



SUOMI
FINLAND



INNOVATIVE, ENVIRONMENT FRIENDLY MARITIME SOLUTIONS & SMART MOBILITY

FROM FINLAND PRESENTATION BY ULLA LAINIO / HEAD OF SMART
MOBILITY

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SMART MOBILITY BUSINESS FINLAND PROGRAM

Smart Mobility program runs from 2018 to 2022 with a total budget of EUR 100 million.

Mission: Digital seamless supply chains. Autonomous mobility systems. From Forest To Sea & From Door To Door.

For companies registered in Finland the program offers innovation funding, market intelligence, networking and internationalization services e.g. trade missions.

Targeted at companies, research organizations, municipalities and cities, and e.g. service, ICT and manufacturing industries.

SMART MOBILITY PROGRAM FOCUS

Globally leading seamless logistics and people transportation solutions

Radical emission reduction and fossil free mobility to exceed climate agreement requirements

Disruptive mobility services and traffic systems through wide data usage and sharing

From door to door: Smooth urban mobility services (MaaS)

From forest to sea: Autonomous and secure industrial logistics

From store to home: Autonomous and secure consumer logistics

From Forest to Sea and City Logistics

Seamless People Transportation Chains

Without delays and congestions: Intelligent vehicles, infrastructure and traffic systems

Export & FDI: B2B and Consumer Logistics

Enrich Ecosystems via FDI

Growth Through Export

Innovation Funding and Testbeds

Logistics

People

Export & FDI: Intelligent Vehicles and MaaS

BUSINESS FINLAND

SMART LOGISTICS

The supply chain is being transformed by smart mobility solutions.
With digital expertise and industrial know-how, Finland is well positioned to be a global leader in smart logistics.

DRIVERS/ENABLERS

- New business models
- Digitalization
- Ecosystems
- E2E supply chain solutions
- Autonomous technologies
- Sustainability
- Data sharing
- Platform economy
- Trust, safety & security
- PPP
- Standards
- Testbeds
- ...





MARINE & PORTS IN FINLAND - FACTS

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Marine industry, port operations, logistics, marine services in Finland

- **3000 companies**
- **50 000 employees**
- **13 Billion euro turnover**
- **90 % export rate**

Source: Finnish marine cluster 2020 report, 2014 data

FINNISH MARITIME SOLUTIONS CATEGORIES

SHIPYARDS

SHIP
MACHINERY
& POWER
GENERATION

PROPULSION

SHIP
ENGINEERING
& DESIGN
& SOFTWARE

DIGITALIZATION
ICT SOLUTIONS

TURNKEY
OUTFITTING

NAVIGATION,
AUTOMATION
&
ELECTRICAL
SYSTEMS

HVAC &
GALLEYS

ENERGY
EFFICIENCY
EQUIPMENT

SHIP
SYSTEMS &
EQUIPMENT

PRE-
FABRICATES
INTERIOR
MATERIALS
FOR
OUTFITTING

MACHINE
WORKSHOPS
— STEEL WORKS
SUBCONTRACTING

SHIP OWNERS

PORTS

ICE
TECHNOLOGY

CARGO
HANDLING

SHIPBUILDING
MACHINES &
WELDING
MACHINES

SHIP
CONSULTING /
INSPECTION
SERVICES

FINLAND IS THE LEADING COUNTRY WITH SOLUTIONS FOR SMART SHIPS



FINNISH SOLUTIONS FOR SMART SHIPS

COMBINING VAST SHIPBUILDING
EXPERTISE WITH STATE-OF-
THE-ART INNOVATIVITY AND
SMART SOLUTIONS FOR
SEAFARING OF THE FUTURE

BUSINESS
FINLAND

The Ships

modified Slide original by Meyer Turku

“Floating smart cities”

SYSTEMS

High voltage systems

Heat recovery systems

Fuel treatment systems

Water desalination systems

Fire fighting systems

Room booking system

Stabilizers

Waste water treatment

Exhaust cleaning

AC technology



CONNECTIVITY & NETWORKS

Satellite communication

IP Video & TV

Fiber optic network

Onboard WLAN

IP Telephone system

VENUES

Big theatres

Big galleys

Child care

Pools

Cold provision rooms

Hospital

Safety center

Ice skating

Bridge

Spa & Fitness

Cinema

TV studio

Flow rider

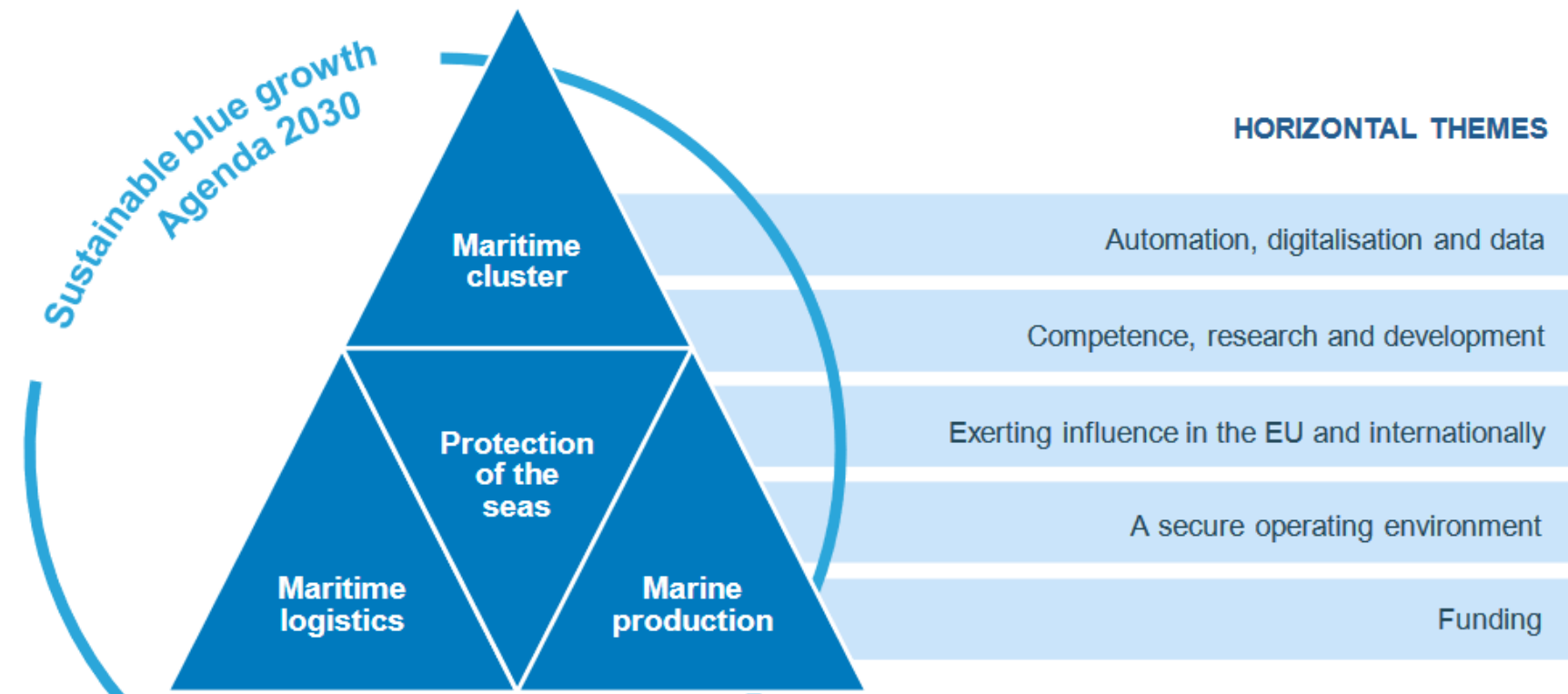


Government Resolution on
**Finland's maritime
policy guidelines**
From the Baltic Sea to the oceans

Publications of the Prime Minister's Office | **2019:7**

The priority areas and vision of Finland's maritime policy

Finland has a global responsibility to promote sustainable growth. The impacts of our activities extend outside Finland's national borders, and we must participate in solving global challenges. Finland has good prerequisites for promoting sustainable development and blue growth.



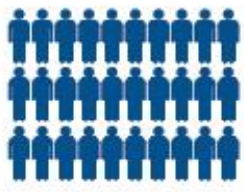
The principles of sustainable blue growth in Finland

- Knowledge-based decision-making
- Reducing the environmental pressure
- Improving the status of the environment
- Circular economy, recyclability of materials, and life cycle efficiency
- Low carbon
- Energy efficiency
- Increasing use of environmental criteria and certification
- Corporate social responsibility and positive net impact on society
- Finland is committed to implementing the UN's 2030 Agenda for Sustainable Development adopted at the UN Sustainable Development Summit 2015.

Promoting digitalisation in the logistic chain

- Optimising and improving the efficiency of the integrated transport system and logistic chains
- Ensuring the compatibility of systems and data to facilitate uniform and cost-effective solutions
- Utilising new technology, such as blockchain-based solutions, which enable enhancing the efficiency of the business processes in the logistic chain
- Promoting the development of smart waterways to connect Finland's waterways to the data production and data links of the logistical network
- Developing the availability and compatibility of the services produced by ports and port operators to improve the efficiency of the entire logistical value chain and reduce transport-related environmental impacts

Finnish Marine Industry in the Finnish Society



Finnish marine industry employs 30 000 people



Annual turnover 8 billion €



1 000 companies in the industry

Source: Brahea Centre at the University of Turku

Marine industry consists of:



Marine equipment manufacturers



Turnkey suppliers



Design offices



System suppliers



Software providers



Shipbuilding, ship repair and offshore yards

Finnish Marine Industries coordinates the cooperation in industrial and economic policy among the companies at the branch. The association represents its members in the European Ships and Maritime Equipment Association (SEA Europe).

The members of Finnish Marine Industries include leading marine equipment manufacturers, turnkey suppliers, design offices, software and system providers as well as shipbuilding, ship repair and offshore yards.

marineindustries.fi



Meriteollisuus
Finnish Marine Industries

Sustainable
Finnish Maritime

Finnish Marine Industries' ResponSea Initiative is about creating sustainable maritime together for the future world. The Finnish marine industry develops the sustainability of its products and its network together throughout the industry, and informs of the positive outcome its actions have on the society and the environment.

The Finnish marine industry is known for its ecological solutions reducing the emissions of the marine transportation. Sustainability is a valued part of the industry's companies' actions. Co-operation is essential, as the Finnish marine industry is known for its extensive delivery network, in which the entire network's actions affect the sustainability of the product.

ResponSea focuses on reducing the environmental impact of shipping and shipbuilding, continuous development of the industry's companies as fair employers, monitoring the sustainability of the delivery chain and enhancing circular economy and lifecycle efficiency in all actions. In our vision, the marine industry's processes stress the environment and the people as little as possible.

VISION:

Together we create sustainable maritime for the future world.

Our actions result in an economical and sustainable vessel, equipment and systems.

ResponSea encourages the companies of a rather heterogeneous industry to define their own commitments for accomplishing the goals of sustainable development and at the same time developing the company's operations. In addition, the program monitors the industry's progress in sustainability and the results will be published.

United Nations' sustainable development goals have been implemented in the Finnish Society's Commitment to Sustainable Development. The Commitment 2050 comprises 8 goals and Finnish Marine Industries has defined, in co-operation with the companies of the industry, which goals of sustainable development the industry should emphasize.

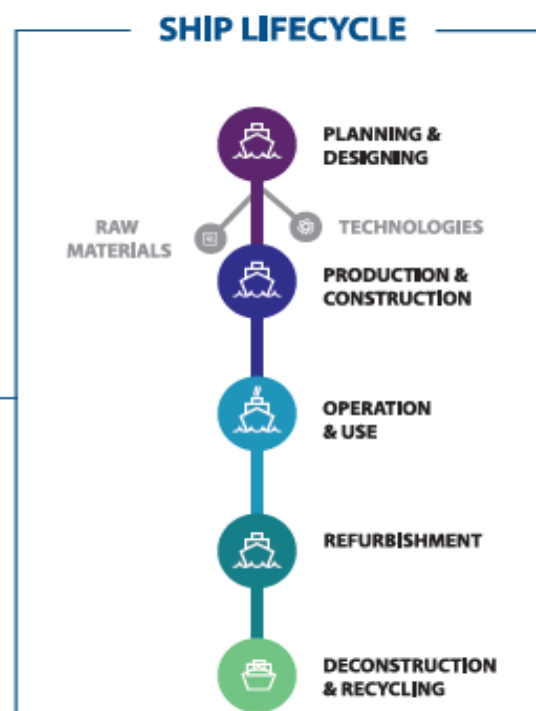
FINNISH MARINE INDUSTRIES' SUSTAINABILITY THEMES

- Reducing the environmental impact of marine transportation
- Continuous improvement as fair employers
- Monitoring the sustainability of the delivery chain
- Enhancing circular economy and lifecycle efficiency

#ResponSea #sitoumus2050

www.responsea.fi

Contact us: meriteollisuus@teknologiateollisuus.fi



European Green Deal

- The Communication on the European Green Deal sets very ambitious objectives for the EU and sends a strong message to the rest of the world regarding Europe's ambition to reduce emissions by at least 50% by 2030 and to transform its economy to become carbon-neutral by 2050.
- Achieving a carbon neutral transport sector
- Unleashing the potential of multimodal transport to reduce GHG emissions
- Providing legal certainty to early movers
- Mobilizing funding for research and dissemination of innovative solutions
- Neutral approach when supporting innovation



**BUSINESS
FINLAND**

CASE EXAMPLES

ECOSYSTEMS, GROWTH ENGINES IN FINLAND

CASE: ONE SEA

Ecosystem for autonomous ships

- Finland aims to operate the world's first autonomous maritime ecosystem by 2025.
- Includes: machine vision, situational awareness, auto crossing, auto docking and autonomous harbors.
- Legislation ensures dedicated sea areas for testing autonomous operations in real conditions.
- <https://www.oneseaecosystem.net/>

ABB

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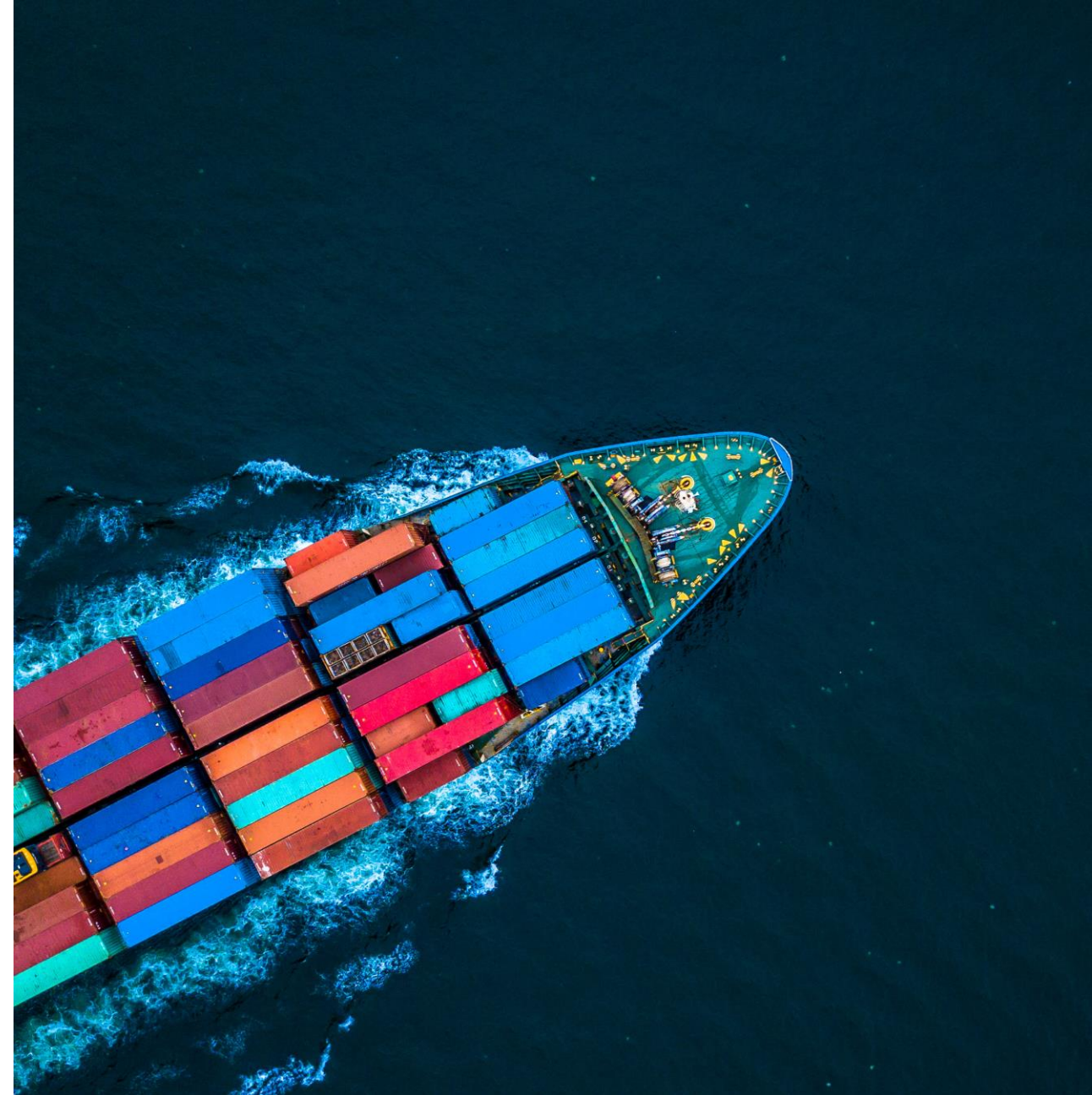
MEYER TURKU
SHIPYARD 1737

**ROLLS
ROYCE**

WÄRTSILÄ

DIMECC

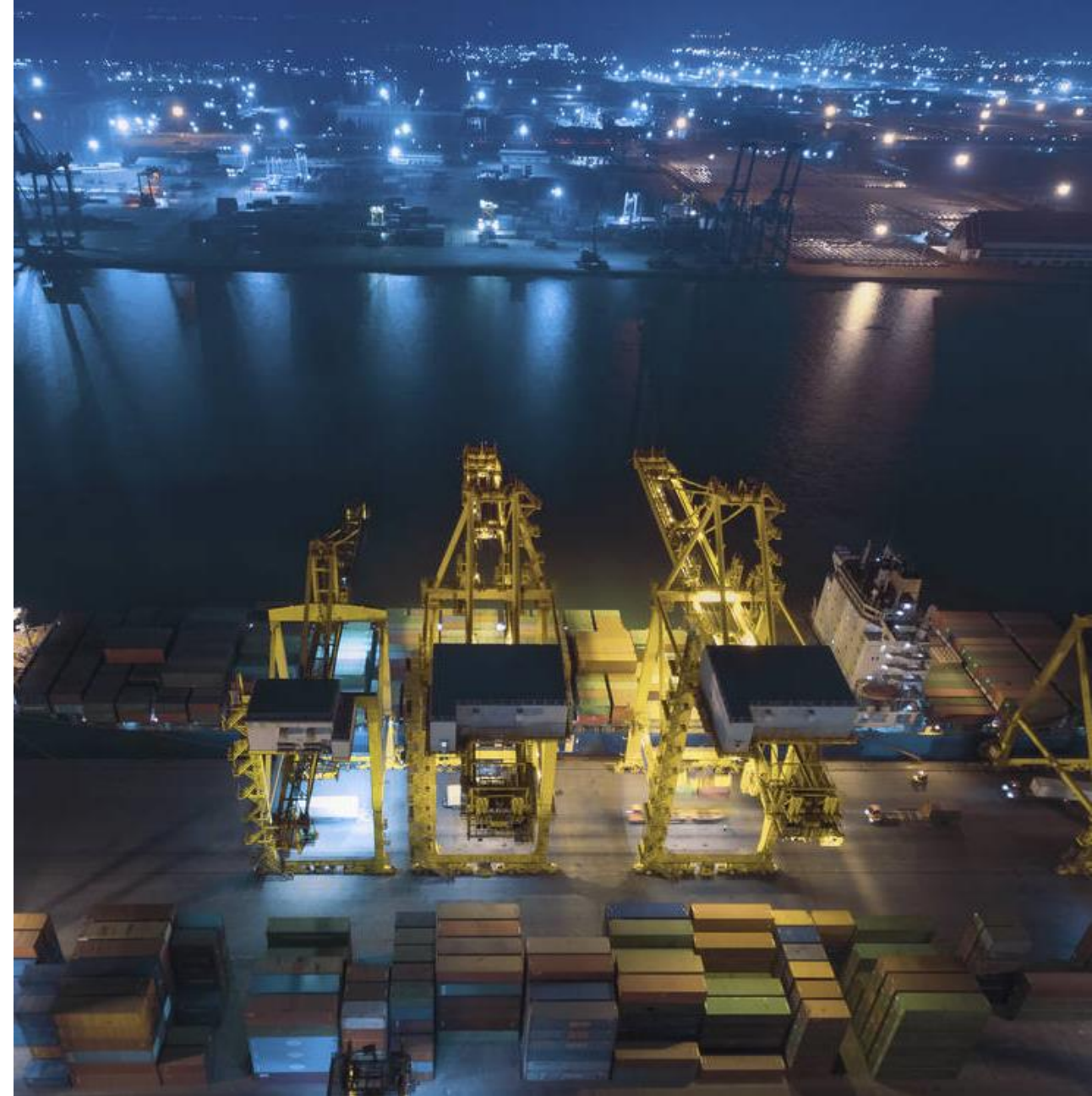
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CASE: AWAKE.AI

Smart port & ship platform enabling autonomous shipping

- Autonomous shipping platform and ecosystem orchestrator
- Enabling digital handshakes between smart ships and smart ports
- Data standards, APIs, datasets and cloud services
- Predictive analytics and models
- <https://awake.ai/>



AUTONOMOUS FERRY

- Finland pioneered the world's first fully autonomous ferry to carry passengers.
- Can navigate between two ports using sensor data fusion and artificial intelligence to detect objects.
- Docking is fully automated.
- No intervention from the crew is required.
- SVAN – Safer Vessel with Autonomous Navigation.



LNG POWERED ICE BREAKER

- Polaris - World's first ice breaker powered by Liquefied Natural Gas (LNG) and low sulphur marine diesel oil (LSMDO).
- LNG use significantly reduces carbon emissions.
- World's most environmentally-friendly diesel-electric icebreaker.
- Built in Finland.
- Breaks ice up to 1.8 meters thick.



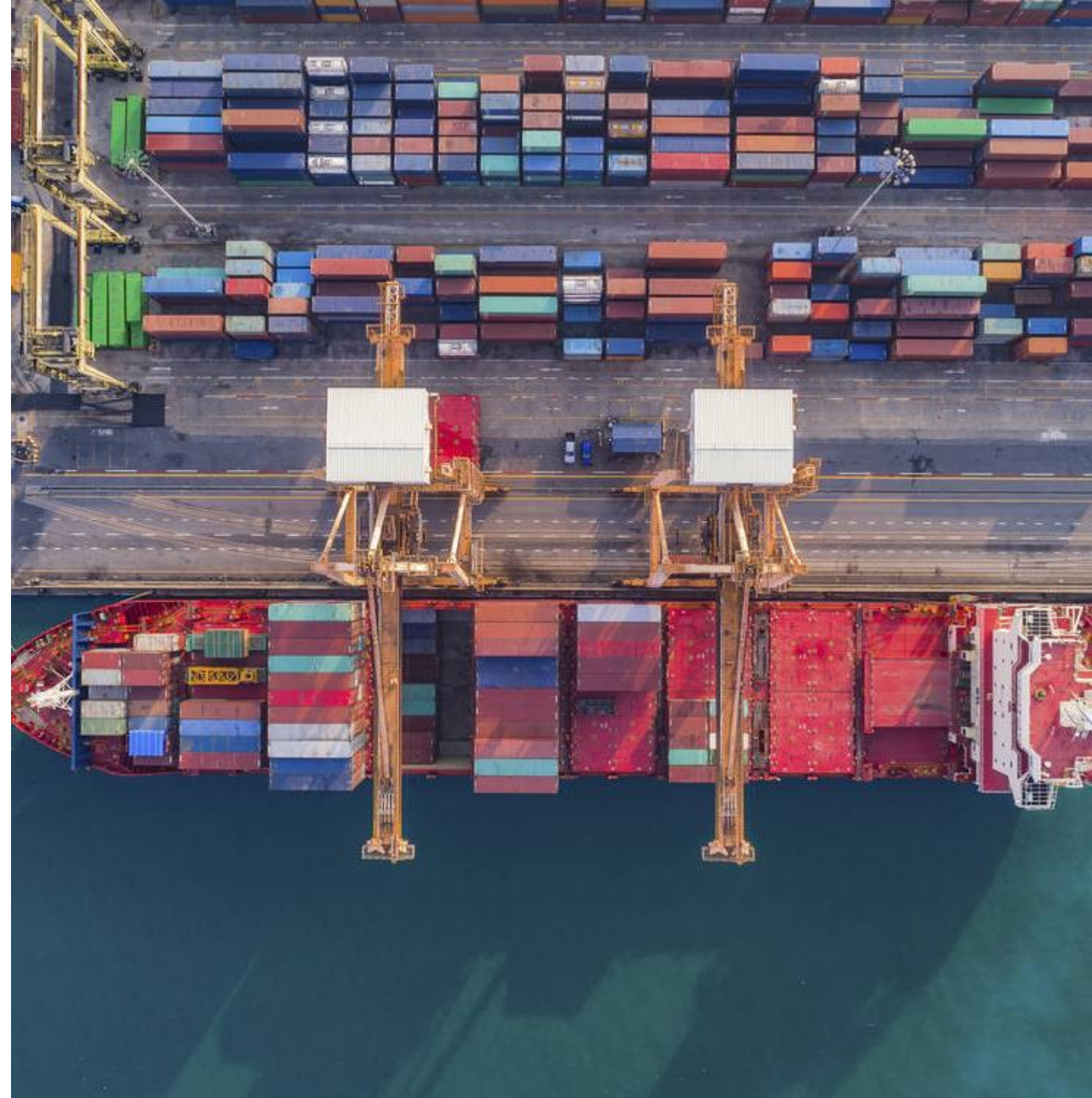
FINLAND



CASE: AUTOPORT

Ecosystem level approach for logistic robot systems in ports

- Stepwise automation towards lifetime business
- Extending the service business to overall machine fleets
- Adaptable software platforms and modular control system structures
- Systematic procedures and tools for design and validation



CASE: CAAS (Corridor as a Service)

New concept for smart logistics

- CaaS streamlines transport logistics.
- It positions Finland as a key logistics hub for Asia.
- Intelligent digital logistics technology saves time and fuel while improving capacity utilization.
- Cross border priority/platooning drive service.
- Delivery transparency to traders with real-time tracking.
- Accurate delivery time with steady driving speed.
- <https://www.vedia.fi/corridor-as-a-service-streamlines-goods-logistics/>



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THANK YOU!

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Smart Mobility Finland

