

Zero-emission Arctic Operations Ecosystem

Smart Mobility Business Finland customer
event
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Zero-emission Arctic operations innovation ecosystem

Vision: Zero-emission solutions for safe arctic operations by 2030

Zero-emission Arctic operations innovation ecosystem

The ecosystem creates a network of industry and research parties as well as stakeholders to develop solutions for

- energy-efficient and eco-friendly ships,
- Arctic smart shipping,
- maritime infrastructures and
- sustainable offshore solutions in cold regions.

The proposed ecosystem aims to increase the competitiveness and export volume of the Finnish maritime industry in arctic technologies and services

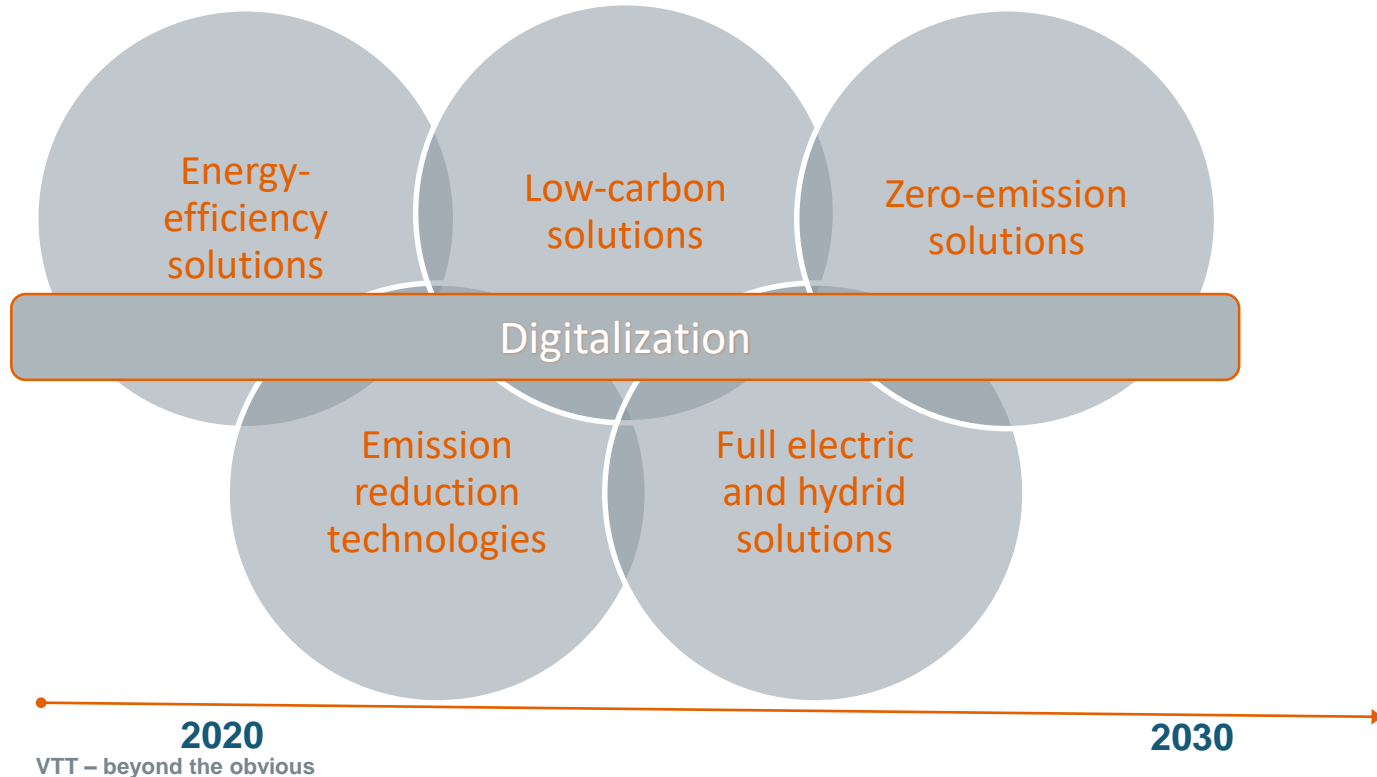
- Estimated Arctic business potential regarding 15 year investment needs globally add up to a market of \$1000 bn

Background: Reducing CO2 Emissions to Zero: The 'Paris Agreement for Shipping'

Vision	Aims to phase GHG emissions out from international shipping as soon as possible in this century.
CO2 reduction target per transport work	Reduce CO2 emissions by at least 40% by 2030, pursuing efforts towards 70% by 2050, compared to 2008.
GHG reduction target from International Shipping	Reduce the total annual GHG emissions by at least 50% by 2050, compared to 2008.
Candidate measures to reduce GHG emissions from Ships	<ul style="list-style-type: none">▪ Improvement of energy efficiency measures<ul style="list-style-type: none">▪ Reduction of carbon intensity by tightening the EEDI regulations▪ Improvement of operational energy efficiency measures▪ Implementation of Market-based Measures▪ Alternative low-carbon and zero-carbon fuels

Ref. IMO MEPC 72

Roadmap – Main steps



Zero-emission Arctic Operations Ecosystem

Exploring R&D needs for new business opportunities
Support companies for new co-operation activities, pilots, test-beds, etc.
Networking and information exchange
Visibility

Future winter navigation in the Baltic Sea

Co-innovation project 1

Co-innovation project 2

Co-innovation project 3

Co-innovation project 7

Marine operations in the Arctic

Co-innovation project 4

Co-innovation project 5

Offshore wind power solutions

H2020 project

Co-innovation project 6

Steering group

Advisory group

Co-innovation steering group

Company projects

Member involvement

Co-innovation: Low-emission Arctic expedition cruise liner

- Target
 - To create a concept for a very low emission arctic expedition cruise liner
 - CO2 emission reduction 70% compared to level of 2008
 - Black carbon reduction to zero
 - Implementing the circular economy concept
 - To ensure safe and competitive operations
- Planning with:
 - Elomatic
 - Helsinki Shipyard
 - ABB
 - Evac
 - DNV GL
 - VTT
- Consortium not yet completed

Co-innovation: Flexbaltic – Flexible winter navigation in the Baltic Sea

- Envisioning future scenarios and facing practical needs for winter navigation in the Baltic Sea
 - foreseeing future ice conditions and predicting trade trends in waterborne transportation
 - updating ice operation capabilities of merchant vessels
 - update and optimize winternavigation assistance services and ice breaker fleet in the Baltic Sea
- Preliminary discussions kept with potential key partners
- Planning still at initial stage
- Consortium open for committed partners