

Towards zero emission shipyard processes and circular ships

Kick-off of the EU project CirclesOfLife



Picture: Participants of the kick-off meeting and Ms Ivana Cavka, CINEA (Project Officer CirclesOfLife)

Project key facts

As decarbonisation and sustainability goals become more important, market conditions and regulatory frameworks are fundamentally changing for the shipbuilding industry and maritime shipping. In response, shipyards need to build the capacity to assess the environmental footprint of their operations and the ships they bring to market in order to inform their stakeholders in a transparent, understandable, comprehensive and trustworthy manner. While the environmental footprint of the operation of a ship is sufficiently covered by existing standards, the non-operational footprint of shipyard processes and integrated materials and components remains a black box.

In January 2024, the consortium of the EU project CirclesOfLife (Enhancing material CIRCularity and Lower Emissions of Ship building processes in all phases of the LIFE cycle) has started its work, aiming to make a significant contribution to overcoming the aforementioned challenges. The aim is to make effects measurable in order to make progress towards circular shipping without environmental impacts over the entire life cycle of a ship. CirclesOfLife will develop a general methodology and framework applicable to all European shipyards, which will make it possible to close the gaps in the assessment of the environmental performance of shipyards and the products they design, build, maintain, refit or recycle. The project will go beyond the state of the art by defining a science-based Shipyard Environmental Performance Index (SEPI)

methodology and a digital Cradle2Cradle ship passport, and by testing and validating their applicability in the day-to-day operations of shipyards and suppliers in various use cases, from new construction to repair and maintenance to recycling yards.

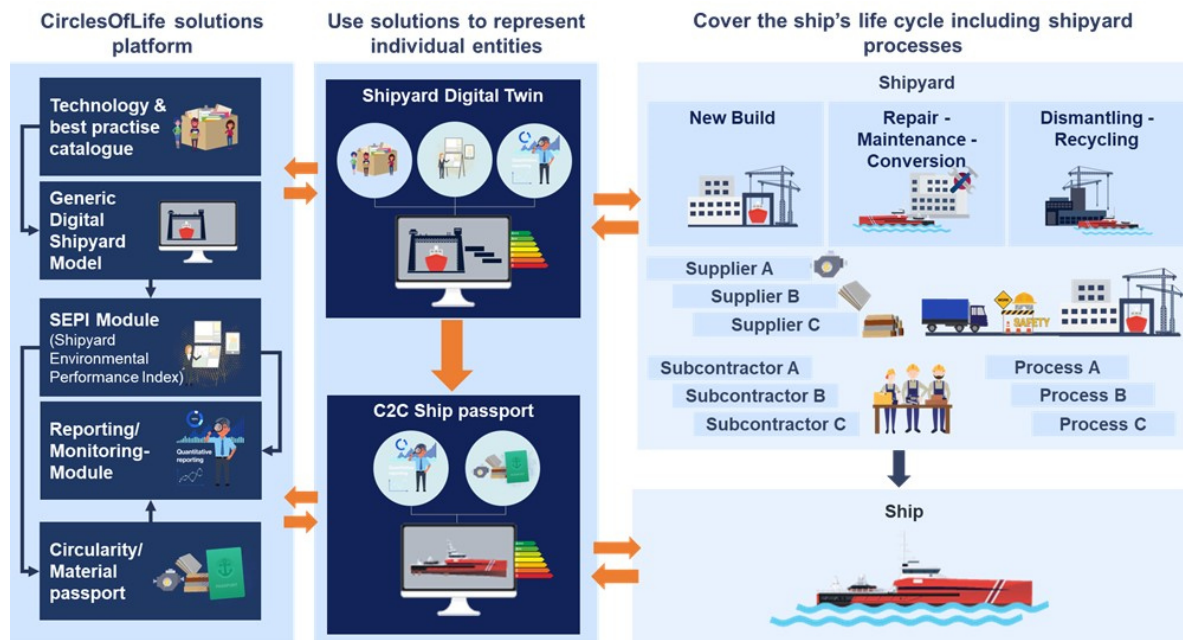


Figure: The CirclesOfLife solutions platform and its concrete application on the basis of individual businesses and ships

In addition, CirclesOfLife is following a clear path to market introduction and social impact, which is supported by renowned industry associations as well as independent NGOs. Based on the measures described, CirclesOfLife aims to provide a widely accepted standard that enables shipyards, marine equipment manufacturers, shipping companies, financial institutions and other stakeholders to compare the environmental footprint of ships and shipyards.

CirclesOfLife is funded by the European Union as part of the Horizon Europe programme, and runs from 2024 to 2026 (contract 101138013).

CMT's role and contribution

As a research institution, CMT contributes its expertise in shipbuilding processes as well as Life Cycle Performance Analyses (LCPA) and leads the case studies conducted together with the participating shipyards in which the SEPI concept is tested and demonstrated. Here, typical and particularly high-emission processes are analysed and the savings potential of possible technical and organisational improvement measures is determined. The expertise gathered in the case studies and accompanying technology scouting will be incorporated into a best practice guide for low-emission shipyard processes, which will be available to the entire industry.

As a subsidiary of the German Shipbuilding and Ocean Industries Association (VSM e. V.), CMT is in intensive exchange with stakeholders in the maritime industry beyond the CirclesOfLife consortium. CMT will organise support for the project through the VSM Committee *ESG and Compliance*. In the maritime lightweight construction network MariLight, coordinated by CMT, the specific aspects of novel materials such as fibre composites are considered. This dialogue is expected to provide helpful information for the upcoming review of IMO regulations on this type of material. In the digitalisation working group of the Strategy Advisory Board of the

German Federal Government's Lightweight Construction Initiative, CMT will exchange information across sectors on the design of digital product passports.

Consortium

Abbr.	Organisation	Country
DRDI	DAMEN RESEARCH DEVELOPMENT & INNOVATION BV (Coordinator)	NL
BAL	BALANCE TECHNOLOGY CONSULTING GMBH	DE
CMT	CENTER OF MARITIME TECHNOLOGIES GGMBH	DE
SURF	SURFRIDER FOUNDATION EUROPE	FR
NMT	STICHTING NETHERLANDS MARITIME TECHNOLOGY FOUNDATION	NL
CETENA	CETENA SPA CENTRO PER GLI STUDI DI TECNICA NAVALE	IT
FSGNK	FSG-NOBISKRUG DESIGN GMBH	DE
FSG	FLENSBURGER SCHIFFBAUGESELLSCHAFT MBH	DE
BV	BUREAU VERITAS MARINE & OFFSHORE REGISTRE INTERNATIONAL DE CLASSIFICATION DE NAVIRES ET DE PLATEFORMES OFFSHORE	FR
VTT	TEKNOLOGIAN TUTKIMUSKESKUS VTT OY	FI
TUD	Delft Technical University	NL
SBP	NGO Shipbreaking Platform	BE
UNIGE	University of Genoa	IT
GALLOO	NV Galloo Recycling Ghent	BE
SEA	SEA Europe	BE
ERIKS	ERIKS B.V.	NL

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