INNOVATIVE, ENVIRONMENT FRIENDLY MARITIME SOLUTIONS & SMART MOBILITY
FROM FINLAND  PRESENTATION BY ULLA LAINIO / HEAD OF SMART MOBILITY
ulla.lainio@businessfinland.fi
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.
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 forest to sea: Autonomous and secure industrial logistics.

From store to home: Autonomous and secure consumer logistics.

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

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

Enrich Ecosystems via FDI.

Growth Through Export.

Innovation Funding and Testbeds.


Export & FDI: Intelligent Vehicles and MaaS.

Seamless People Transportation Chains.

From Forest to Sea and City Logistics.

Logistics.

People.
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
- ...

BUSINESS FINLAND
MARINE & PORTS IN FINLAND - FACTS

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

- SHIP YARDS
- SHIP MACHINERY & POWER GENERATION
- PROPULSION
- ENGINEERING & DESIGN & SOFTWARE
- DIGITALIZATION ICT SOLUTIONS
- TURNKEY OUTFITTING
- NAVIGATION, AUTOMATION & ELECTRICAL SYSTEMS
- HVAC & GALLEYS
- SHIP MACHINERY & POWER GENERATION
- SHIP SYSTEMS & EQUIPMENT
- PRE-FABRICATES INTERIOR MATERIALS FOR OUTFITTING
- MACHINE WORKSHOPS — STEEL WORKS SUBCONTRACTING
- ENERGY EFFICIENCY EQUIPMENT
- SHIPBUILDING MACHINES & WELDING MACHINES
- SHIP CONSULTING / INSPECTION SERVICES
- PORTS
- CARGO HANDLING
- ICE TECHNOLOGY
- PORTS
- CARGO HANDLING
- ICE TECHNOLOGY

- SHIP OWNERS
- SHIP OWNERS
- SHIP OWNERS

- PRE-FABRICATES INTERIOR MATERIALS FOR OUTFITTING
- MACHINE WORKSHOPS — STEEL WORKS SUBCONTRACTING
- SHIPBUILDING MACHINES & WELDING MACHINES

- SHIP MACHINERY & POWER GENERATION
- NAVIGATION, AUTOMATION & ELECTRICAL SYSTEMS
- HVAC & GALLEYS
- DIGITALIZATION ICT SOLUTIONS
- TURNKEY OUTFITTING
- SHIP MACHINERY & POWER GENERATION
- SHIP SYSTEMS & EQUIPMENT
- ENERGY EFFICIENCY EQUIPMENT
- SHIPBUILDING MACHINES & WELDING MACHINES

- SHIP YARDS
- SHIP MACHINERY & POWER GENERATION
- NAVIGATION, AUTOMATION & ELECTRICAL SYSTEMS
- HVAC & GALLEYS
- DIGITALIZATION ICT SOLUTIONS
- TURNKEY OUTFITTING
- ENERGY EFFICIENCY EQUIPMENT
- SHIPBUILDING MACHINES & WELDING MACHINES
- SHIP CONSULTING / INSPECTION SERVICES

- SHIP YARDS
- SHIP MACHINERY & POWER GENERATION
- NAVIGATION, AUTOMATION & ELECTRICAL SYSTEMS
- HVAC & GALLEYS
- DIGITALIZATION ICT SOLUTIONS
- TURNKEY OUTFITTING
- ENERGY EFFICIENCY EQUIPMENT
- SHIPBUILDING MACHINES & WELDING MACHINES
- SHIP CONSULTING / INSPECTION SERVICES

- SHIP YARDS
- SHIP MACHINERY & POWER GENERATION
- NAVIGATION, AUTOMATION & ELECTRICAL SYSTEMS
- HVAC & GALLEYS
- DIGITALIZATION ICT SOLUTIONS
- TURNKEY OUTFITTING
- ENERGY EFFICIENCY EQUIPMENT
- SHIPBUILDING MACHINES & WELDING MACHINES
- SHIP CONSULTING / INSPECTION SERVICES

- SHIP YARDS
- SHIP MACHINERY & POWER GENERATION
- NAVIGATION, AUTOMATION & ELECTRICAL SYSTEMS
- HVAC & GALLEYS
- DIGITALIZATION ICT SOLUTIONS
- TURNKEY OUTFITTING
- ENERGY EFFICIENCY EQUIPMENT
- SHIPBUILDING MACHINES & WELDING MACHINES
- SHIP CONSULTING / INSPECTION SERVICES

- SHIP YARDS
- SHIP MACHINERY & POWER GENERATION
- NAVIGATION, AUTOMATION & ELECTRICAL SYSTEMS
- HVAC & GALLEYS
- DIGITALIZATION ICT SOLUTIONS
- TURNKEY OUTFITTING
- ENERGY EFFICIENCY EQUIPMENT
- SHIPBUILDING MACHINES & WELDING MACHINES
- SHIP CONSULTING / INSPECTION SERVICES

- SHIP YARDS
- SHIP MACHINERY & POWER GENERATION
- NAVIGATION, AUTOMATION & ELECTRICAL SYSTEMS
- HVAC & GALLEYS
- DIGITALIZATION ICT SOLUTIONS
- TURNKEY OUTFITTING
- ENERGY EFFICIENCY EQUIPMENT
- SHIPBUILDING MACHINES & WELDING MACHINES
- SHIP CONSULTING / INSPECTION SERVICES
FINLAND IS THE LEADING COUNTRY WITH SOLUTIONS FOR SMART SHIPS
The Ships

“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

modified Slide original by Meyer Turku
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

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

Marine industry consists of:
- Marine equipment manufacturers
- Turnkey suppliers
- Design offices
- System suppliers
- Software providers
- Shipbuilding, ship repair and offshore yards
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 outcomes its actions have on society and the environment.

The Finnish marine industry is known for its ecological solutions for 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.

**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 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 cooperation with the companies of the industry, which goals of sustainable development the industry should emphasize.

**FINLAND’S COMMITMENT**

**SUSTAINABLE DEVELOPMENT GOALS**

**SHIP LIFECYCLE**

**SUSTAINABILITY SOLUTIONS**

Contact us: marinellisuutes@tkk.fi responsea.fi
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
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/](https://www.oneseaecosystem.net/)
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 Liquified 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.
**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.
THANK YOU!

ulla.lainio@businessfinland.fi
Smart Mobility Finland