



# PILOTAGE IN FUTURE or THE FUTURE OF PILOTAGE?



# Etäluotsausta?



The screenshot shows a news article from Yle. The main headline is "Öljykatastrofin riski pohjoisilla merillä kasvaa jatkuvasti – "On vain hyvää tuuria, ettei ole sattunut pahempaa"". The sub-headline reads "Esimerkiksi Itämerellä sattuu vuosittain satoja laivaliikenteen vahinkotilanteita. Öljyntorjuntaan kehitetään jatkuvasti uusia keinoja, joista yksi on öljyn polttaminen." The article is dated "Öljyntorjunta 4.4.2018 klo 12:10". At the bottom, there is a credit line: "Kuva: Alfred Wegener / Institute of Polar and Marine Research / EPA".

## **Itämeren laivaliikenne on riski**

*Suurin syy riskin kasvuun on laivaliikenne, joka on kymmenkertaistunut parissakymmenessä vuodessa.*

*– Töitä on kuitenkin vielä tehtävänä. Mielestäni pitäisi olla esimerkiksi enemmän sellaisia luotsiveneitä, jotka ohjaavat laivoja satamaan jo hyvissä ajoin ennen satamaan saapumista. Se ehkäisisi laivojen törmäyksiä ja karille ajoja.*

YEAR

2018

## Finnpilot in figures

<https://finnpilotvuosiraportti.fi/en>

- 25 616 pilotges
- 484 959 piloted miles
- More nautical miles per person-day piloted than ever before
- ~35 % of ships visiting FI ports use pilot
- Turnover 40,3 milj. euro
- Profit 3,6 milj. euro
- Equity ratio 66,1%
- Personnel 340 (13 new pilots recruited, approx 12 will be recruited in 2019)
- Service level target fulfilled 99,9 %

# Pilotage - What does the customer buy?

- Fairway navigation, ship handling
- Ice navigation and icebreaker assistance
- Cooperation with tugs
- Harbour manouevring
- Local knowledge (conditions, operation, formalities, contacts, responsibilities,...)
- Relevant port call information



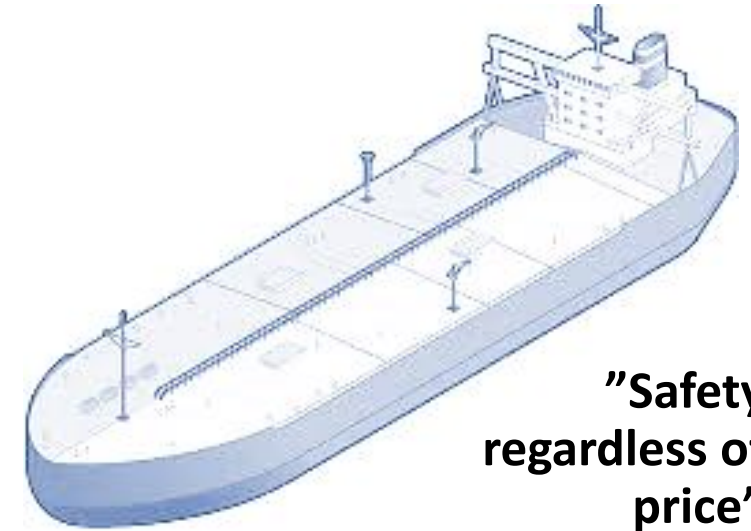
FINNPILOT



*Competence*  
*Knowledge*  
*Communication*  
*Cooperation*  
*Deviation controls*

# Customer segments from safety perspective

**“Liner traffic with efficient cargo handling”**

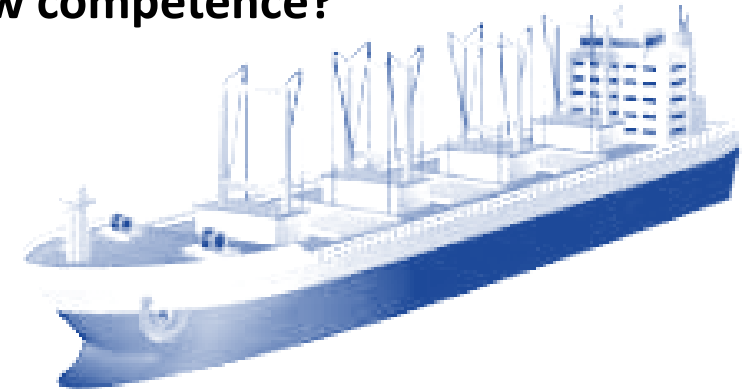


**“Safety regardless of price”**

**“Accurately scheduled production of experiences with high safety standards”**



**Low profit – low costs – low competence?**



# Finnpilot “market share”

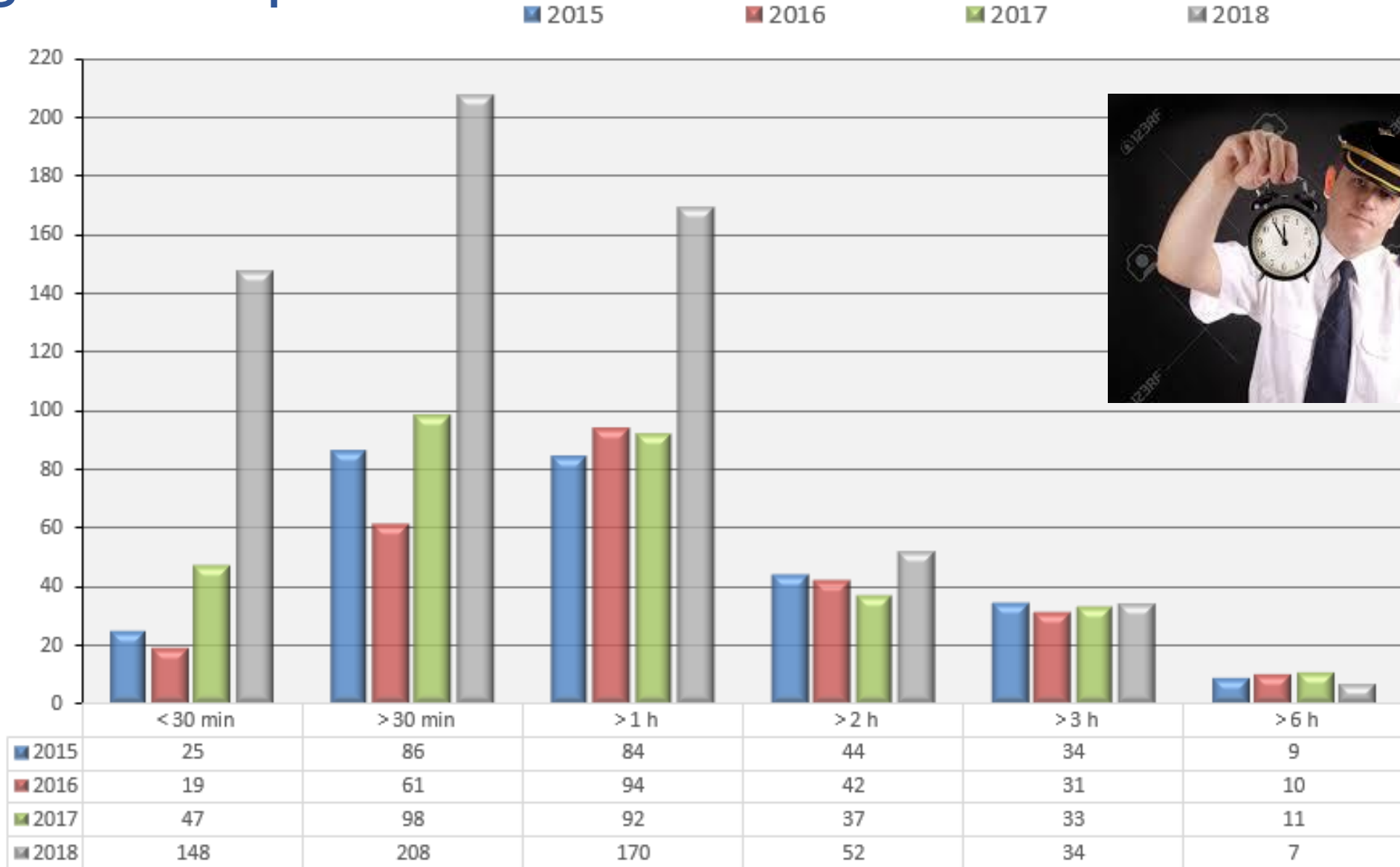
LUOTSAUSALUE/ ASEMA	2016			2017			2018		
	Satama- liikenne	Luot- saukset	Osuus %	Satama- liikenne	Luot- saukset	Osuus %	Satama- liikenne	Luot- saukset	Osuus %
⊕ KOTKA	5 354	4 157	77,6 %	4 927	4 498	91,3 %	5 656	5 031	88,9 %
⊕ HELSINKI	20 203	5 111	25,3 %	21 417	5 309	24,8 %	19 215	5 452	28,4 %
⊕ SAARISTOMERI	27 659	3 151	11,4 %	28 242	3 342	11,8 %	28 038	3 769	13,4 %
⊕ SELKÄMERI	3 925	3 170	80,8 %	3 879	3 246	83,7 %	4 005	3 198	79,9 %
⊕ PERÄMERI	7 054	4 903	69,5 %	7 168	4 920	68,6 %	7 293	5 069	69,5 %
<b>Kaikki yhteensä</b>	<b>64 195</b>	<b>20 492</b>	<b>31,9 %</b>	<b>65 633</b>	<b>21 315</b>	<b>32,5 %</b>	<b>64 207</b>	<b>22 519</b>	<b>35,1 %</b>

All port calls

LUOTSAUSALUE/ ASEMA	2016			2017			2018		
	Satama- liikenne	Luot- saukset	Osuus %	Satama- liikenne	Luot- saukset	Osuus %	Satama- liikenne	Luot- saukset	Osuus %
⊕ KOTKA	5 114	4 157	81,3 %	4 712	4 498	95,5 %	5 166	5 031	97,4 %
⊕ HELSINKI	6 594	5 111	77,5 %	7 432	5 309	71,4 %	7 070	5 452	77,1 %
⊕ SAARISTOMERI	6 574	3 151	47,9 %	6 858	3 342	48,7 %	6 650	3 769	56,7 %
⊕ SELKÄMERI	3 836	3 170	82,6 %	3 764	3 246	86,2 %	3 868	3 198	82,7 %
⊕ PERÄMERI	6 002	4 903	81,7 %	6 044	4 920	81,4 %	6 140	5 069	82,6 %
<b>Kaikki yhteensä</b>	<b>28 120</b>	<b>20 492</b>	<b>72,9 %</b>	<b>28 810</b>	<b>21 315</b>	<b>74,0 %</b>	<b>28 894</b>	<b>22 519</b>	<b>77,9 %</b>

Foreign traffic  
(cruise, passenger  
and ropax traffic  
excluded)

# Waiting for the pilot...



# DATA INTENSITY





ePilotage concept is a set of actions aimed at the development of the pilotage service process i.e.

- transportation,
- transportation planning,
- resource planning,
- pilotage and
- invoicing.

The main focus of ePilotage is the development of information gathering, production and processing to enhance the pilotage service process.

The outcome of ePilotage is new methods for providing pilotage such as remote pilotage and new solutions to improve the pilotage today.

# Amendments to Finnish Pilotage Act 1.2.2019

- Allowing the pilot to perform his or her duties somewhere else than onboard the vessel.
  - "Experiments", permit from TRAFICOM, valid for 5 yrs.
- Temporary pilot boarding position
  - Hearing of VTS
  - Traficom decision based on application from Finnpilot
- Finnish Defence Forces are able to exempt foreign state vessels from the obligation to use a pilot. The Defence Forces may exempt vessels that take part in a training or exercise organised by them, participate in another form of defence cooperation or are hosted by the Defence Forces.



FINNPILOT



## Remote pilotage allowed

PRESS RELEASE 17.01.2019 15.33 fi sv en



Pilot boat (Photo: Jeffrey B. Banke / Shutterstock)

Remote pilotage subject to authorisation will be allowed in those public channels in Finnish waters and in the Saimaa Canal lease area that have been marked as

# Remote Pilotage

- A pilotage company has to apply for an authorisation from the Transport and Communications Agency (TRAFICOM). A requirement for granting the authorisation is that remote pilotage will not as such or in combination with other functions cause any danger to vessel traffic safety or any harm to other vessel traffic or the environment.
- The remote pilotage authorisation defines the routes and parts of routes where remote pilotage is allowed. It also determines the vessels involved and the origin and destination of the remote pilotage. The authorisation will be granted for a maximum of five years and can be renewed if necessary.



# Development path to future pilotage services



Concrete steps:  
Wärtsilä PPU,  
Trenz PP, Faults in  
AtoNs to PPU,  
AISLAB, etc.



Concrete steps:  
Continuous measures  
to increase data  
exchange and  
utilization.

Concrete steps:  
Remote operated  
heavy pilot boat

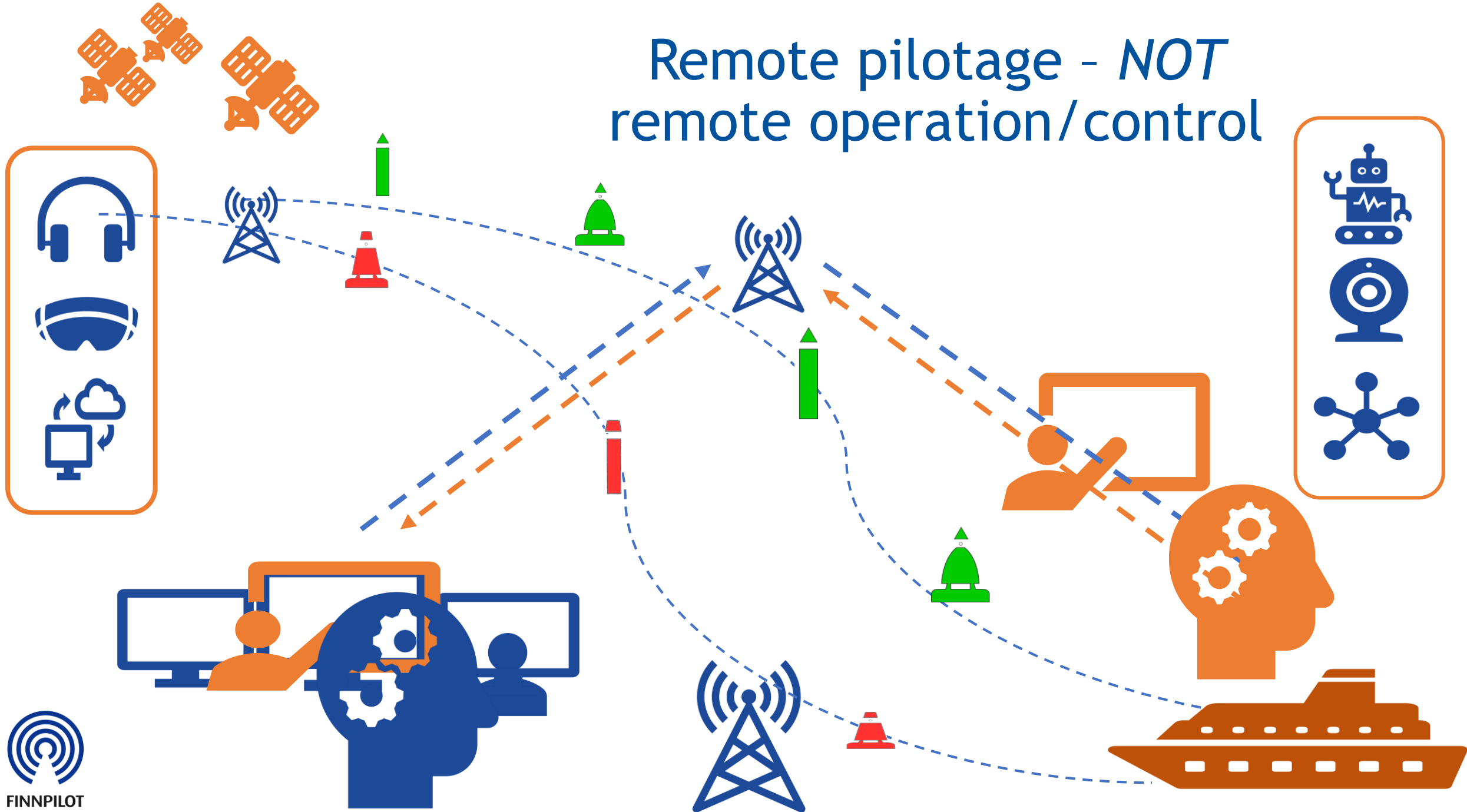
Research &  
Development:  
• Sea for Value (S4V)  
• MasterSIM  
• ...

TRA2020  
Interactive  
Demonstraatio(t),  
Technical tour

The aim  
Availability of  
required  
technology and  
information  
exchange,  
equipment,  
training,  
competence and  
the operational  
procedures for both  
on-shore and on-  
board operation.



# Remote pilotage - *NOT* remote operation/control





FINNPILOT

PILOT ONLINE

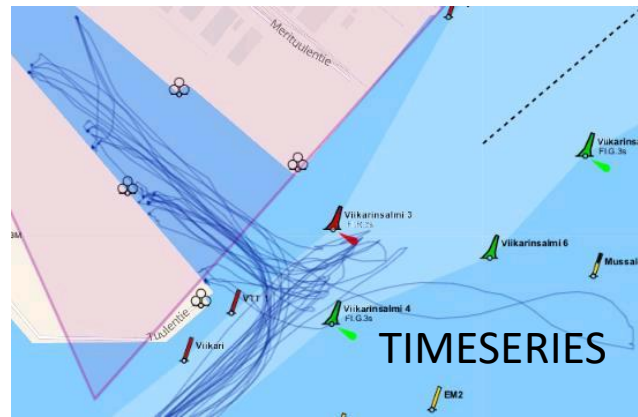
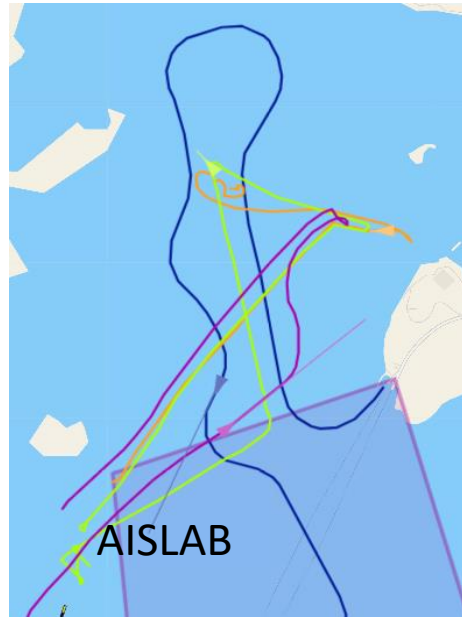
Active bookings

Filter - Company

★ Kiisla ET updated: 29h (agt)  
01.10. 15:00 out 04.10. 09:00  
FIEMA - FISKV 2  
Order  
Order Confirm ET Messages Vessel

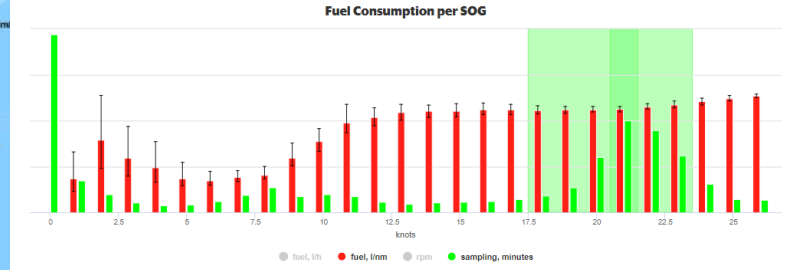
★ Kiisla ET updated: 29h (agt)  
04.10. 09:00 in 01.10. 15:00  
FISKV - FIEMA 3  
Estimate  
Notice 12h Schedule Messages Vessel

ETA/ETD INFO

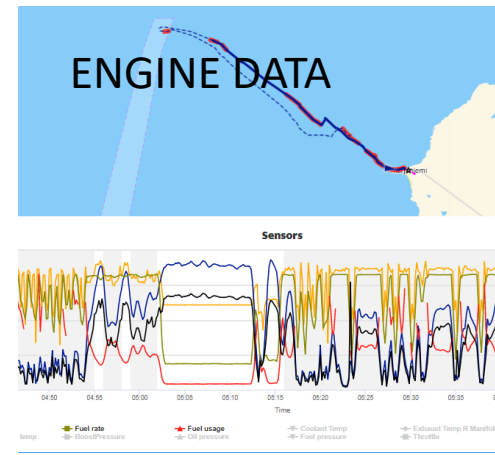
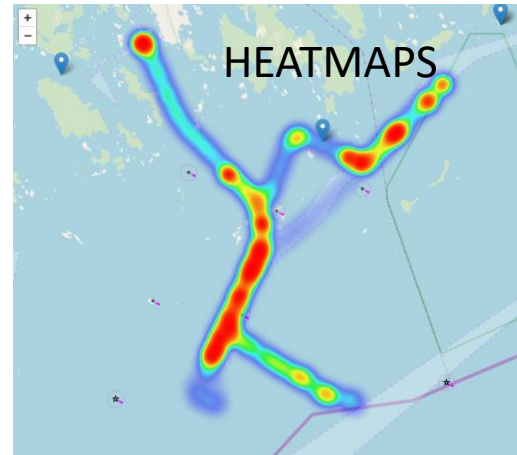
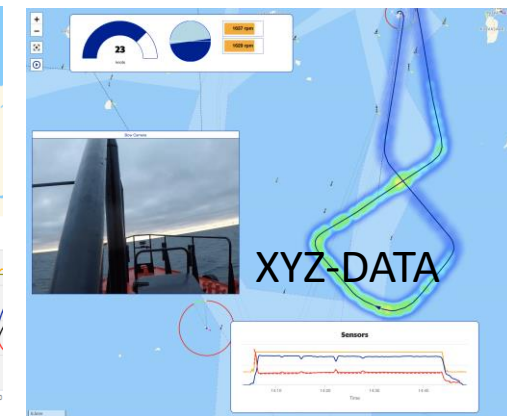


### Fuel Rate Profile

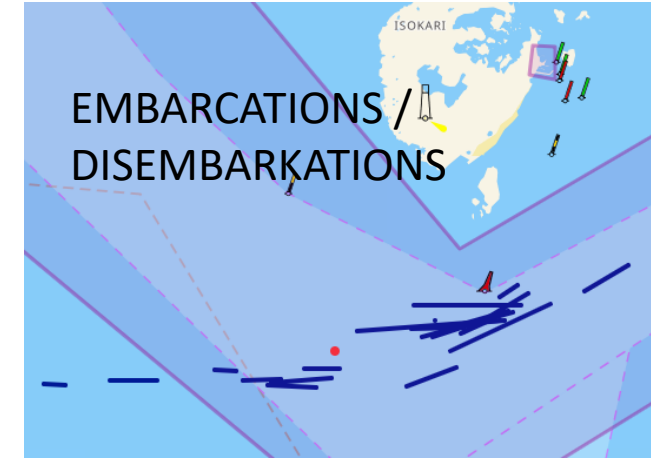
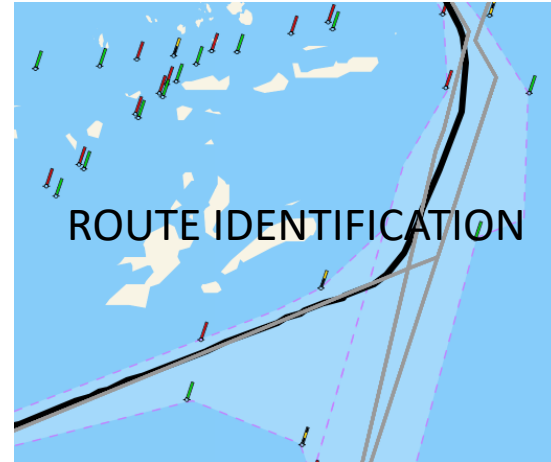
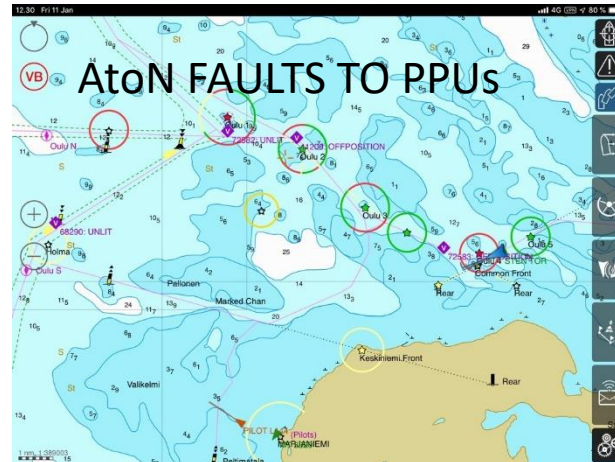
All Motor BB Motor SB



Fuel Rate per RPM

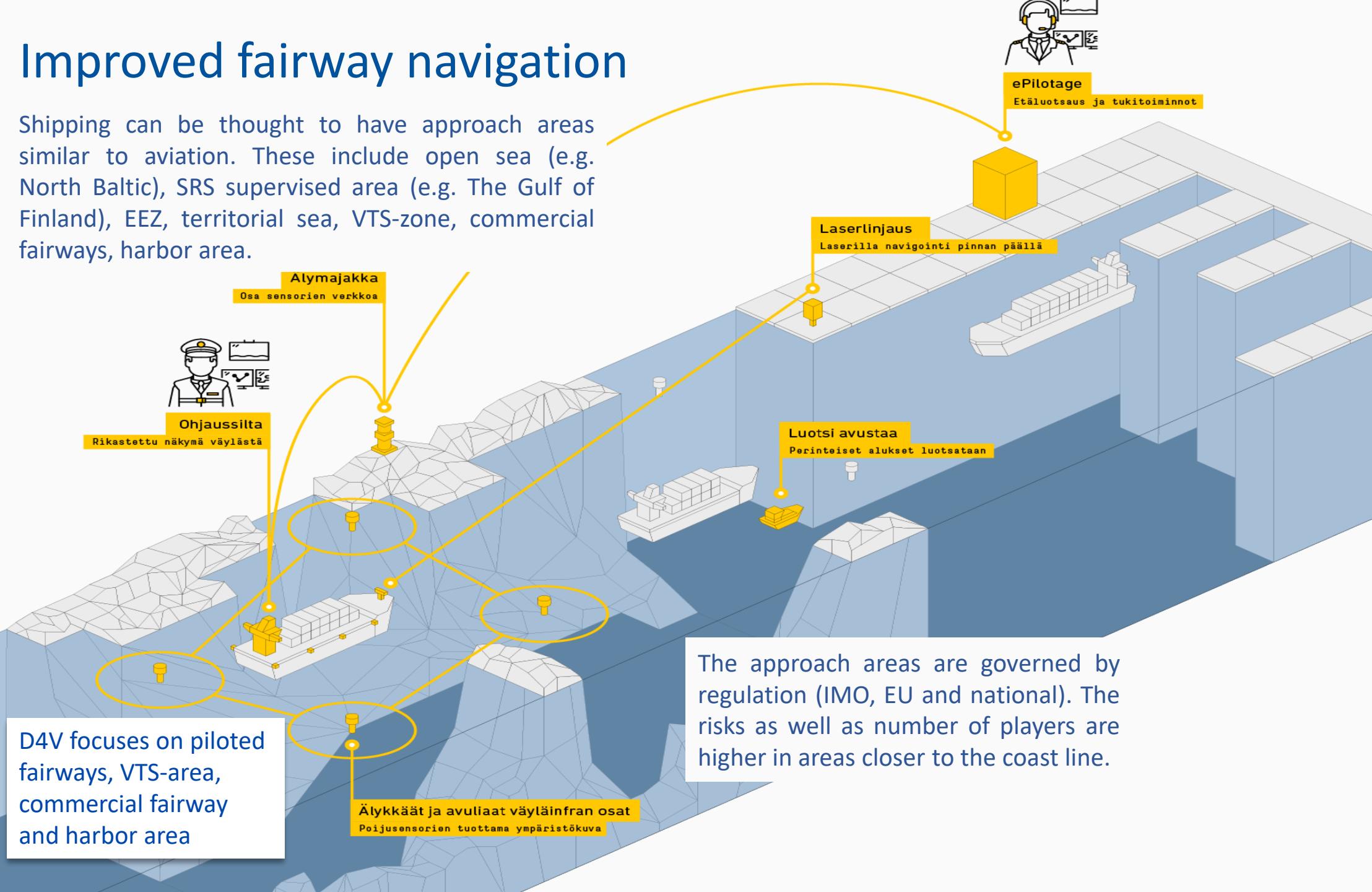


ETA	ASIS	Wagon	Latlon	Etäisyys	Minuti	Latlon	Luopetus	Edellinen/kuusi	Syväisyys	4.4.	2.1.
Käymässä	Esia	FIKU	20 05 18 33 20 05 17 00	PIAL	20 05 23 15	FUJE	6,4 m	BB	1	LOSP Paati 2h	
Käymässä	Kaiteisa 1	FINU	20 05 17 54 20 05 17 00	PIUTO	20 05 22 20		4,4 m	BB		Pöyryvoonen	
Käymässä	Leena	FUTO	20 05 18 33 20 05 18 30	PITKU 41	20 05 23 43		4,4 m	BB		KW & UR kuulekko	
Käymässä	STK-1010	FIBRU	20 05 18 40 20 05 18 30	PIMUS 5	21 05 00 50		4,4 m	BB		Taru Rautamäen	
Käymässä	Patana	FUTO	20 05 18 44 20 05 18 40	PRAJA	20 05 23 54		4,4 m	BB		Stor Suomen satia	
Käymässä	Carisaga ot	FIORR	20 05 18 49 20 05 20 00	PKMU 44	20 05 21 42		4,4 m	BB		Vikarinsalmi	
Käymässä	Minaa lta	FIEMA	20 05 18 55 20 05 20 00	PISKU 2	20 05 21 55		13 m	BB	MAC	2	Tilassa ja nautti
Käymässä	Emilia	FIHUS	20 05 18 58 20 05 19 30	PIBRU	21 05 00 57		4,4 m	BB		2 Kyllä 1915 OK	
Käymässä	Samuli	FIKUR	20 05 20 18 20 05 20 00	PIKKA 1	20 05 23 09	PIBRU	4,8 m	BB		2	22 Crew Chang
Käymässä	Symbolon Provider	FIHOI	20 05 20 22 20 05 20 30	PIKVA	20 05 21 53		4,8 m	BB		2	22 Crew Chang
Käymässä	Arantur	FIHAI	20 05 20 30 20 05 20 30	PIORR	20 05 23 21		5,45 m	BB		2	Mikko Ham
Käymässä	Duina	FIKOS	20 05 20 53 20 05 20 30	PIORR	20 05 22 35		9,3 m	BB		1	X tip
Käymässä	Chaschoer	FIKUR	20 05 21 03 20 05 21 15	PIORR	20 05 22 35		9,3 m	BB		1	X tip
Käymässä	Theodor Exambor	FIKUR	20 05 21 05 20 05 20 31	PIORR	20 05 22 15		9,3 m	BB		1	X tip
Käymässä	EMUS Nausti	FIIMA	20 05 21 16 20 05 21 00	PIPUU	21 05 01 45	PIPKH	9,3 m	BB		1	X tip
Käymässä	Karissa Oja	FIKUR	20 05 21 27 20 05 21 30	PIORR	20 05 22 51		9,7 m	BB		1	X tip
Tilau	Sora Saari	FIKSY	20 05 21 35 20 05 21 35	PIKKA 1	20 05 23 50		9,7 m	BB		2	Saa lautan Cap
Tilau	Balti-Blood	FIKUR	20 05 22 00 20 05 22 00	PIKAA	20 05 22 58		9,7 m	BB		1	1/2
Tilau	Saana	FIEMA	20 05 22 00 20 05 20 00	PISKU 2	20 05 23 45		9,7 m	BB		1	1/2
Tilau	Saamantorni	FIKUR	20 05 22 30 20 05 22 30	PIKAA	20 05 23 30		9,7 m	BB		1	1/2
Arvio	Muttar	FIKAM	20 05 22 40	PIKAA	20 05 23 40		9,7 m	BB		1	1/2
Tilau	EM-2020	FIORR	20 05 22 45 20 05 22 45	PIKAA	21 05 04 50		9,7 m	BB		1	1/2
Tilau	MSC Adri	FIORR	20 05 23 00 20 05 23 00	PIKKA 2A	21 05 00 40		9,7 m	BB		1	1/2
Tilau	Patana	FIKAA	20 05 23 00 20 05 23 00	PIPUU	21 05 03 30	PIBRU	9,7 m	BB		1	X tip
Tilau	Emilia	FIKAA	20 05 23 00 20 05 23 00	PIPUU	20 05 23 50		9,7 m	BB		1	X tip
Arvio	STK-1000	FIKAM	20 05 23 00	PIKAA	21 05 00 94		9,7 m	BB		1	X tip
Emilia	Esia	FIKAL	20 05 23 15	PIPUU	21 05 03 45	FUJE	4,35 m	BB		2	X tips
Tilau	Ilva	FIOUC	04 4 5 101	20 05 23 30 20 05 23 30	PIODL	21 05 02 00		BB			
Emilia	Ilva	FIKAM	20 05 23 50	PIKAA	21 05 01 45		9,4 m	BB		1	X tip
Emilia	Ilva	FIKAM	20 05 23 50	PIKAA	21 05 01 45		9,4 m	BB		1	X tip



# Improved fairway navigation

Shipping can be thought to have approach areas similar to aviation. These include open sea (e.g. North Baltic), SRS supervised area (e.g. The Gulf of Finland), EEZ, territorial sea, VTS-zone, commercial fairways, harbor area.



D4V focuses on piloted fairways, VTS-area, commercial fairway and harbor area

The approach areas are governed by regulation (IMO, EU and national). The risks as well as number of players are higher in areas closer to the coast line.

# Information to enhance pilotage

Weather

Pilot's route plan

Ice information

Ship movement observation systems outside the ship

Data from Pilot Plug

AtoN malfunctions

Sweeping information

Ship movement observation systems inside the ship

Deviation reports

Intelligent AtoNs

Coastal radar data

Shared situational awareness

AIS

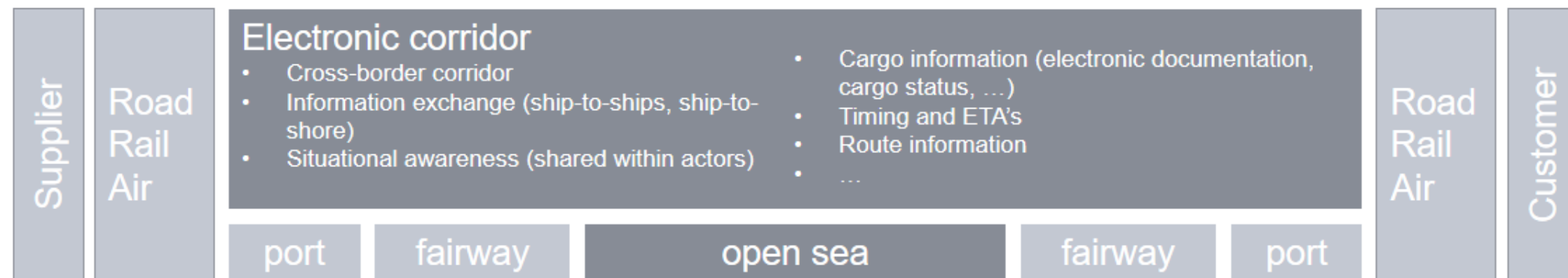
Ship's route plan

Ship manoeuvring



# Digital and autonomous maritime transport chain

← Digital door-to-door supply chain →



**Program Domain**

Application domain #1  
**Smart Harbour**

Smart harbour operations and logistics connect the road, rail and maritime transport systems and enable multimodal transportation.

Application domain #2  
**Smart fairway navigation**

Fairway is the navigation channel by which the existing vessels and future autonomous ships use to travel safely in the transfer of goods

Application domain #3  
**Smart shipping**

Asset monitoring, visibility to cargo status, electronic corridors and interconnection are the building blocks of safe and secure shipping in the future.

## Ecosystem approach for joint development

### Smart harbour

Smart harbour operations and logistics connect the road, rail and maritime transport systems and enable multimodal transportation.

#### Experiments

- Automated Cargo handling and logistics
- Information flow and API's

#### Companies

- Ericsson,
- **Euroports**
- **F-Secure,**
- **Lingsoft,**
- **MacGregor,**
- **Port of Rauma**
- Rolls-Royce
- Satel
- **Tieto**
- **UPM**
- **Wapice**
- Finnpilot
- **Finnish Transport Infrastructure Agency**
- Finnish Meteorological Institute
- Traficom

#### Research organisations

- Aalto
- Novia
- JyU
- UTU
- TUT+UTA (tuni.fi)
- VTT
- AA

### Smart fairway navigation

Fairway is the navigation channel by which the existing vessels and future autonomous ships use to travel safely in the transfer of goods.

#### Experiments

- Remote pilotage
- Robotic systems for VTS & SAR
- Smart aids to navigation

#### Companies

- **Alamarin-Jet**
- **ESL Shipping**
- Ericsson
- **F-Secure,**
- **Lingsoft**
- **Meyer Turku**
- **Port of Rauma**
- Rolls-Royce
- Satel
- **Tieto**
- **Wapice**
- **Finnish Transport Infrastructure Agency**
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- Traficom
- MeriTaito
- Arctia
- **Estonian Maritime Administration**
- Finnpilot

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### Smart shipping

Asset monitoring, visibility to cargo status, electronic corridors and interconnection are the building blocks of safe and secure shipping in the future.

#### Experiments

- Tallinn-Helsinki electronic corridor for smart shipping

#### Companies

- **Ericsson,**
- **F-Secure,**
- **Lingsoft**
- **MacGregor**
- **Meyer Turku**
- Port of Rauma
- **Rolls-Royce**
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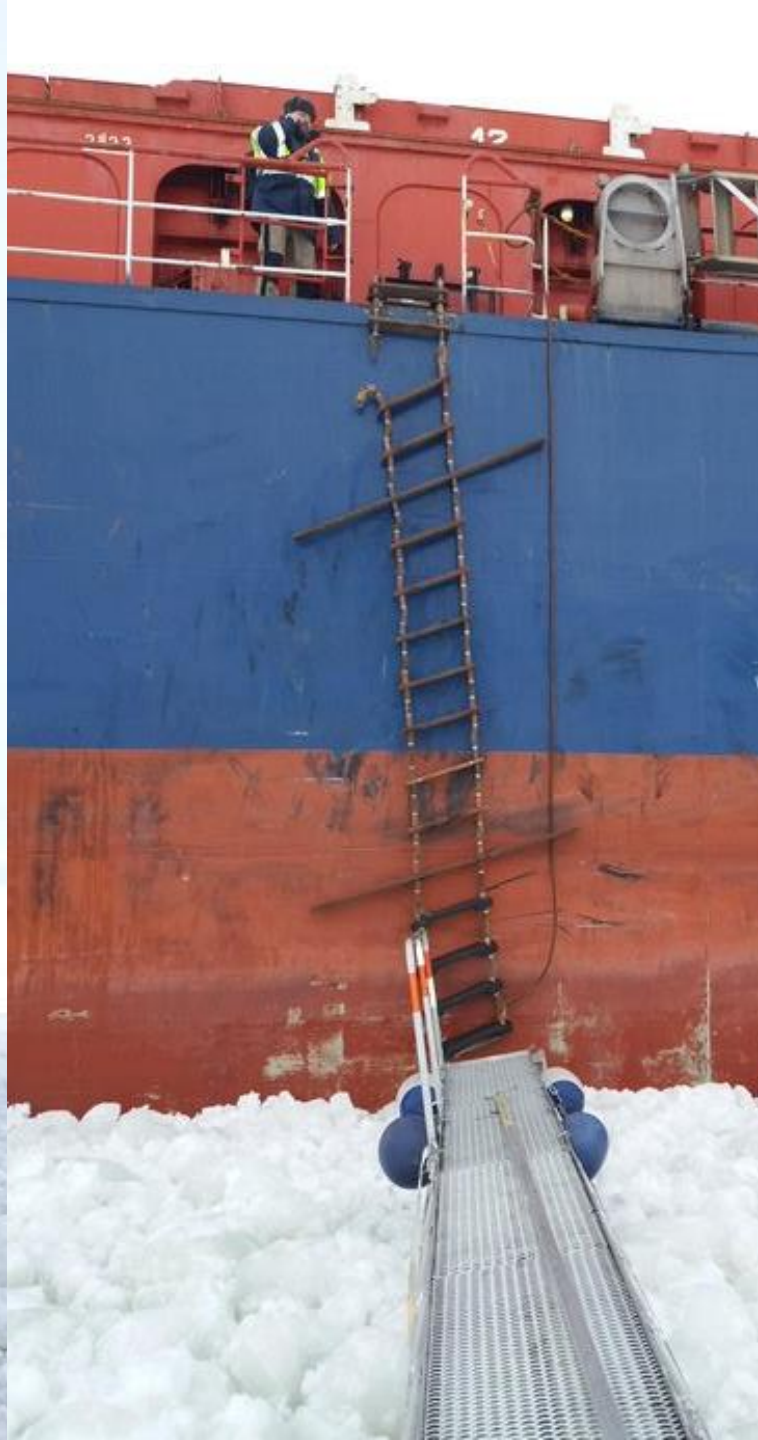
- Aalto
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- VTT
- AA

# Reality...











Both ropes broke when the pilot was climbing down and the pilot fell onto the boat deck with the ladder.



# Negative development?

- Safety of pilot transfer arrangements seems to be deteriorating - not improving.
- PTA are not considered properly in new buildings.
- Finnish PSC Authority Traficom has been supporting us strongly and further discussions will be held.
- Finnpilot added PTA to service conditions in 2018:
  - Poor arrangements - NO pilot
- Campaign for enhanced checking of PTA





The image shows two red pilot boats docked in a harbor. The boats have "PILOT" written on their sides. In the foreground, there is a yellow bollard on a dark metal structure, with thick blue and orange ropes coiled around it. The water is calm, reflecting the boats and the sky. The background features a rocky breakwater under a clear sky.

**THANK YOU!**

23.5.2019