



Attending the Cruise Ship Interiors Design Expo in London in early December 2024, the Necoleap and Marine MaMa team displayed a plinth for the Necoleap project. L-R: Liina Vahala, head of product development, Meyer Turku (PDMT); Eija Uusitalo, co-founder, Marine MaMa Oy; Jenni Jokiniemi, architect coordinator, PDMT; Mirja Rasi-Mäki, sustainability specialist, PDMT; Kimmo Hiukka, project manager, Necoleap Green Transition, Meyer Turku; Sarita Manikas, project engineer, PDMT; Lise-Mari Hautala, head of hotel, Meyer Turku; Reetta Lindberg, trainee, PDMT; and Liina Blom, co-founder, Marine MaMa Oy.

Necoleap aims to develop a climate-neutral cruise ship

Necoleap, a major R&D project that aims to have a concept for a climate-neutral cruise ship in place this year, and to achieve climate-neutral cruise ship building by 2035, is in progress in Finland, with Meyer Turku as the designated builder.

BY KARI REINIKAINEN

The work has four key areas, starting with the ship itself and moving on to shipbuilding, smart technologies, and future drivers. It has six main objectives: first, to strengthen and expand innovative R&D in the shipbuilding system; second, to use intelligent systems throughout the lifecycle of the ship; third, to adapt the business to green transition and meet climate action objectives; fourth, to develop a climate-neutral cruise ship concept by the end of 2025; fifth, to reach carbon-neutral shipbuilding by 2030; and sixth, to meet the customers' responsibility strategies.

"Necoleap is a leading company project, which together with projects led by Wärtsilä and ABB are the most important R&D projects involving the Finnish maritime cluster," said Marjo Keiramo, director GT Lab and Necoleap, Meyer Turku. "Meyer Turku invests €60 million in research and development, in addition to which the Necoleap ecosystem has its own funding for various sub-projects under its umbrella, so that the total impact to the region is of about €150 million."

Human resource

With its sights set firmly on the climate-neutral target, one of Necoleap's main focuses is its emphasis on human resource development – because it recognises that,

to achieve its objectives, first and foremost it needs to have talented and skilled people joining the project. Necoleap aims to attract people with the right skills, to retain them, and train them further. "Knowhow and developing it is part of the people cluster [of Necoleap], and there are several projects under way to develop [skills] and raise the bar higher at key tasks at the [Meyer Turku] shipyard and in new functions," Keiramo told *CruiseTimes*.

In essence, the objective of the project is to develop a future-proofed product via a sustainable production process. This presents an initial challenge. "Future-proofing is a very central and large question. Where do the people with the right skills come from in the future?" asked



Rendering of sustainable stateroom 2.

Keiramo. To answer this question, Meyer Turku has signed partnership agreements with several Finnish science and applied science universities. The aim is to create career paths for people of all ages through close cooperation among the interested parties, which include academia.

The company has also established a centre of excellence, the Green Transition (GT) Lab, aiming to bring together those

working in R&D in the maritime cluster on one hand, and academia on the other. "GT Lab concentrates on the research and development of sustainable and responsible maritime solutions. It organises and enables research and development projects concerning novel technologies of the green transition under the Necoleap programme," said Keiramo.

Necoleap brings together the entire

industry ecosystem – shipyard, its network of suppliers, and contractors on a broad scale. Each project also has universities and other research partners involved, enabling the cross-pollination of learning and research, taking place through mutual projects.

"All in all, we have about 60 various R&D projects under way that aim to produce a climate-neutral product and a shipyard with



Rendering of sustainable stateroom.

climate-neutral operations," she said.

All this again comes to the question of attracting the people with the right skills to the cluster. "Yes, the competition for people with the right skills will become tougher, not just for us at the shipyard but also at shipping companies and across the industry. As technological advancement continues, the level and tray of skills required will also increase," she said.

In practice, this means that people will have to absorb new information and develop new skills faster than before, as artificial intelligence, digitalisation, data processing, cybersecurity, and the steering of various systems are all expected to see fast development.

"In various technological functions, the requirements are already very high, and it is already becoming difficult to find people with the right skills and to retain them due to tough competition," Keiramo said. In addition, personnel are expected to be able to have what it takes to ensure that the business is run at a responsible manner at all levels, including the environment, security, purchasing, and use of resources.

"The Necoleap project aims to find solutions to these questions related to competencies as well, but it is a much wider entity, as it also entails various technical and commercial R&D projects," Keiramo told us.

Circular economy

In developing a future-proofed cruise

ship, at a fundamental level the materials used need to be climate-neutral and recyclable. This is another area where Necoleap has a sharp focus.

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Marine MaMa (Material Maintenance) software, with an aim to power collaboration for a circular economy, is one of the many projects under the Necoleap umbrella. "The goal of the project was to generate new insights into the sustainability of materials in the marine industry, develop the related operational framework, and publish a service model solution for future carbon-neutral and more efficient material management," said Liina Blom, co-founder of MaMa Oy in Finland. "In the project, we comprehensively examined the architectural process, with a particular focus on material cycles related to interior materials. The research was conducted with a user-centred approach."

Circular economy cannot exist without digital information management, and Marine MaMa is an innovative software solution designed to streamline the management of cruise ship interior materials throughout their lifecycle. It can help propel Necoleap

towards its climate-neutral goal.

Marine MaMa's focus is on interior materials used in cruise ship architecture, addressing both current and future needs in design, construction, operation, and data management. "With a structured, visual approach, Marine MaMa software allows for efficient tracking and organisation of information and processes across cruise ship projects and areas," said Blom. With its software, it is possible to track and analyse products throughout their entire life cycle – from initial ship concept to the end of a product's useful life – empowering cruise ship owners and the whole industry ecosystem in transition towards a circular economy.

Circular economy is a cornerstone of Necoleap's climate-neutral endeavour, and companies like Marine MaMa play a key role in its ecosystem, because they address the issue from arguably the most fundamental level.

Tech cooperation

Technology and cooperation play a central role in realising the Necoleap dream. Indeed, besides human resources and materials used, technology is one of the main pillars of this project.

Traditionally, the cooperation between an interior design firm and its principal – the shipowner – is very close, but this is not necessarily the case between the design company and the shipyard. Yet companies



Liina Blom, co-founder, Material Maintenance (Marine MaMa) Oy.



Niko Räsänen, CEO, Kudos Design.



Marjo Keiramo, director of Green Transition Lab and Necoleap, Meyer Turku.

like Kudos Design, the Finnish interior design company that has Royal Caribbean Group among its maritime sector clients, are central components of shipbuilding, for they play essential roles in design, quality, and maintenance processes. In this Necoleap climate-neutral project, the relationship between the design firm and the shipyard needs to become more intimate.

Everyone at Kudos Design has a background in turnkey contracting to the shipbuilding sector, so the company has in-depth knowledge of how the industry and its supply chains work. This helps a lot when it comes to tackling challenges that come up in Necoleap and its sub-projects.

Navis Space, which was part of the Necoleap project, focused on bringing the three parties – designer, shipowner, and shipyard – closer together to develop fresh ideas, according to Niko Räsänen, CEO of Kudos Design.

Navis Space was a two-year project that

entailed several universities and businesses, and the parties are working to launch a successor project, known as Navis Concept, which will also have a two-year life span. Business Finland, the government's innovation funding body, is on board both of these projects.

The main aim of Navis Concept is to develop concrete solutions to challenges in the shipbuilding process, rather than virtual reality, and it will have four main focus areas. Sustainability in interior design is one of them, and this includes refits that the ship will go through later in its life.

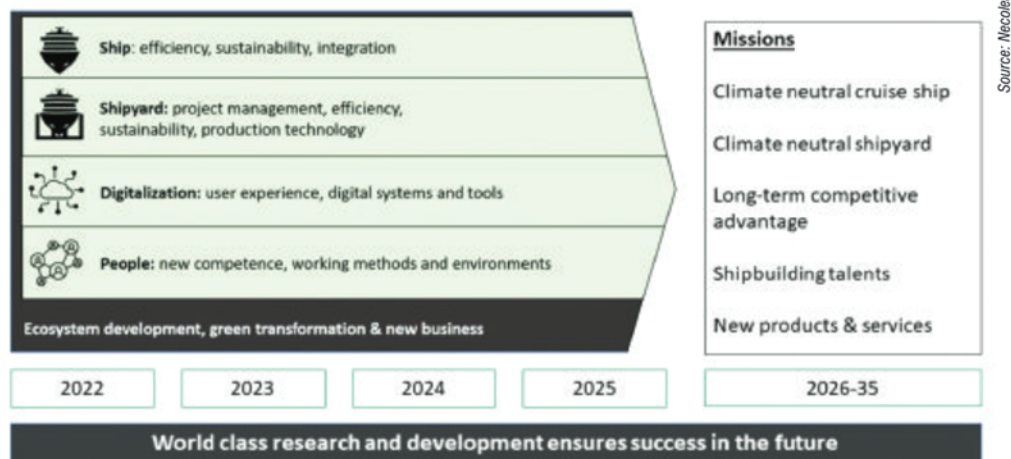
One part of Necoleap is to imagine how the cruise product could look in the future. "Today, a cruise ship departs from a certain port, where passengers arrive mainly by air. Then the ship calls at a number of ports, before returning where it started from. But what if you could board at any of these ports and decide yourself how many nights you want to stay on board?" Räsänen

asked. This idea has been touted for years, but it has never been put into practice because of the tightly packaged nature of the cruise products. Now, from the climate-neutral perspective, rethinking the possibility might be in order.

"The cruise industry currently suffers from a less-than-good image problem when it comes to sustainability. However, it does have the potential to become the most environmentally sustainable part of the holiday industry. Think just about how efficient cruise ships are in terms of space utilisation and technology. I can only see possibilities in the future," Räsänen concluded.

Against this backdrop, Necoleap has now less than a year to come up with the climate-neutral cruise ships concept, and less than 10 years to start building it. There are huge obstacles to overcome. Much ingenuity, dedication, and investment will be needed.

Roadmap until 2035



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