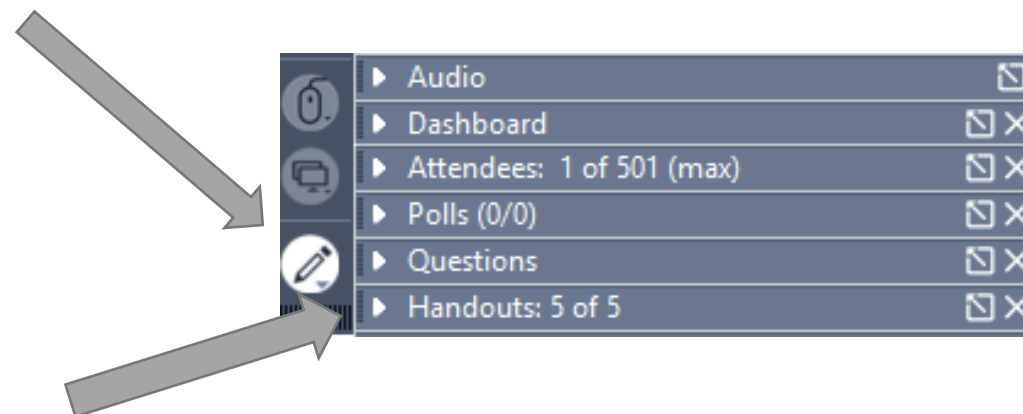
WELCOME

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Welcome to the webinar!

- Questions and comments from the audience are welcome! Please use the **Questions** section in your GoToWebinar toolbar to type in your questions or comments.
- We've added some materials for you to download and read. Please check the **Handouts** section in your GoToWebinar toolbar to access the materials:
 - **Policy briefs:** Digital Performance Monitoring, Optimising Cargo Stowage Processes & Optimising Shipyard Processes
 - **Reports:** Maritime in the 21st Century & Road to Shipyard 4.0
- Make yourself comfortable and enjoy the webinar!



Today's Agenda

Time	Subject / Speaker
09.30 - 09.40	Welcoming words <i>Milla Harju, ECOPRODIGI project manager, Pan-European Institute at the University of Turku</i>
09.40 - 10.00	Keynote: Digitalisation of maritime industry – through the pandemic and beyond <i>Lars Jensen, CEO, SeaIntelligence Consulting</i>
10.00 - 10.20	Digital performance monitoring solutions for eco-efficient vessel operations <i>Sverre Patursson Vange, Head of Digital Solutions and Analytics, J.Lauritzen</i> <i>Marie Lützen, Associate Professor, University of Southern Denmark</i>
10.20 - 10.40	Cargo stowage optimisation with the help of digital solutions <i>Mads Bentzen Billesø, Senior Project Manager, Innovation & Partnerships, DFDS</i>
10.40 - 10.50	Break for stretching and refreshments
10.50 - 11.10	Streamlining shipyard processes with digital solutions and new concepts <i>Maarit Lappalainen, Vice President, Carina Consulting Solutions, Carinafour</i> <i>Andrius Sutnikas, Development Manager, Klaipeda Science and Technology Park</i>
11.10 - 11.30	Digital training solutions for shipping companies, ports and shipyards <i>Aki Piironen, Project Manager, Machine Technology Center Turku Ltd.</i>

Today's Agenda

Time	Subject / Speaker
11.30 - 11.45	Digitalisation roadmaps for maritime industry in the Baltic Sea region – setting the course for 2020 – 2030 <i>Valdemar Ehlers, Technical Director, Danish Maritime</i>
11.45 - 12.00	Policy agenda for eco-efficient maritime industry in the Baltic Sea region <i>Tapio Karvonen, Senior Researcher, Centre for Maritime Studies, University of Turku</i>
12.00 - 12.10	Break for stretching and refreshments
12.10-13.10	Discussion: The next wave of digitalisation – where is maritime industry heading to? Introduction & moderation: <i>Matthew Jon Spaniol, PostDoctoral Research Fellow, Aarhus University</i> Panellists: <ul style="list-style-type: none">• <i>Niels Gorm Mały Rytter, Associate Professor, University of Southern Denmark</i>• <i>Michael Paarup, Vice Director, COO, Logimatic Solutions A/S</i>• <i>Ulf Siwe, STM BALT SAFE Project Manager, Swedish Maritime Administration</i>• <i>Leena Jokinen, Education Manager, Finland Futures Research Centre</i>• <i>Mads Bentzen Billesø, Senior Project Manager, Innovation& Partnerships, DFDS</i>
13.10 – 13.20	Closing remarks <i>Milla Harju, Project Manager / ECOPRODIGI, Pan-European Institute at the University of Turku</i>

ECOPRODIGI: Why?

Threats and Challenges imposed on BSR Maritime Industry

- **State of the Environment / Environmental degradation of marine life**

-> Growing amount of regulation (IMO, EU, national)

= Need for economically sound and technologically outstanding solutions, quick!

- **Growing tech competition from East**
- **Average age of fleet sailing in the Baltic Sea**
-> Cannot wait for newbuilds



ECOPRODIGI: Facts

Main Objective:

To increase eco-efficiency in the Baltic Sea Region maritime industry through digitalisation

To increase the institutional capacity of shipping companies, shipyards, suppliers and ports to improve the eco-efficiency of their current operations as well as to create and implement new digital solutions in the future

Project duration: Oct 2017 – Dec 2020

Project budget: € 4,2M



ECOPRODIGI: Partners

- **21 Project Partners** from Finland, Sweden, Denmark, Norway and Lithuania

- **Also 6 Associated Partners** from Poland, Russia, Estonia, and Sweden



How?

ECOPRODIGI's Cases

Case 1 Digital Performance Monitoring



Case 2 Optimising Cargo Stowage



Case 3 Optimising Shipyard Processes

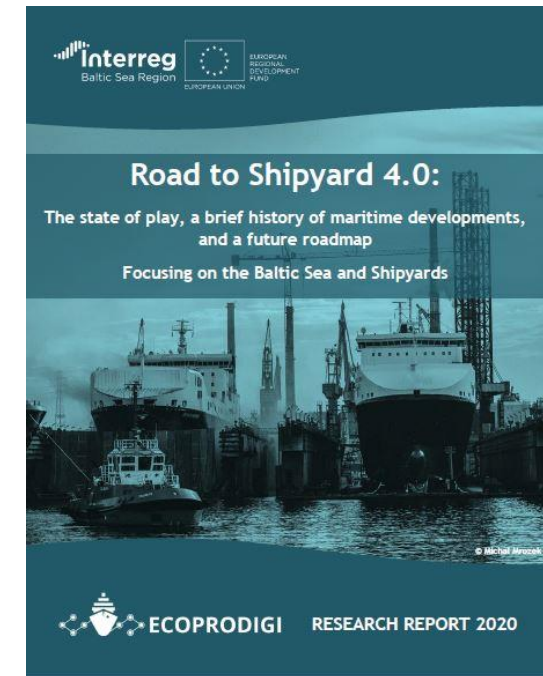
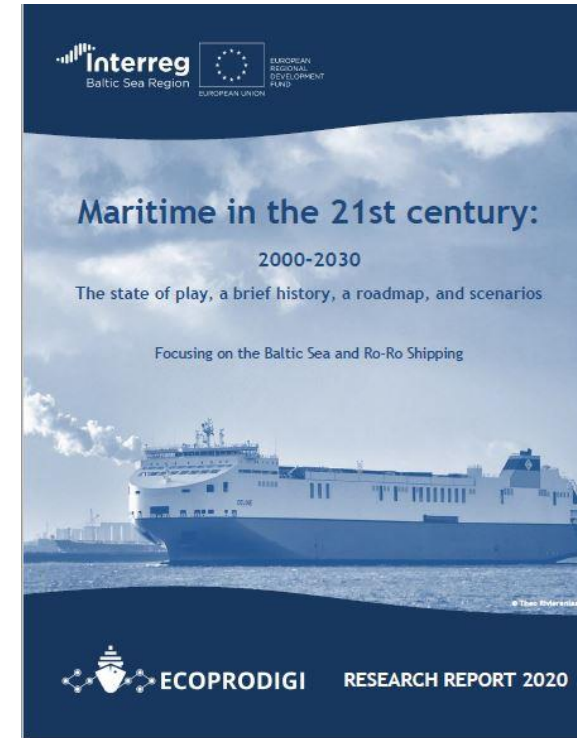


How?

ECOPRODIGI Capacity Building

WORK PACKAGE 4: Improving seedbed for eco-efficient digital solutions

- Development of a digitalisation and eco-efficiency implementation roadmap
- Creating and piloting a training programme for end-users based on best practices regarding eco-efficiency through digitalisation



How?

ECOPRODIGI Capacity Building

WORK PACKAGE 5: Strengthening public support for maritime industry digitalisation

- Arrange policy workshops and seminars to discuss the outlook of digitalisation
- Produce policy briefings and recommendations to support digitalisation and eco-efficiency in the Baltic Sea Region



Digital Performance Monitoring of Vessels Enables a Dramatic Increase in Eco-efficiency in Shipping

Improving eco-efficiency on existing fleet in focus

Enhancing eco-efficiency in shipping is commonly connected to building new, more economic and more eco-friendly ships. However, this takes time and money and thus is out of reach in many sub-sectors of shipping. With monitoring digital performance, it is possible to make existing older vessels eco-efficient saving both environment and money. With relatively simple and inexpensive digital solutions, shipowners can reach significant results quickly, even in cases where there is no need or economic possibility to replace old vessels with new ones.

Key findings

Many factors can affect a vessel's operational efficiency. Monitoring vessel performance in real time makes it easier to identify potential inefficiencies. With the help of digital technologies, solutions and models, it is possible to capture and analyse real-time operational data from vessels.

- The data gained from digital performance monitoring enables the personnel to make informed decisions and adjust operations and activities accordingly.
- Digital performance monitoring can help to reduce a vessel's fuel consumption and emissions by up to 20%, prevent breakdowns and reduce repair and maintenance costs.
- Digital performance monitoring system can be installed on existing, even old vessels and provides significant and quick potential for promoting eco-efficiency in the shipping business by reducing vessels' fuel consumption and emissions.
- Investments in research and development of suitable technology and solutions is needed on both national and EU levels.
- Technology is not enough; it is equally important to focus on training crews and onshore personnel to use the systems properly to fully utilize system's potential.
- Cooperation between shipowners, researchers and system providers is crucial.



Optimising Cargo Stowage Processes Increases Effective Use of Ships

Keep cargo moving and ships sailing

The primary role of ships is to transport cargo and, in some cases, passengers efficiently. Cargo loading and discharging times should be as short as possible and all waiting times in anchor and in ports should be avoided. This would benefit both the shipowners and the environment. Existing vessels can be operated more efficiently and fewer ships may transport the same amount of cargo. Speed of ships can be optimised, and thus the emissions can be minimised - no more purposeless waiting.

Key findings

- Maritime transports are most effective when vessels are sailing as fully loaded as possible using optimised speed to reach the next port just in time. Entering the port without waiting and then unloading and loading the cargo immediately will minimise the time spend in port. Digital technologies can contribute to reaching this goal.
- Effective cargo stowage processes will benefit shipowners who get better returns on their vessel investments; clients who get their goods faster and on accurate timeable; port operators, who can use their equipment more efficiently; and last but not least the environment, which benefits from less fuel consumption and emissions. These can potentially be decreased by 2-10% per route and ship.
- In Ro-Ro shipping, improving the stability calculations of cargo unit data and reducing ballast water are important. Knowing the real weight of each cargo unit has high priority which the International Maritime Organization (IMO) should promote.
- However, many impacts are also true for other ship types. Shortening port stays and enabling optimal sailing schedules to minimise fuel consumption benefit all.
- Sharing of data between different actors is crucial in the cargo stowage optimisation process. We need accurate real-time data from various locations and systems.
- Integration of data is a technical issue, but readiness to share more data is a human one. Actors must be encouraged and sometimes obliged to share more data with each other.
- Technical research and innovation on the digital solutions for the optimisation process is needed on all levels, but special emphasis should be placed on continuously reliable satellite connections to and from ships.



Optimisation of Shipyard Processes Improves Productivity and Eco-efficiency

smoother the process, the better the eco-efficiency in shipping is often focused on ship operations perspective to cover shipbuilding and ship repair. Recycling have direct positive effects on eco-efficiency of production processes have positive impacts: less transfers of items, damages and need for adjusting or

Key findings

- At shipyards, inefficiencies are often most prominent and supply chain management.
- One challenge is that the shipbuilding process includes a large network of different-sized companies, and the new solutions and procedures should be applied across the whole supply chain.
- Optimisation of processes, restructuring of work, and capitalisation of new digital technologies can improve productivity and efficiency in shipyards.
- Digital technologies, such as 3D scanning, virtual reality (VR) and augmented reality (AR) solutions, can be utilised to improve, for example, block manufacturing, dry docking and repair operations. Workhours can be saved, the quality of work and product can be improved and waste and emissions can be reduced.
- Technology needs further development and innovation, but the biggest challenge may be on the human side: how to get personnel to adopt new digital solutions, to share more information within and between companies in the supply network and to fully utilize the opportunities that digitalisation provides.
- Training and education are key factors in making the shipyard processes more productive and eco-efficient with the help of digitalisation.



Let's begin the journey!



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