Testing of autonomous vessels – guidelines vs. reality

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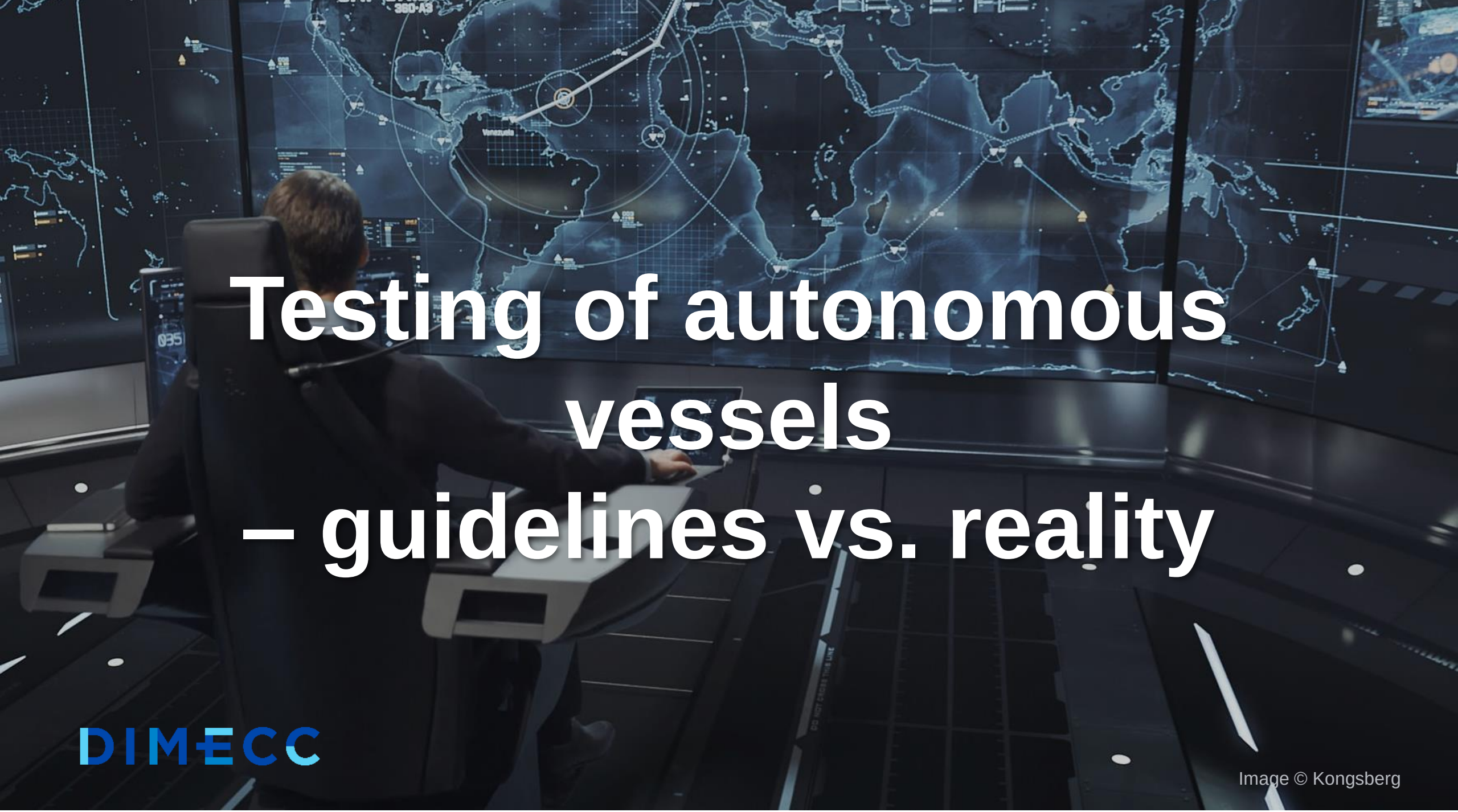

Image © Kongsberg

Agenda

I. Introducing One Sea
   - Who?
   - What?

II. Tests during the global autonomy effort
   - Observations
   - Where do we stand regarding guidelines

The objective of **One Sea** is to have world's first autonomous maritime system in operation by 2025.

DIMECC is a co-creation ecosystem that combines digitalization, internet, materials and engineering.

DIMECC One Sea

One Sea Partners

ABB
Awake.AI
Cargotec
Ericsson
Finnpilot Pilotage
Inmarsat
MTI (NYK Group)
Kongsberg
Tieto
Wärtsilä

DIMECC One Sea

One Sea is an industry lead ecosystem growing globally

DIMECC One Sea

Ecosystem activities

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

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Timeline for autonomous maritime

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

Domestic authority approval / certificate

Class/IMO reg. in place

International collaboration

Design requirements for autonomous power and propulsion systems

Autonomous automobile commercial

Developed data transfer tech eg. 5G (limited to ferries/ports)

Satellite becomes cheaper

Mobility as a service

”Industry standards in place”

Strongly decreased data communication

Infrastructure

Ethical issues

Development of cyber security

Projects, IPR, competences, education

National, IMO and global legislation development

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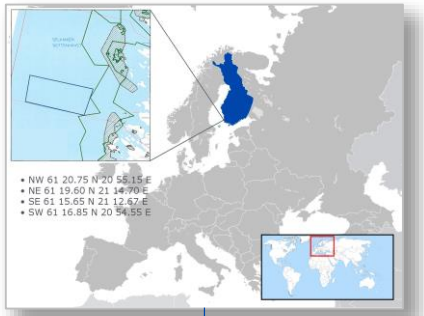
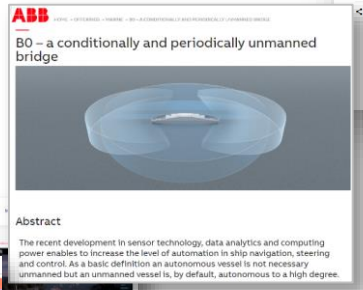
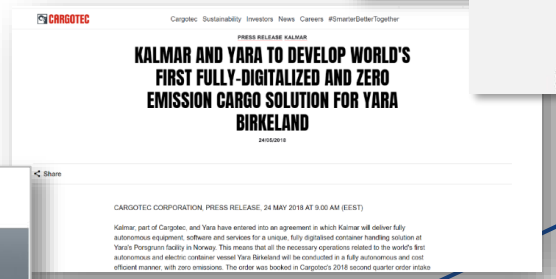
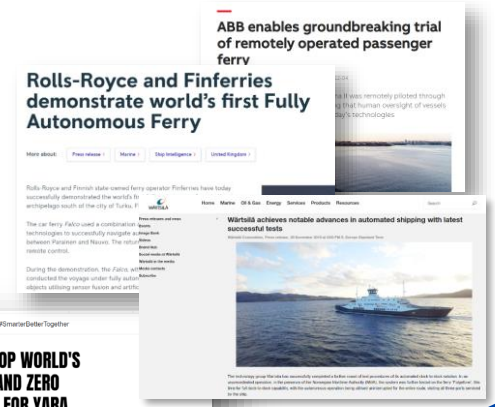
Recent development









20th Feb 2017
First remote operated commercial vessel

10 May 2017
First autonomous zero emission cargo ship announced

10th July 2017
First globally open test area to test maritime autonomy related technology

1st Sep 2017
First remote operated vessel over satellite

29th Nov 2017
First situational awareness products launched

24th Apr 2018
B0 – a conditionally and periodically unmanned bridge

24th May 2018
First fully digitalized cargo solution announced

Dec 2018
First Autonomous Ship demonstration

3rd Jun 2019
First commercial auto-docking solution

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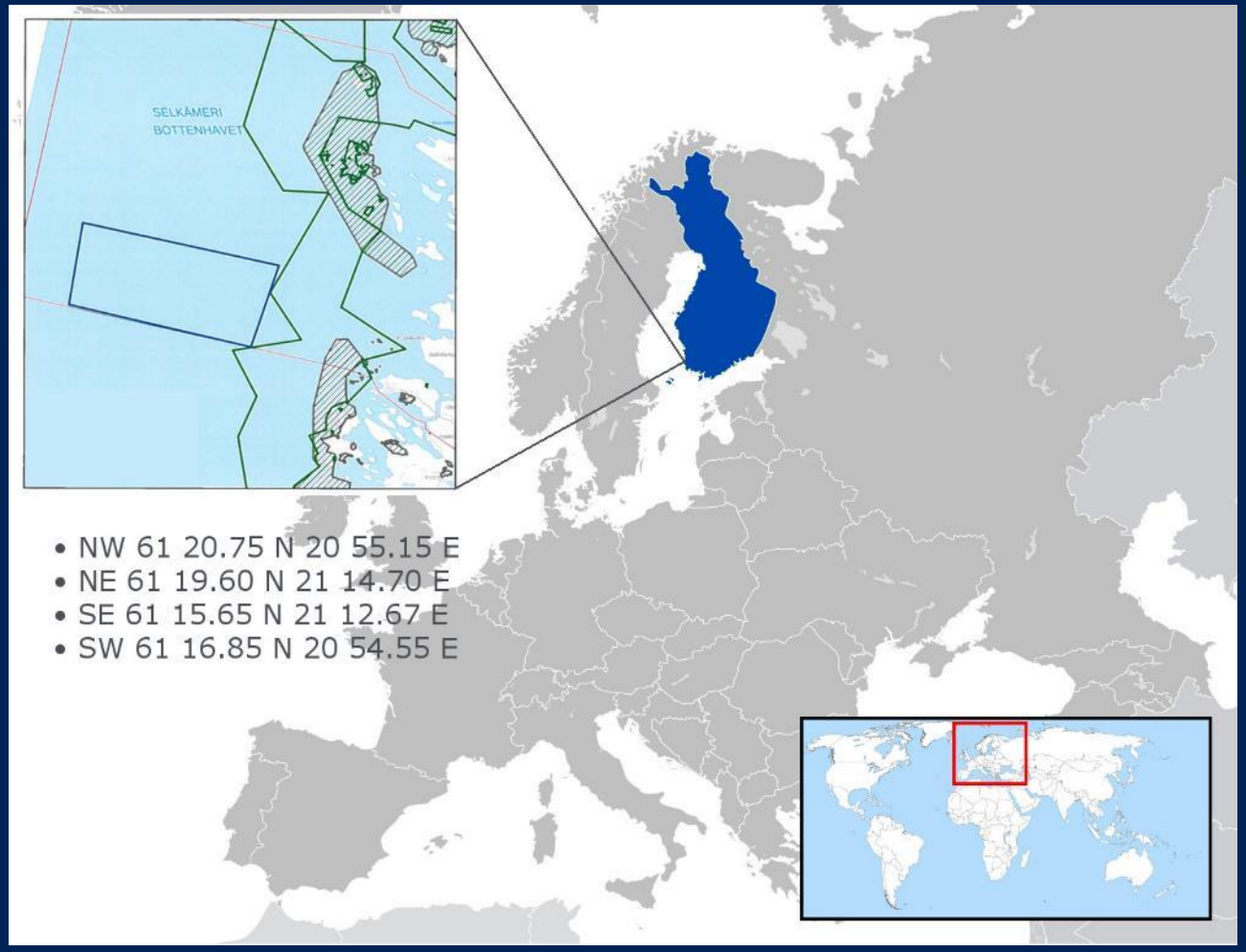
Jaakonmeri test area is open to all

Located in the coastal area of Finland

Approximately 17.85 km x 7.10 km

Operated by DIMECC Ltd



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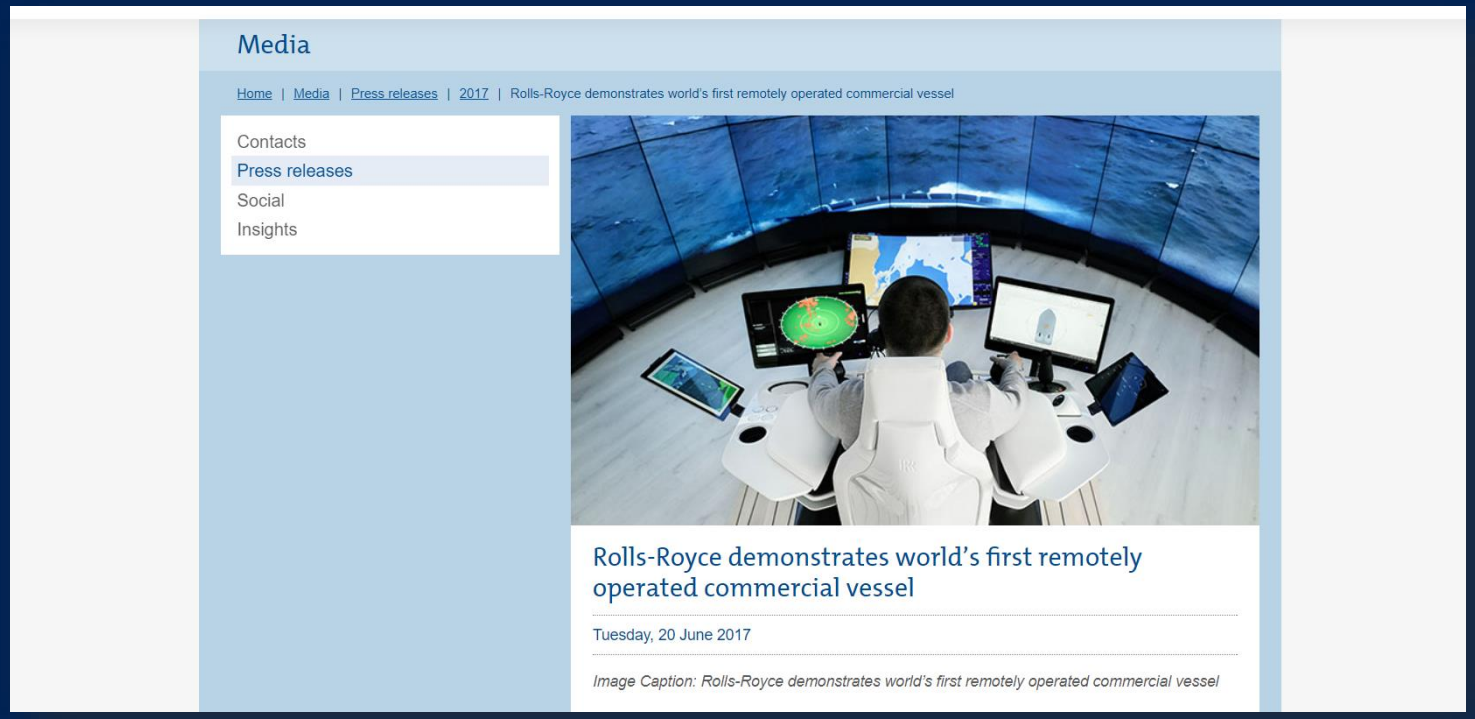
The first reported full scale tests



Media

Home | Media | Press releases | 2017 | Rolls-Royce demonstrates world's first remotely operated commercial vessel

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

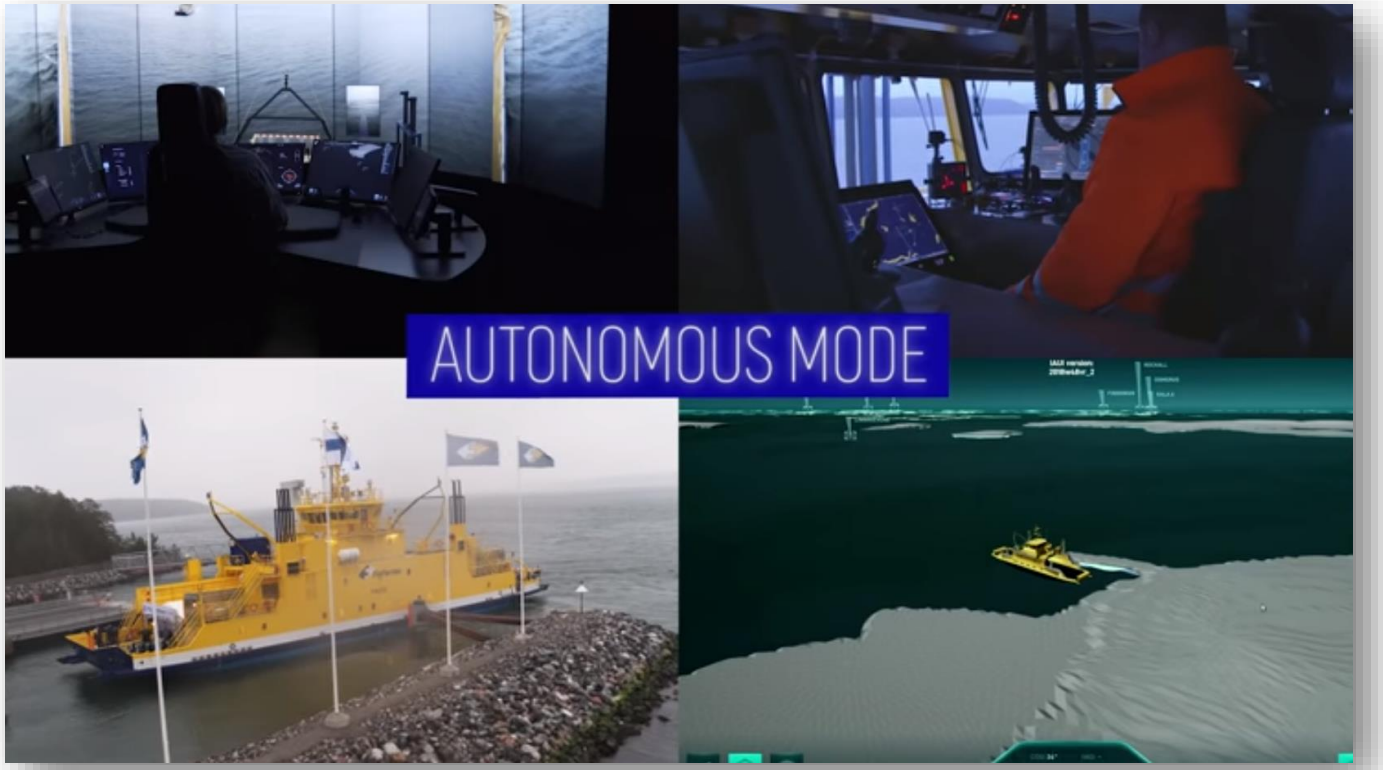
Tuesday, 20 June 2017

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

Autodocking tests

Remote operation and situational awareness demonstrations

The first autonomous demonstration



MASS Tests/Trials observations

- MASS development is incremental
- MASS tests/trials are often conducted in areas not dedicated as test areas
- MASS tests are organized where its most feasible (also in ”urban” areas)
- IMO interim guidelines for MASS trials are suitable for conducting tests
- Test scenarios are very similar to existing operations (compare to seatrials of newbuildings)

MASS test guidelines

- IMO interrim guidelines aim to be goal-based
- EU is in the process of creating guidelines, which contain far more specific details
- Guidelines consider MASS tests to be far outside of current maritime praxis, while the reverse is true
- With too many details many possible future developments can be excluded, thus giving countries outside of EU an advantage
- Focus on SAFETY with GOAL-BASED approach is the best way forward with technologies in development

DIMECC One Sea

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

Join us!

www.oneseaecosystem.net

Päivi Haikkola
Ecosystem Lead
paivi.haikkola@dimecc.com

Jukka Merenluoto
Ecosystem Lead
Jukka.merenluoto@dimecc.com

www.dimecc.com

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