

# Automation in Maritime Transport and Port Industry

**DIMECC**

Image © Kongsberg

# Agenda

- I. Introduction
- II. Current outcomes
- III. Plan for future



# One Sea Partners

**ABB**  
**Cargotec**  
**Ericsson**  
**Finnpilot Pilotage**  
**Kongsberg**  
**Tieto**  
**Wärtsilä**



KONGSBERG



tieto



ERICSSON



WÄRTSILÄ



FINNPILOT



Suomen Varustamot  
Rederierna i Finland  
Finnish Shipowners' Association



Meriteollisuus  
Finnish Marine Industries



Suomen Satamaliitto  
Finnish Port Association



SHIPBROKERS  
FINLAND

BUSINESS  
FINLAND

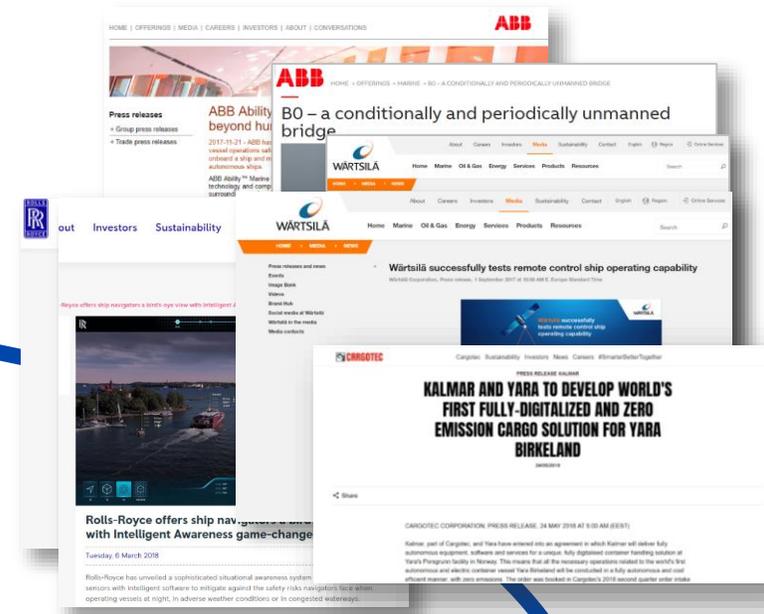
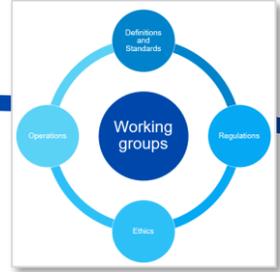
# Ecosystem activities

<b>Ecosystem Core Activities</b>	<b>Vision &amp; Strategy</b>	<b>Roadmaps</b>		
<b>Ecosystem Program Activities</b>  <i>Open to all parties</i>	Product & service creation			
	Startup ecosystem			
	Pilots, PoC's			
	R&D Programs			
	Rules & regulations			
	Test areas, Labs			

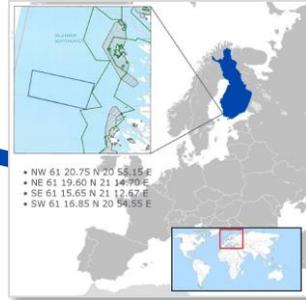
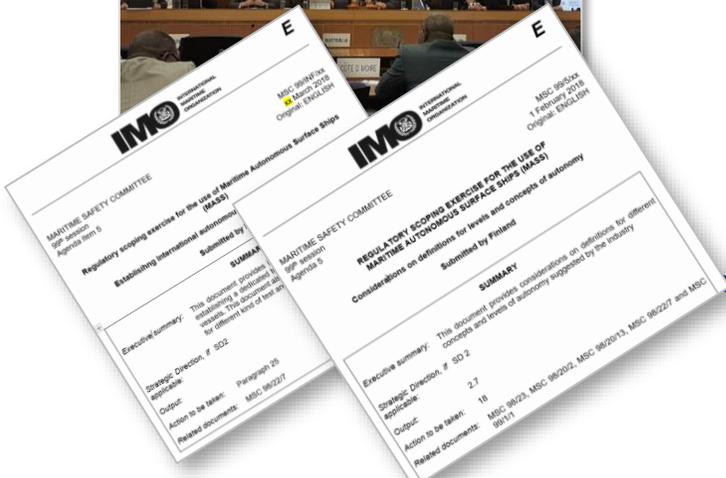
## Ecosystem Outcomes 2016-2018



	2017	2020	2023	2025
Remote monitoring		Fully remote controlled vessel (manned) - unmanned with special approval	Gradual increase of autonomous control	Autonomous ship traffic commercial
Test areas	National pilots	Several pilots globally	Full scale testing / validation	
International collaboration	Design requirements for autonomous power and propulsion systems	Developed data transfer test reg. 252 (limited to ferries/boats)	Satellite becomes cheaper	Strongly decreased data communication
Ethical issues			Domestic authority approval / certificate	Class/IMO reg. in place
Development of cyber security			Mobility as a service	Infrastructure
Projects, IPR, competences, education				
National, IMO and global legislation development				



Ecosystem Core Activities	Vision & Strategy	Roadmaps
Ecosystem Program Activities		Product & service creation
		Startup ecosystem
		Pilots, PoC's
		R&D Programs
		Rules & regulations
Open to all parties		Test areas, Labs



### DIMECC One Sea Design for Value program

The DIMECC D4Value program focuses on autonomous supply chain

- Autonomous maritime logistics → The D4Value program has an important role in the autonomous maritime ecosystem roadmap implementation
- Manufacturing use case in digitalization

Business concepts are tools for research and pilots

- Business models and ecosystem transformation & design
- Technology solutions, digital platforms
- Engaging companies and people to new ecosystem; Legal, regulatory and societal aspects

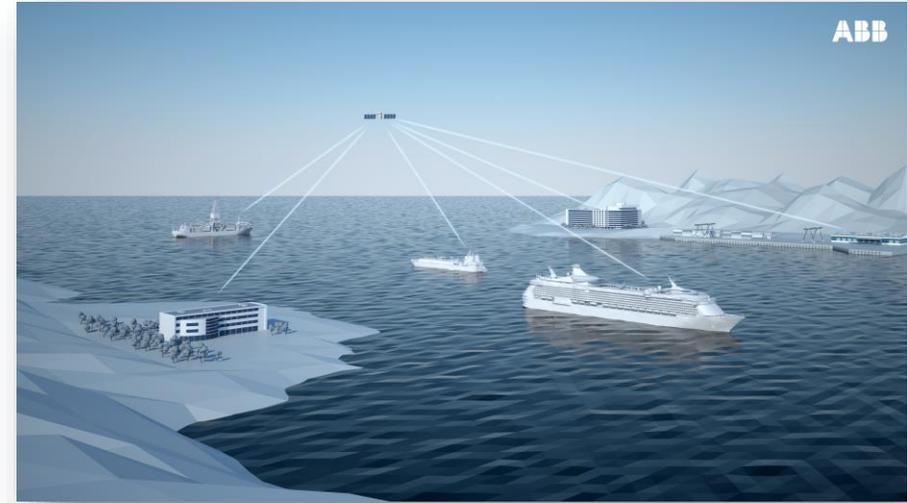
# One Sea objectives



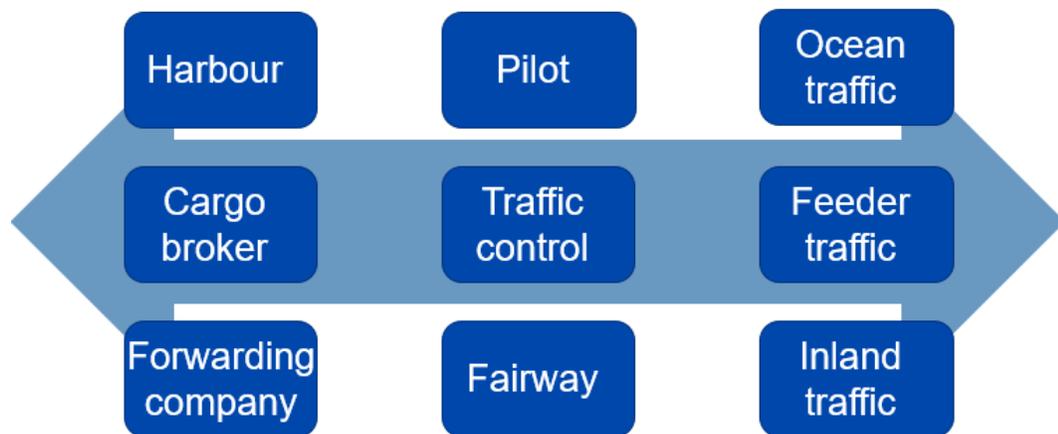
- Further internationalisation of core partners
- Promoting and supporting maritime automation efforts globally
- Effective cooperation with international organisations
- Holistic development of autonomous transport system in collaboration with the public sector

# Application cases

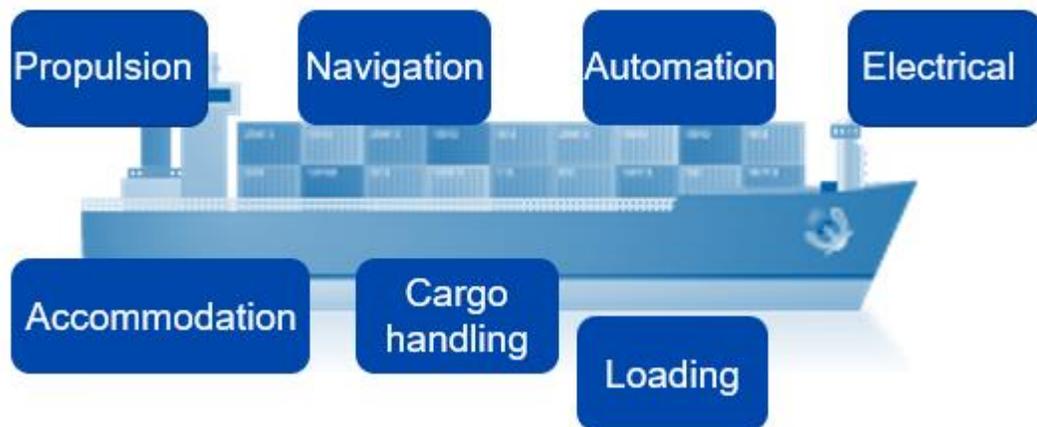
- Industrial standards
- Research programs Sea4Value
- Tallinn-Helsinki fully digitalised TENT-T maritime corridor



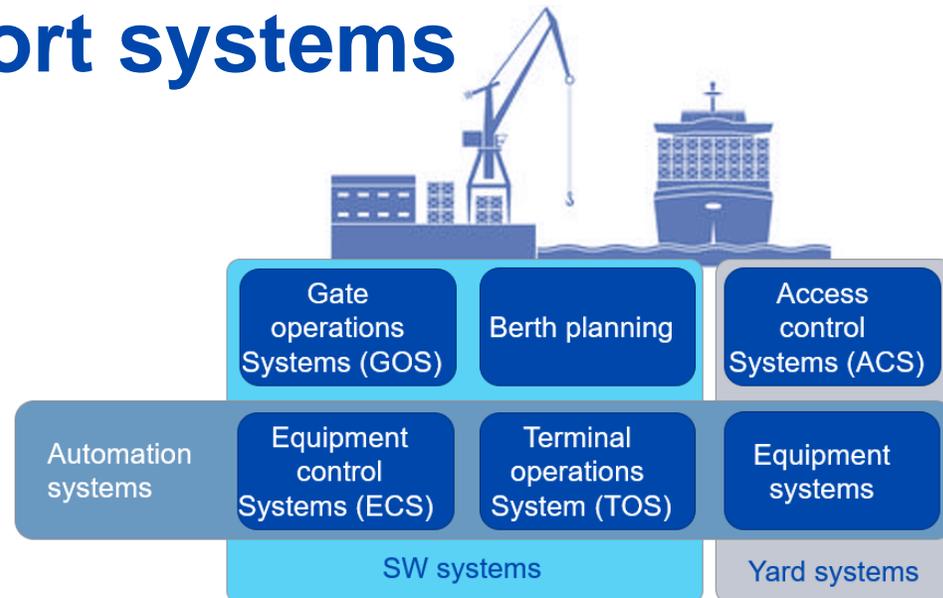
## Maritime logistics chain



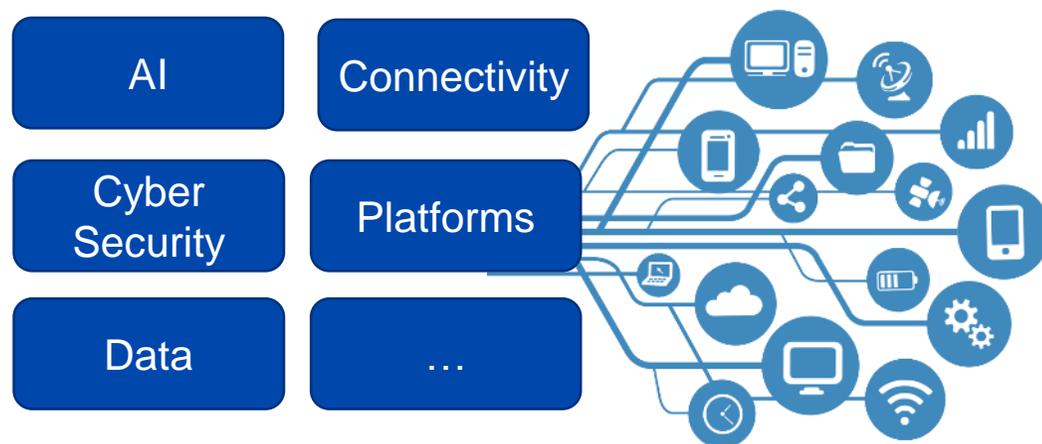
## Ship systems



## Port systems



## Application of technology

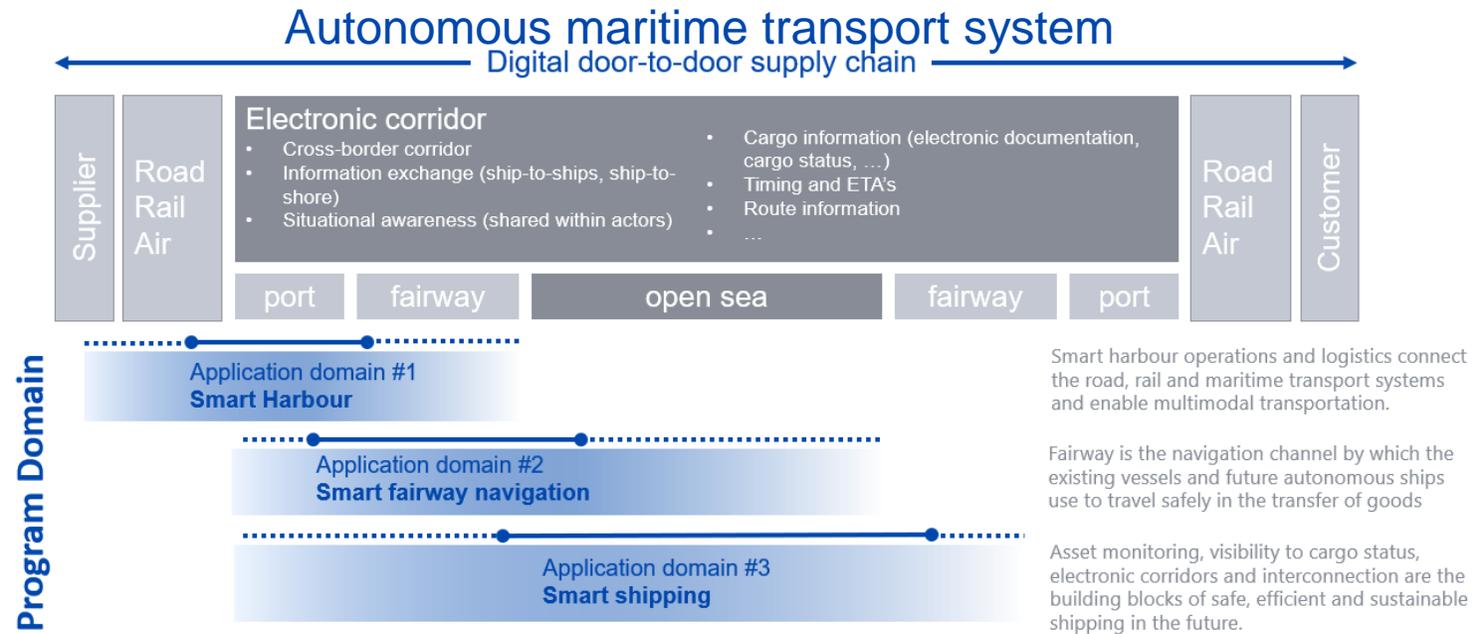


# Sea4Value – Value creation via smart and autonomous maritime transport

The program mission is to provide blueprints towards digitalization, service innovation and information flows in maritime transport. Longer term mission is preparing for advanced autonomous operations and navigation.

## Planned program outcomes

1. Smart harbour experiments on improved visibility of cargo information suitable for small and medium sized harbours
2. Smart fairway navigation experiments
3. ePilotage working environment (on shore) and remote pilotage experiments
4. Electronic corridor concept defined and experiments between Tallinn and Helsinki



Joint development between companies, research organizations and authorities to create new knowledge and innovation



# Products & services

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**ABB**



Press releases  
+ Group press releases

**ABB Ability™ Marine Pilot Vision looks beyond human vision for ship automation**

ABB Ability™ Marine Pilot Vision is a new generation of ship automation software that makes vessels safer, more efficient, and more cost-effective. The software is designed to be used on board ships and in port, helping to reduce the risk of collisions and improve the efficiency of ship operations.

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Historiallinen linjaus" – ohjautuvien laivojen testaus alan aloittaa laajasti: Suomi ja Sea -ekosysteemi edelläkävijöitä

Lakimuutos edistää miehityksen ja vahdintalon osalta laivaliikenteen automatisaatiokokeiluja

NEWS  
6 months ago

WÄRTSILÄ

Home Marine Oil & Gas Energy Services Products Resources

Wärtsilä successfully tests remote control ship operating capability

Wärtsilä Corporation, Press release, 1 September 2017 at 10:09 AM E. Europe Standard Time

Home Marine Oil & Gas Energy Services Products Resources

Wärtsilä achieves notable advances in automated shipping with latest successful tests

Wärtsilä Corporation, Press release, 28 November 2018 at 2:00 PM E. Europe Standard Time



The technology group Wärtsilä has successfully completed a further round of test procedures of its automated dock-to-dock solution. In an unprecedented operation, in the presence of the Norwegian Maritime Authority (NMA), the system was further tested on the ferry 'Folgeforn', this time for full dock-to-dock capability, with the autonomous operation being utilised uninterrupted for the entire route, visiting all three ports serviced by the ship.

ROLLS ROYCE

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Media

Rolls-Royce demonstrates world's first remotely operated commercial vessel

ROLLS ROYCE

**Rolls-Royce and Finferries demonstrate world's first Fully Autonomous Ferry**

More about: [Press release](#) [Marine](#) [Ship Intelligence](#) [United Kingdom](#)

Rolls-Royce and Finnish state-owned ferry operator Finferries have today successfully demonstrated the world's first fully autonomous ferry in the archipelago south of the city of Turku, Finland.

The car ferry *Falco* used a combination of Rolls-Royce Ship Intelligence technologies to successfully navigate autonomously during its voyage between Parainen and Nauvo. The return journey was conducted under remote control.

During the demonstration, the *Falco*, with 80 invited VIP guests aboard, conducted the voyage under fully autonomous control. The vessel detected objects utilising sensor fusion and artificial intelligence and conducted

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**BO – a conditionally and periodically unmanned bridge**

CARGOTEC

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PRESS RELEASE KALMAR

**KALMAR AND YARA TO DEVELOP WORLD'S FIRST FULLY-DIGITALIZED AND ZERO EMISSION CARGO SOLUTION FOR YARA BIRKELAND**

24/05/2018

CARGOTEC CORPORATION, PRESS RELEASE

**CARGOTEC**

Kalmar, part of Cargotec, and Yara have announced a joint venture to develop a fully digitalized and zero emission cargo solution for Yara Birkeland, a new generation of autonomous and electric container vessels. The vessels will be built at Yara's Porsgrunn facility in Norway. This is a significant milestone in the development of autonomous and electric container vessels, offering a more efficient and sustainable way of transporting goods.

KALMAR TRADE PRESS RELEASE

**NOKIA, ABB AND KALMAR CONDUCT INDUSTRY'S FIRST TRIAL WITH ULTRA-RELIABLE, LOW-LATENCY 5G TECHNOLOGY FOR ELECTRICITY GRID AND HARBOR AUTOMATION**

14/11/2018

ROLLS ROYCE

**Rolls-Royce offers ship navigators a bird's-eye view with Intelligent Awareness game-changer**

Tuesday, 6 March 2018

Rolls-Royce has unveiled a sophisticated situational awareness system that fuses multiple sensors with intelligent software to mitigate against the safety risks navigators face when operating vessels at night, in adverse weather conditions or in congested waterways.

One Sea – Autonomous maritime Ecosystem grows

NEWS  
1 year ago

Yhteinen on testimen – DIMECC ja One Sea avaavat maailman ensimmäisen kaikille avoimen testialueen: Itseohjautuvien laivojen kokeilu täyteen vauhtiin

NEWS  
1 year ago

DIMECC opens the first globally available autonomous maritime test area on the west coast of Finland – One Sea implementation moves forward

NEWS  
1 year ago

One Sea lisää mukamerer

NEWS  
6 hours

Nokia erittäi 5G-tel sähkö autom

NEWS  
2 weeks

Rolls-auton

NEWS  
2 weeks ago

Tieto toimitt Meripelastu johtamisjärj

NEWS  
3 months ago

Global Tech Leader by Reuters

and ICEYE win Pike Tank competition

**DIMECC's co-creation ecosystem  
One Sea seeks global partners to join  
the leading co-creation ecosystem.**

**Join us!**

[www.oneseaecosystem.net](http://www.oneseaecosystem.net)

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