



# Policy Agenda

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# Policy Agenda of ECOPRODIGI

- Policy agenda is based on the policy briefs which were published on the 13<sup>th</sup> of November
- There are three separate policy briefs – one for each case of the ECOPRODIGI project – but the policy agenda includes all cases
- Policy agenda concentrates on recommendations and instruments for implementation
- Policy agenda will be published before Christmas



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## Digital Performance Monitoring of Vessels Enables a Visible 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 both new and 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 utilise system's potential.

Cooperation between shipowners, researchers and system providers is crucial.



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## 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, for example reduced, 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 are crucial in 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 timetable; 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 at least 2-10% per route and ship.

In Ro-Ro shipping, improving the stability calculations based on accurate vessel and 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 of the logistics chain 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. Tracking and monitoring of cargo units via sensors, vision, drones and digital technologies is crucial as well.



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## Optimisation of Shipyard Processes Boosts Productivity and Eco-efficiency

### The smoother the process, the better the eco-efficiency

Eco-efficiency in shipping is often focused on ship operations, but it is important to widen the perspective to cover shipbuilding and ship repair. Reducing waste material and improving recycling have direct positive effects on eco-efficiency. Increased productivity and efficiency of production processes have positive impacts as well, as there will be fewer useless transfers of items, damages and need for adjusting or fixing work phases.

#### Key findings

The need to optimise processes is relevant for shipyards where vessels are built and repaired, as doing so can increase productivity and eco-efficiency.

At shipyards, inefficiencies are often most prominent in process management 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 lie 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 utilise 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.



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# Common elements

- There are some basic elements which are shared by all three technology cases studied in the ECOPRODIGI project
- These elements should receive special emphasis both on national and international levels in order to fully utilise the possibilities provided by digital solutions
- Usability of these solutions and applications is in many cases not restricted to the maritime sector but they can be applied to use in many other sectors as well



# Technology

- **A good base level** for making the maritime industry more efficient and sustainable through digitalisation **is already existing**
- There is **huge potential** to be achieved by further development of technology, solutions and applications
- Just the **first steps on the road of digitalisation has been taken yet**
- It has to be assured that **research, development and innovation** work on this subject area gets enough **funding on both EU and national levels**
  - Technology development funds and programmes are examples of suitable tools
- Investments in RDI activities will be paid back by **higher productivity, safer working environment as well as less fuel consumption, emissions and waste**



# Standardisation

- **Standardisation** of several things and procedures **promotes the utilisation of digital solutions**
- **Reliable, secure and fast transfer of information is one of the most important necessities** in digitalised operational environment
- The **International Maritime Organization (IMO)** has a crucial role in the **standardisation procedure** of maritime matters and the **International Organization for Standardization (ISO)** in general, but **EU** can promote standardisation for its part
- **Benefits of standardisation** are not limited to digitalisation, but they **are obvious also in safety and security matters as well in environmental issues**
- **One good example is cold ironing**, the provision of onshore electricity to power ships while at berth
  - The needed technology has been available for a long time already, but lack of standardisation limited its implementation
  - At last in 2019 an international standard was achieved and this will strongly enhance the use of cold ironing



# Education and Training

- New digital technology and solutions as well as standards are essential, but **training and education are key factors to get personnel to adopt new digital solutions**
  - Technology without personnel's will and skill to use it is worthless
  - The digitalisation theme should be included both in basic education programmes and in further education courses
  - Training of crews both onboard and onshore (incl. port terminals), employees in shipyards and in their network as well as clients
  - Simulation-based training and skill building is one recommended option
- **Need for training and education applies to all cases presented in this policy agenda and should be noted on all possible levels and institutions from educational institutions to political decisionmakers on local, national and international levels**
- **Education is a top priority and lifelong learning is an essential part of every employee's working life**



# Thank you!

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