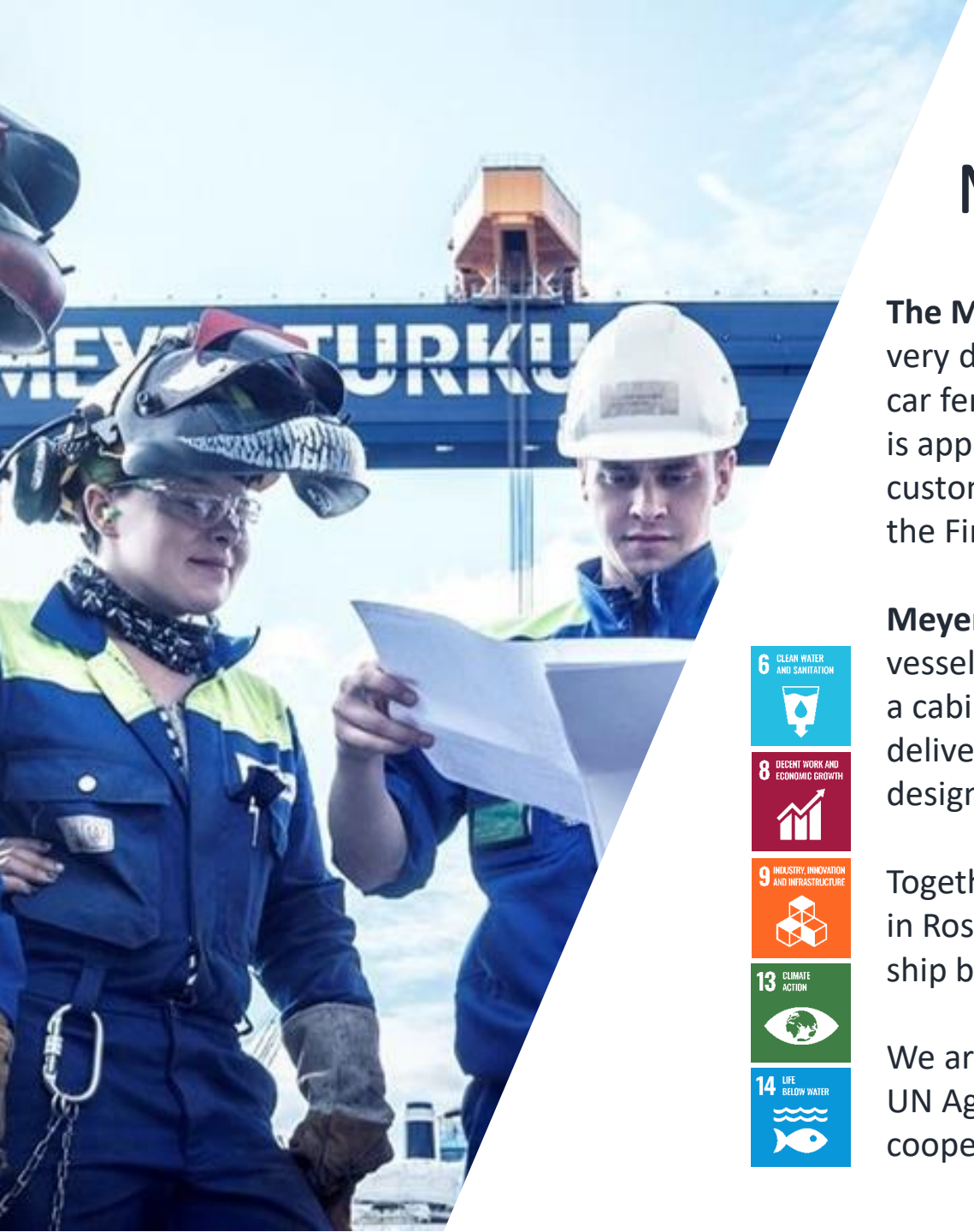
Meyer Turku – Sustainable Shipbuilding

Ilkka Rytkölä, M. Sc. Nav. Arch.
Ecosystem Lead

5.3.2024



Meyer Turku in a nutshell

The Meyer Turku Oy shipyard is specialized in the construction of very demanding, innovative, and environmentally efficient cruise ships, car ferries, and special vessels. Our share of the global Cruise construction market is approximately 15%, and our shipyard's order books extend to 2026. Our largest customers are Royal Caribbean International, Carnival Cruise Lines, TUI Cruises and the Finnish Border Guard.

Meyer Turku employs 2.000 top professionals and operates the Turku shipyard where vessels are built since 1737. Meyer Turku's subsidiaries are Piikkio Works Oy, a cabin factory located in Piikkiö, Shipbuilding Completion Oy, which offers complete deliveries to public spaces, and ENG'nD Oy, a shipbuilding and offshore design company based in Rauma.

Together with the German shipyards, Meyer Werft in Papenburg, and Neptun Werf in Rostock, Meyer Turku forms the Meyer Group, one of the world's leading cruise ship builders.

We are constantly striving for more sustainable shipbuilding. We have identified five UN Agenda 2030 goals, which we can especially influence in our operations and cooperation with partners and customers.

The Icon Series

ICON OF THE SEAS FAST FACTS

- **20 TOTAL DECKS**
  18 GUEST DECKS
- **2,350 CREW**
  (INTERNATIONAL)
- **2,805 STATEROOMS**
- **5,610 GUESTS**
  (DOUBLE OCCUPANCY)
  7,600 MAX GUESTS
- **7 POOLS** AND **9 WHIRLPOOLS**
- **6** RECORD-BREAKING **WATERSLIDES**
- **250,800 GT**
- **1,198** FEET, **365** METRES **LONG**
- **BUILT AT**
  MEYER TURKU, TURKU, FINLAND

Royal Caribbean

Updated 10.18.22

8 NEIGHBORHOODS

MEYER TURKU
SHIPYARD 1737

https://youtu.be/XTzGUWaVJ1E

NEOLEAP

BUSINESS FINLAND

ECOSYSTEM FOR DEVELOPING A CLIMATE-NEUTRAL CRUISE SHIP

Ecosystem Lead
Ilkka Rytkölä
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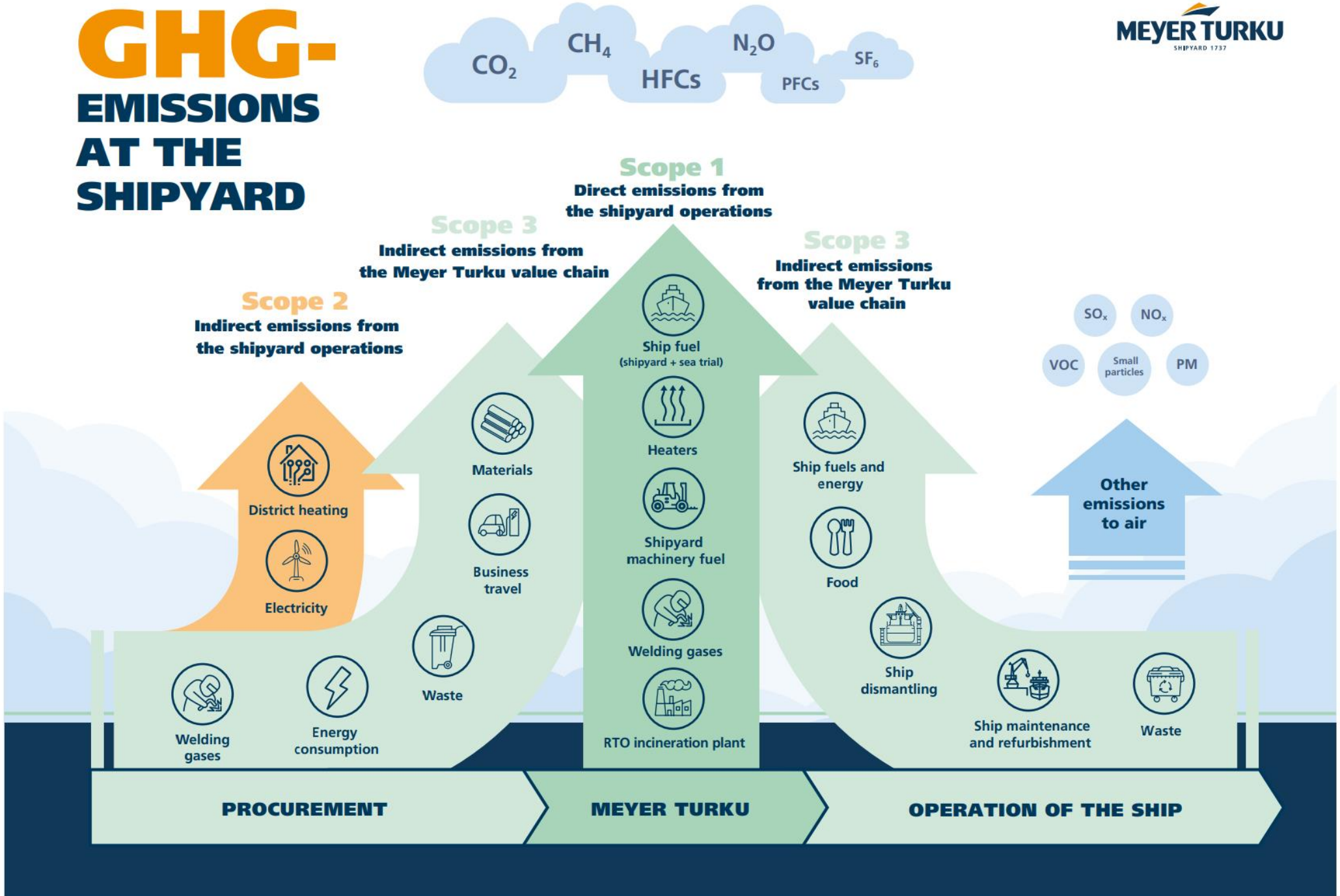
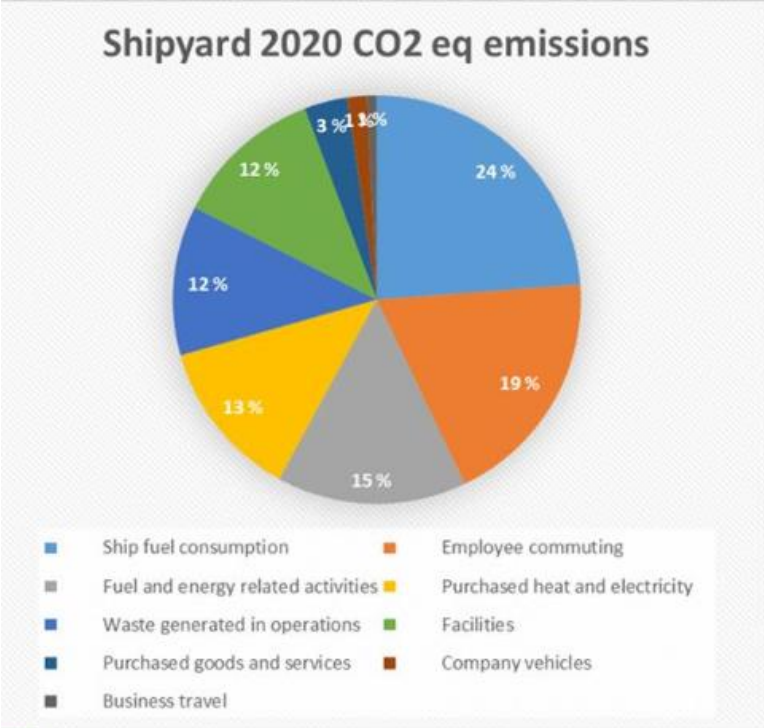
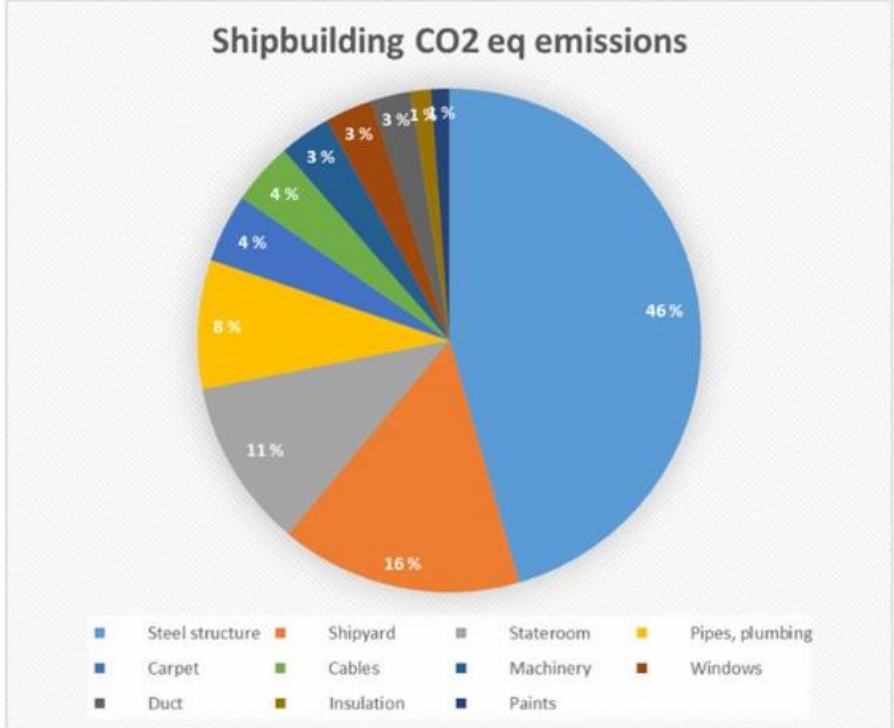
MEYER

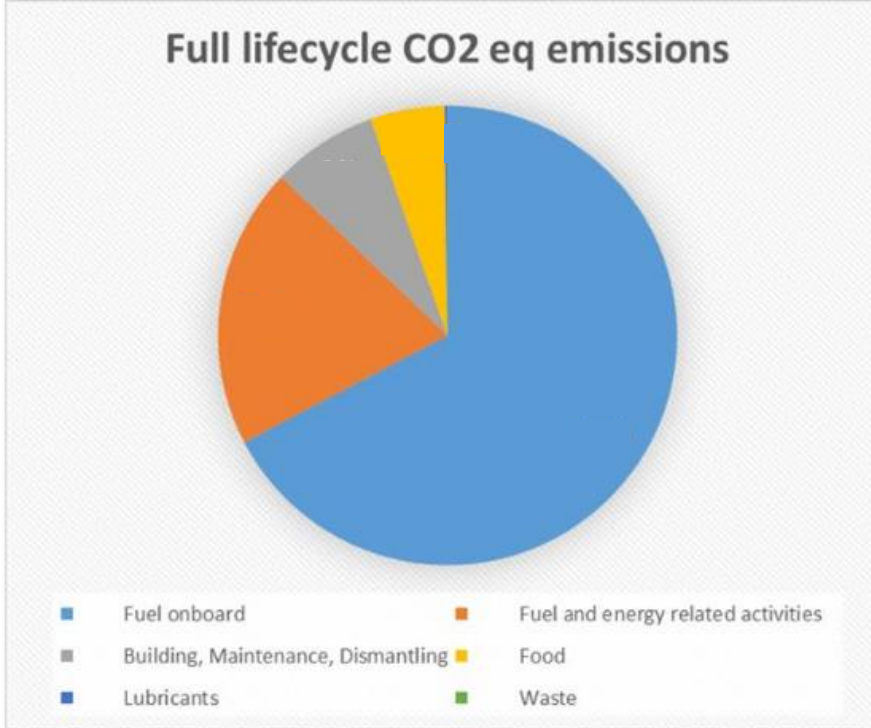
GHG-EMISSIONS AT THE SHIPYARD

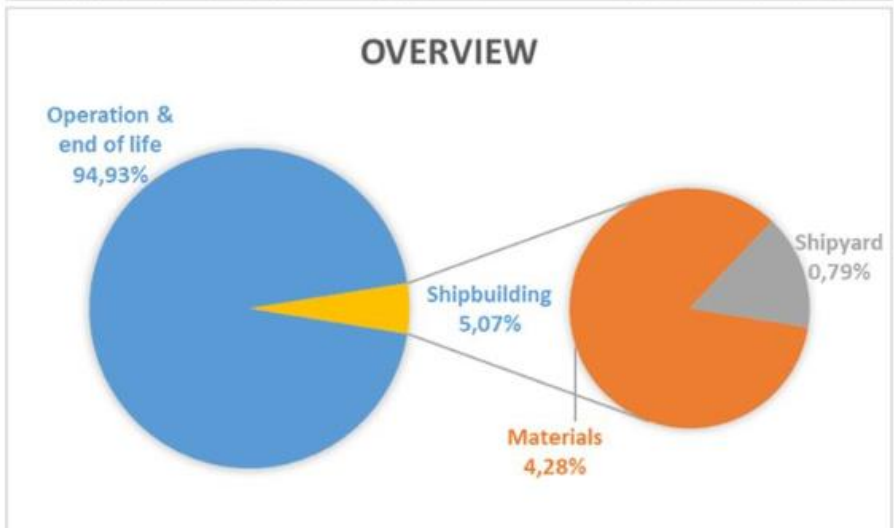


GHG – protocol-based carbon footprints









Fuel and energy related activities = Upstream activities, production of fuel etc.

NEOLEAP roadmap until 2035

Ship: efficiency, sustainability, integration

Shipyard: project management, efficiency, sustainability, production technology

Digitalization: user experience, digital systems and tools

People: new competence, working methods and environments

Ecosystem development, green transformation & new business

Missions

Climate neutral cruise ship

Climate neutral shipyard

Long-term competitive advantage

Future shipbuilding talents

New products & services

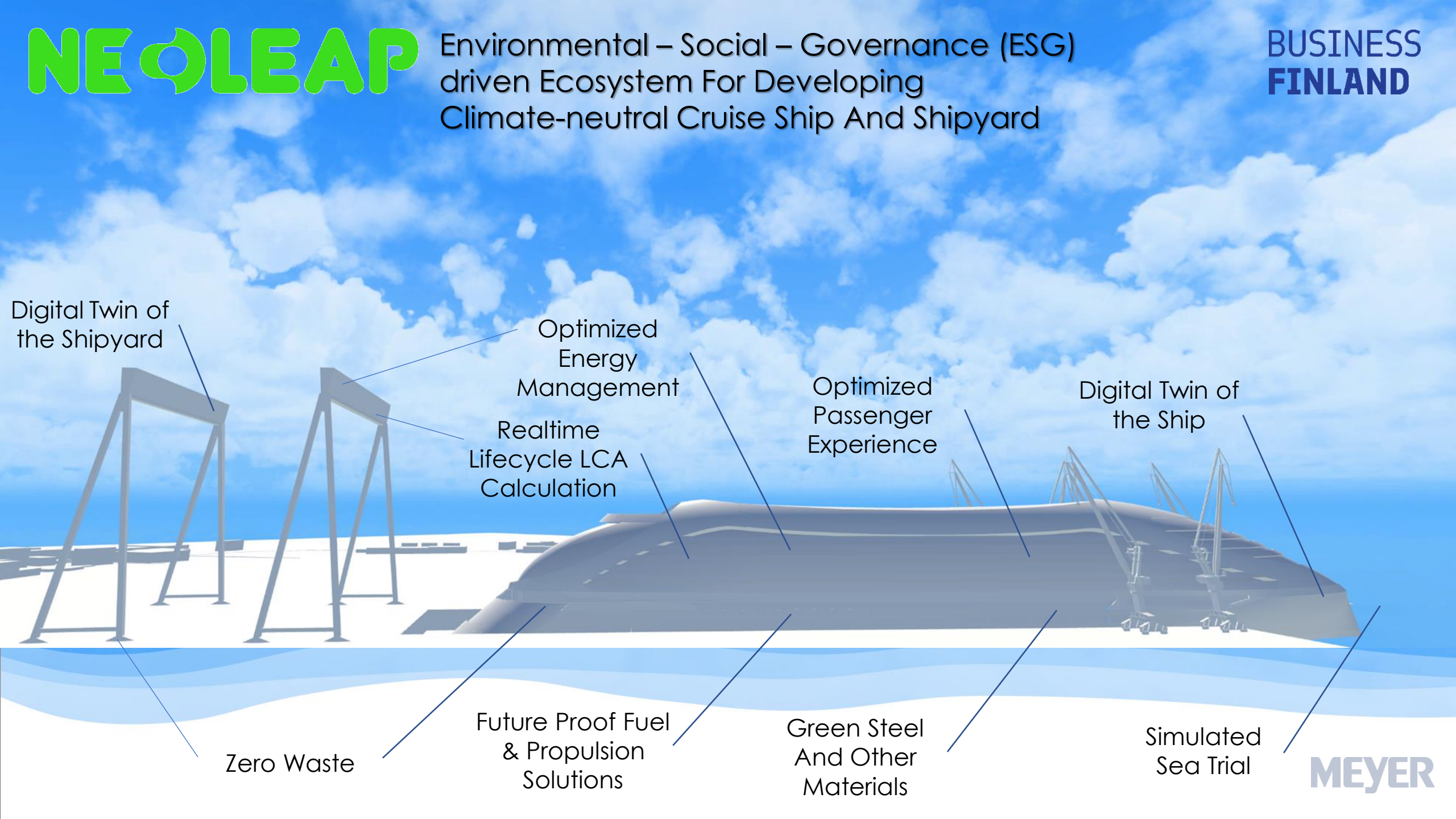
2022	2023	2024	2025	2026-35

World class research and development ensures success in the future supported by Green Transition Lab

NEOLEAP

Environmental – Social – Governance (ESG) driven Ecosystem For Developing Climate-neutral Cruise Ship And Shipyard

BUSINESS FINLAND



MEYER

Project portfolio: Approved and in Execution - external

Status 5.3.2024

Name	Description	MT Responsible	Necoleap responsible	Cluster	Started	Type
CaNeLis	Carbon-neutral lightweight ship structures	Ari Niemelä	Kimmo Hiukka	Ship	2022	Co-Inno
NavisSpace	Future Passenger Spaces	Janne Andersson	Kimmo Hiukka	Ship	2022	Co-Inno
Indecs	Integration of design and operation of cruise-ship energy solutions	Wilhelm Gustafsson	Ida Ervasti	Ship	2022	Co-Research
Necom	Lighter solutions and HVAC energy efficiency	Juho Virtanen	Kimmo Hiukka	Ship	2022	Co-Research
VTC	Virtual Training Certifications	Ilkka Rytkölä	Ilkka Rytkölä	Ship	2022	Co-Inno
CASEMATE	Computationally Aided Systems Engineering for marine advanced technology and environment	Jouko Pirilä	Kimmo Hiukka	Ship	2022	ZEM/ Co-Inno
Silent Engine	The project aims for a quieter and vibration-free engine.	Jouko Pirilä	Kimmo Hiukka	Ship	2022	ZEM/ Co-Inno
SusFlow	LCA (Life Cycle Assessment) calculations and evaluations	Jami Kuusisto	Ida Ervasti	Ship	2023	Co-Inno
Necoverse	Industrial Metaverse solutions for ship and shipyard	Ilkka Rytkölä	Ilkka Rytkölä	Digi.	05/2023	Co-Inno
ADEPT (NAPA)	Data Analysis and integration research for sustainable ship design and operation	N/A	N/A	Ship	06/2023	External
Emotional impact of media in public spaces	The emotional impact of media in public spaces	Linn-Sophie Bödo	Kimmo Hiukka	Ship	11/2023	Co-research
Virtual sea trial	Develop a unified, distributed test environment for virtual sea trials and commissioning for the whole shipbuilding ecosystem	Markus Lehtopohja	Ida Ervasti	Ship	11/2023	Co-Inno
Green Composites	Green and sustainable solutions for future cruise ship structural elements through Composites	Ari Niemelä	Kimmo Hiukka	Ship	Waiting BF approval	Co-Inno
ABiCo	Advanced Biocomposites with Circular Design. Finding environmentally friendly materials for the manufacture of various components for the ship.	Sani Ojala	Kimmo Hiukka	Ship	Waiting BF approval	Metsä/ Co-Inno
Flex-CPT	Flexible Clean Propulsion Technologies Project	Wilhelm Gustafsson	Ida Ervasti	Ship	Steering approved, for BF approval	Wärtsilä/ Co-Inno

Project portfolio: in Set-Up

Status 5.3.2024

Name	Description	MT Responsible	Necoleap responsible	Cluster	Status	Type
EcoFoodLoop Voyager	Developing a climate-friendly food provision system for a cruise ship	Hotel	Ilkka Rytkölä	Ship	In set-up	Co-Inno
Carbon neutral port visit			Ilkka Rytkölä	Ship	In set-up	Co-inno
Industrial Waters			Ilkka Rytkölä	Ship	In set-up	Valmet/ Co-Inno
Sustainable Material Flow	Research on TK-network's sustainable material flow	Logistics/ Sourcing	Ilkka Rytkölä	Shipyard	In set-up	Co-Inno
Smart digital manufacturing	Welding, laser welding, 3D manufacturing (direct layering) utilizing AI for fossil free shipyard	Mikko Vänskä	Ilkka Rytkölä	Shipyard	In set-up	Co-inno
Necolife	Business from Lifecycle data		Ilkka Rytkölä	Ship	In set-up	Co-Inno

Project portfolio: Ideas

Status 5.3.2024

Name	Description	MT Responsible	Necoleap responsible	Cluster	Status	Type
HVAC	Research on HVAC design process	Michael Splett	Kimmo Hiukka	Ship(yard)?	Idea	Internal
Additive manufacturing, metal printing		Mikko Vänskä	Kimmo Hiukka	Shipyard	Idea	Internal?
Fire protection			Ilkka Rytkölä	Ship	Idea	Co-Inno
Cyber Security		Jouko Pirilä	Ilkka Rytkölä	Digi	Idea	Co-Inno
Additive Manufacturing		Kimmo Hiukka	Ilkka Rytkölä	Ship	Idea	Co-Inno
Underwater Noise			Ilkka Rytkölä	Ship	Idea	Co-Inno

CONTACT

NEOLEAP

https://necoleap.fi/

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