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NORWEGIAN COASTAL ADMINISTRATION

# Digitalisation and the future

## Tailored Maritime Services for Norwegian waters

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Navigation Technology and Pilotage Management

# The Norwegian Coastal Administration

- National agency for safe navigation, coastal management and preparedness against acute pollution.
- An advisory and executive agency of the Ministry of Trade, Industry and Fisheries.
- Facilitates shipping as an *efficient*, *reliable* and *green* transport option.

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# Overall goals and vision

- Promote safe and efficient seaways.
- Ensure sufficient width and depth in the fairway.
- Prevent marine accidents and acute pollution.

VISION:

To make our coast and waters the safest and cleanest in the world.

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# Preventive maritime safety - an important goal

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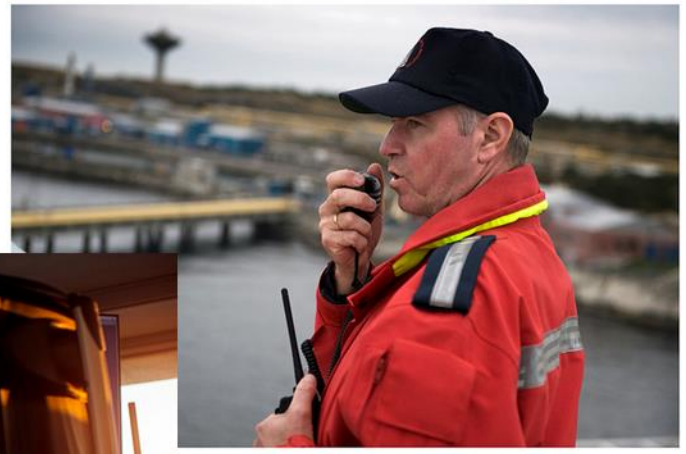
# Navigation Technology and Pilotage Management

- Pilot Management
- Vessel Traffic Service
- Messaging and Reporting services
- E-navigation
- Maritime ITS
- MASS



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# Areas for research and development

- ITS (Intelligent Transport Systems)
  - Communication between systems on board and ashore
  - Holistic, automatisation
  - ITS Norway – forum for inter-agency cooperation (rail, road, sea, air transport)
- e-navigation
  - IMO initiative, SIP coordinated by Norway
  - Provide needed information, in electronic format, to a ship's bridge team to enhance the safety and efficiency of marine navigation.
  - Simplify the exchange of information between systems on board and between ships, and on shore.

# Future development

- Digitization
- IMO e-navigation
- VDES / 5G
- Maritime ITS
- User-friendly solutions
- Maritime safety
- Efficiency in ports, just in time arrival
- Enhanced ship reporting
- Sustainable solutions
- AI and Big Data solutions
- MASS and autonomy

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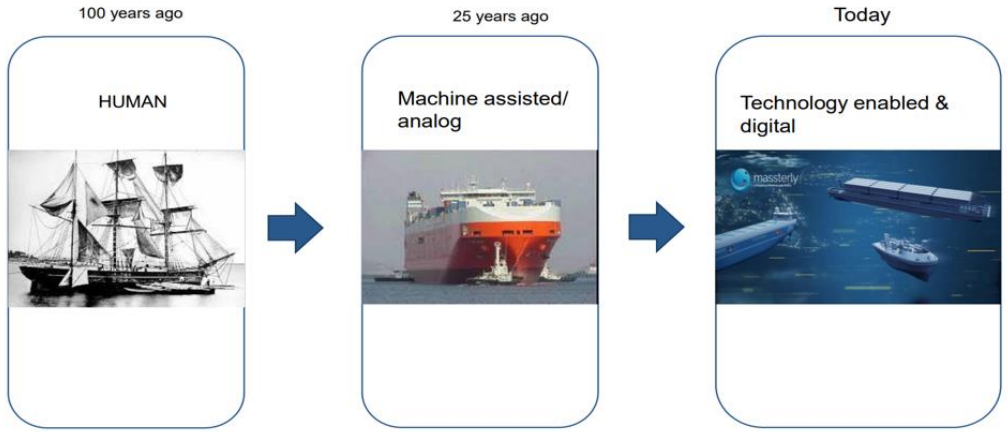
# Trends and development




- Larger ships, higher speed in a complex traffic situation.
- More advanced ships.
- Autonomous operations.

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# Onboard information and systems

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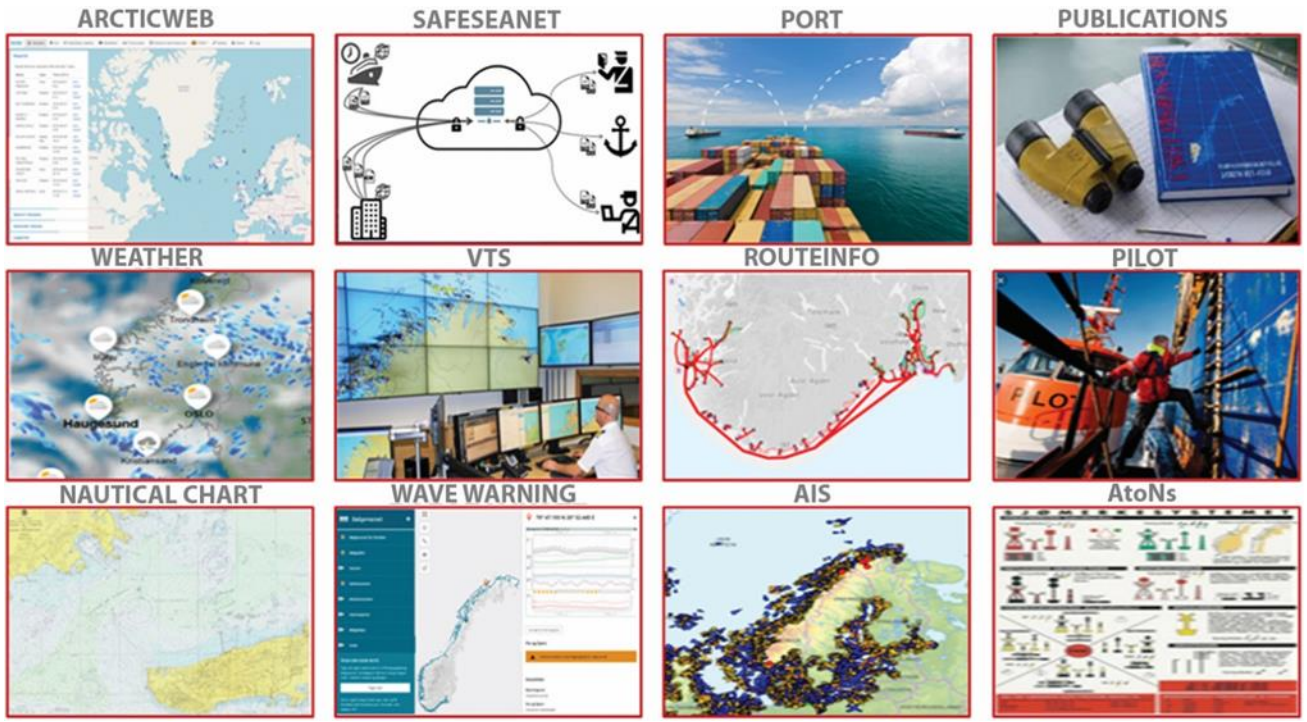
# Background

- Norway has participated in the development of IMO e-navigation
- IMO Resolution MSC.467(101) “Guidance on the definition and harmonization of the format and structure of Maritime Services in the context of e-navigation” and MSC.1/Circ.1610 “Initial descriptions of Maritime Services in the context of e-navigation”.
- The digital services are based on the IMO's preliminary definitions, but tailor-made for Norwegian user needs.
- The Norwegian Coastal Administration provides digital routes along the coast and in arctic areas
- Digital Maritime Services are linked to Routeinfo.no.

5 Agreed IMO e-Navigation Solutions

| | |
|---|---|
| **Solution S1** | Improved, harmonized and user-friendly bridge design |
| **Solution S2** | Means for standardized and automated reporting |
| **Solution S3** | Improved reliability, resilience and integrity of bridge equipment and navigation information |
| **Solution S4** | Integration and presentation of available information in graphical displays received via communication equipment. |
| **Solution S9** | Improved Communication of VTS Service Portfolio. |

# The goal for the development of Maritime Services for Norwegian waters




The goal is to facilitate and provide digital information along the coast in the right place at the right time based on user needs and type of operation.

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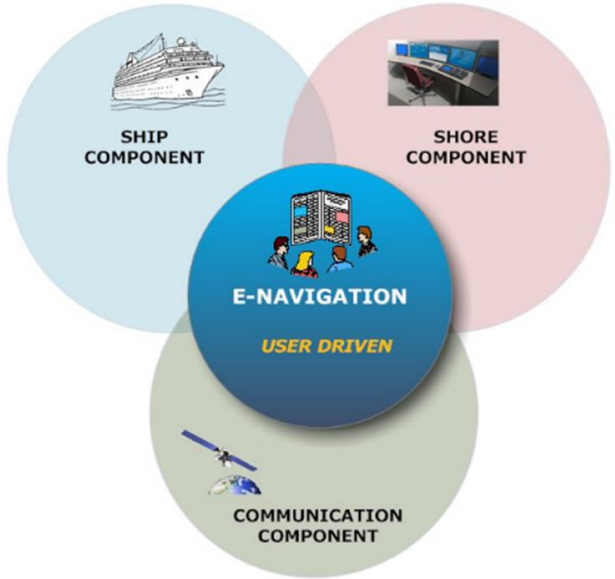
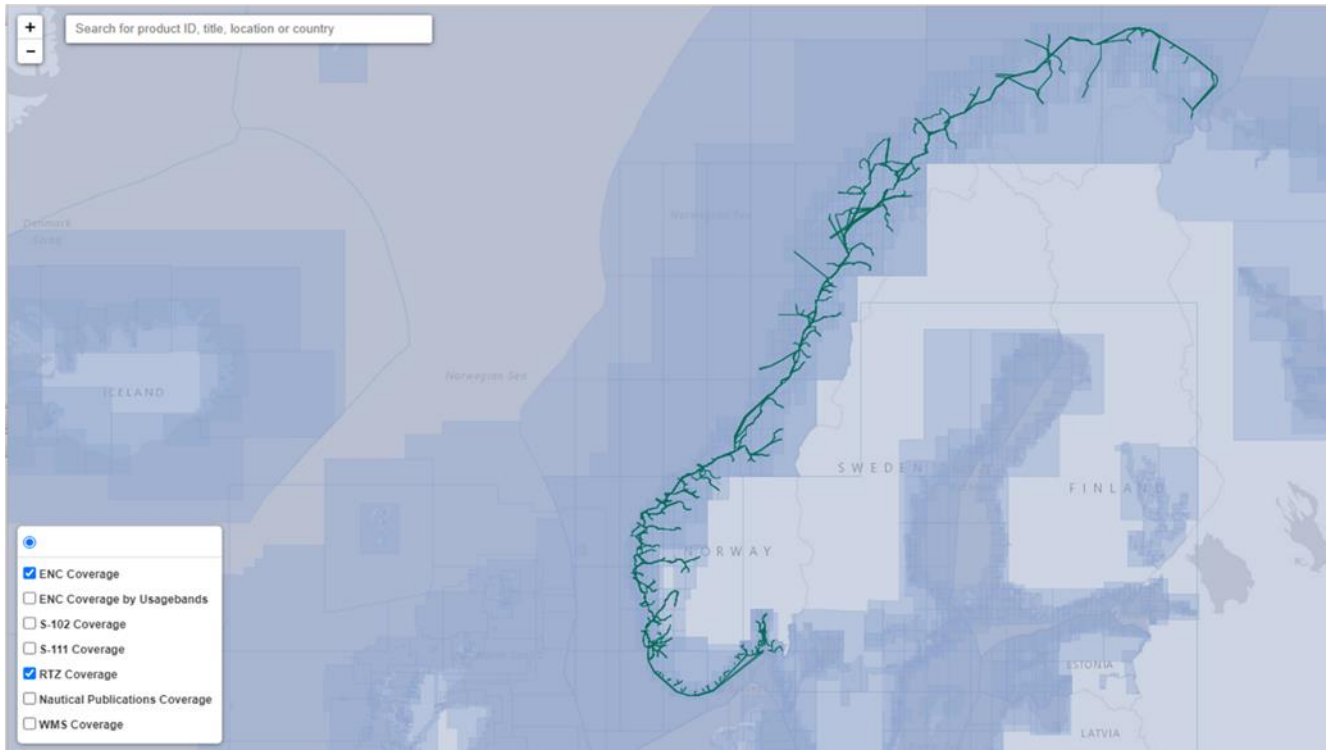
# The tailoring work

- The Norwegian Coastal Administration's expertise, user needs and experiences
- Collaboration with industry and users
- Experience from several Norwegian and EU projects
- FSA carried out by DNV GL and Menon Economics.
- Collaboration with ITS Norway on strategy for Maritime ITS
- Workshop with navigators with experience from coastal navigation
- User survey

# The service portfolio

1. Reference routes
2. Maritime Safety Information (MSI)
3. Establish the exchange of digital information related to efficient port operations, including anchoring opportunities
4. Establish the exchange of digital information for administrative pilotage services.
5. Establish the exchange of digital information for towboat and escort services
6. Establish digital information on ship reporting in Norway (National Single Window)
7. Establish digital information for Maritime Assistance Service (MAS) in Norway
8. Digital information from nautical publications
9. Digital information about ice navigation
10. Facilitation and dissemination of meteorological information from the Coast Guard's sensors
11. Establish the exchange of digital information between the Vessel Traffic Service (VTS) centres and vessels
12. Establish services particularly adapted to passenger ships/cruise ships
13. Develop services that enable autonomous processes and operations in the future

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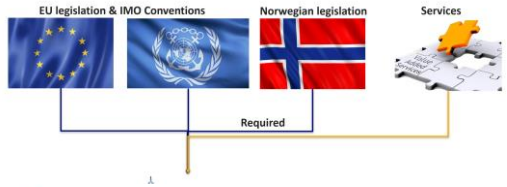
# SafeSeaNet Norway (SSNN) - stakeholders

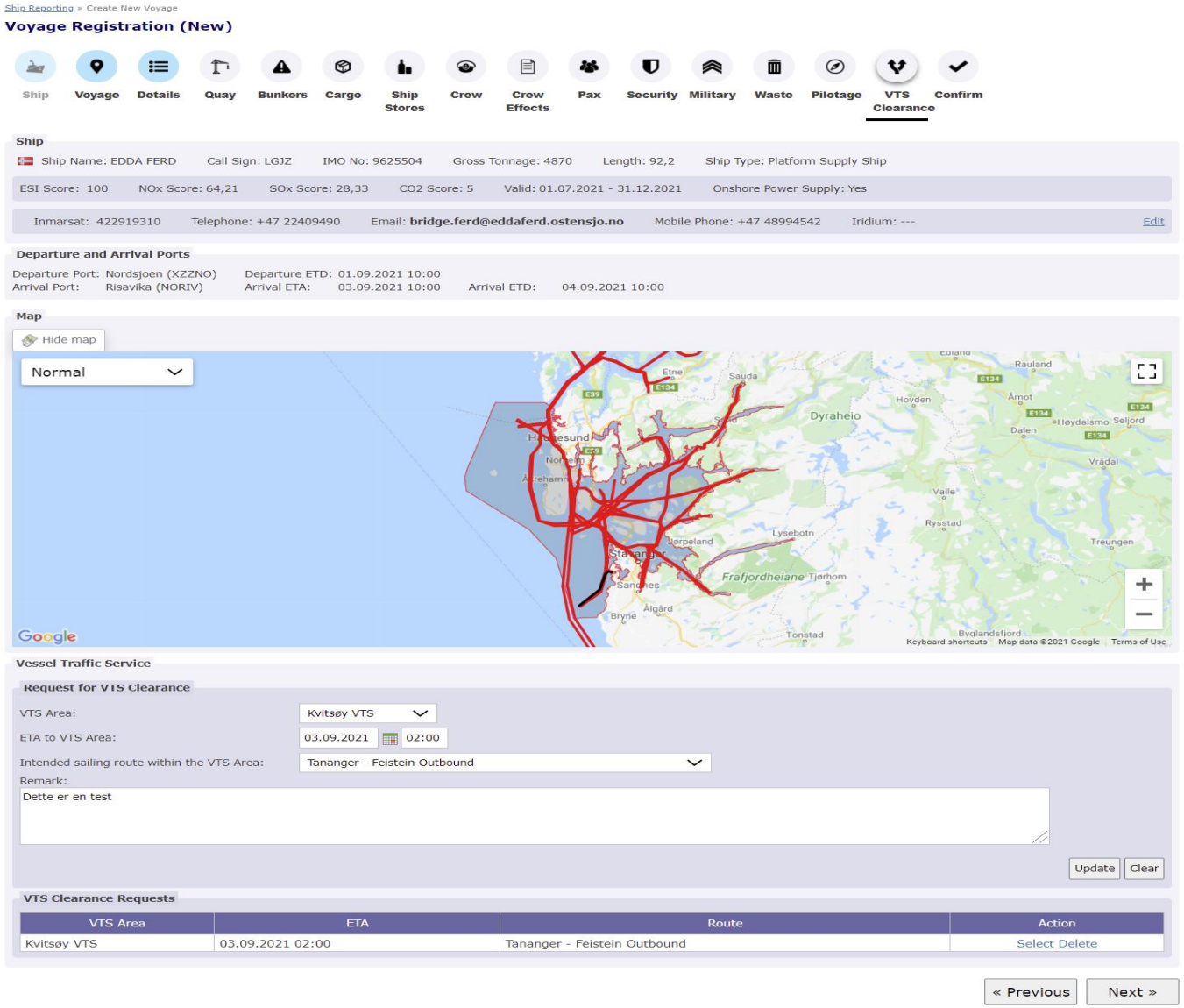


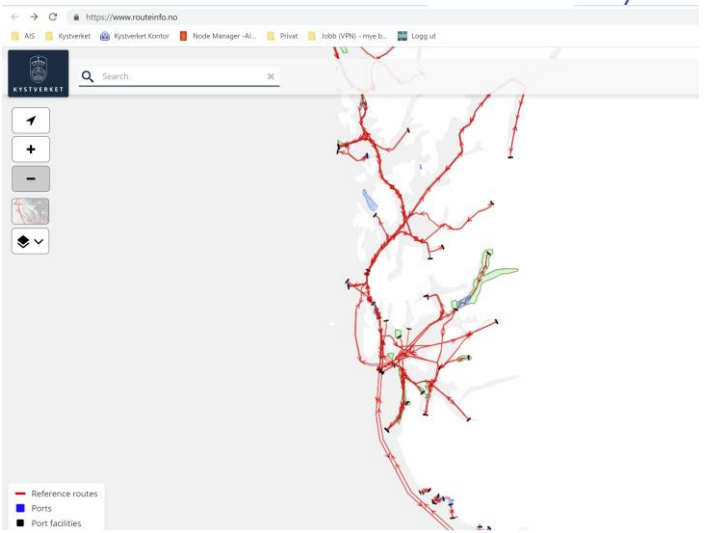

SafeSeaNet Norway

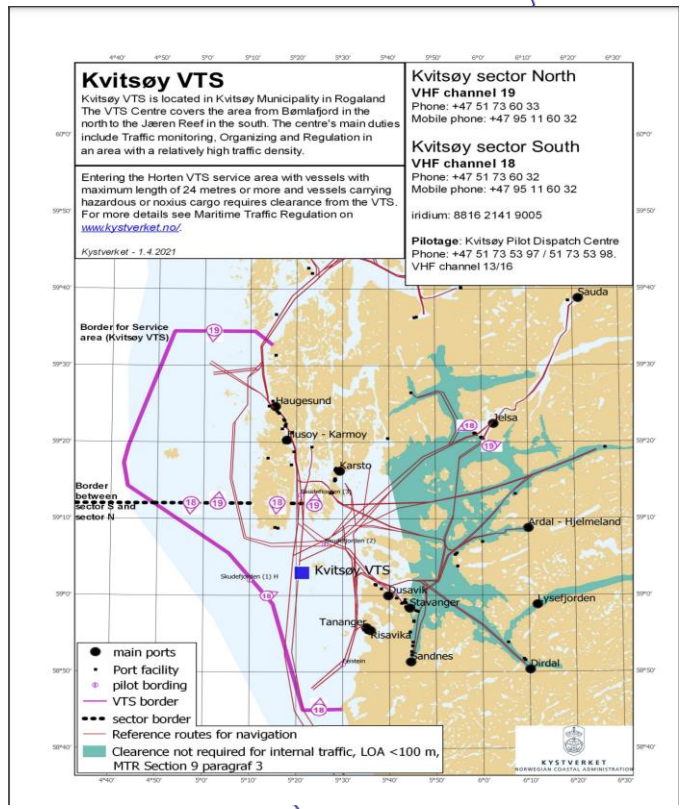
- Coastal Administration
- Customs
- Immigration (police)
- Maritime Authority
- Tax Authority
- Defense
- European Union

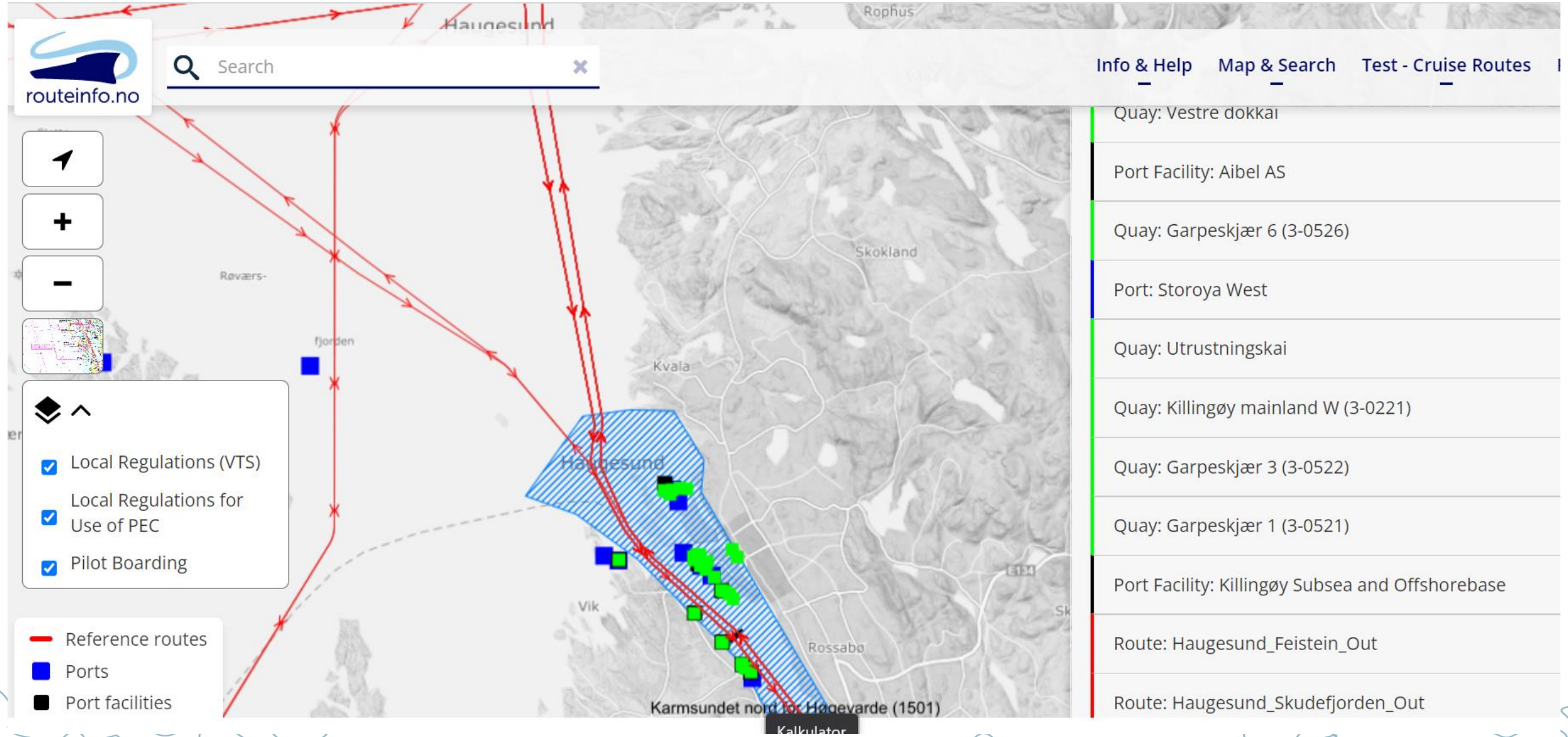
- Ports
- VTS
- BarentsWatch
- National Statistics
- Environment
- R&D
- DataWarehouse
- Industry & Public

# SSN Request for VTS Clearance






[Film]

– Vi tar ansvar for sjøvegen

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# Trends for the next 15 years

- Requirements for sustainability and environmentally friendly solutions.
- Maritime transport is becoming more and more digital.
- AI will first and foremost support human individuals.
- New and innovative concepts, such as autonomous concepts / operations.

# Possible without ITS cooperation????

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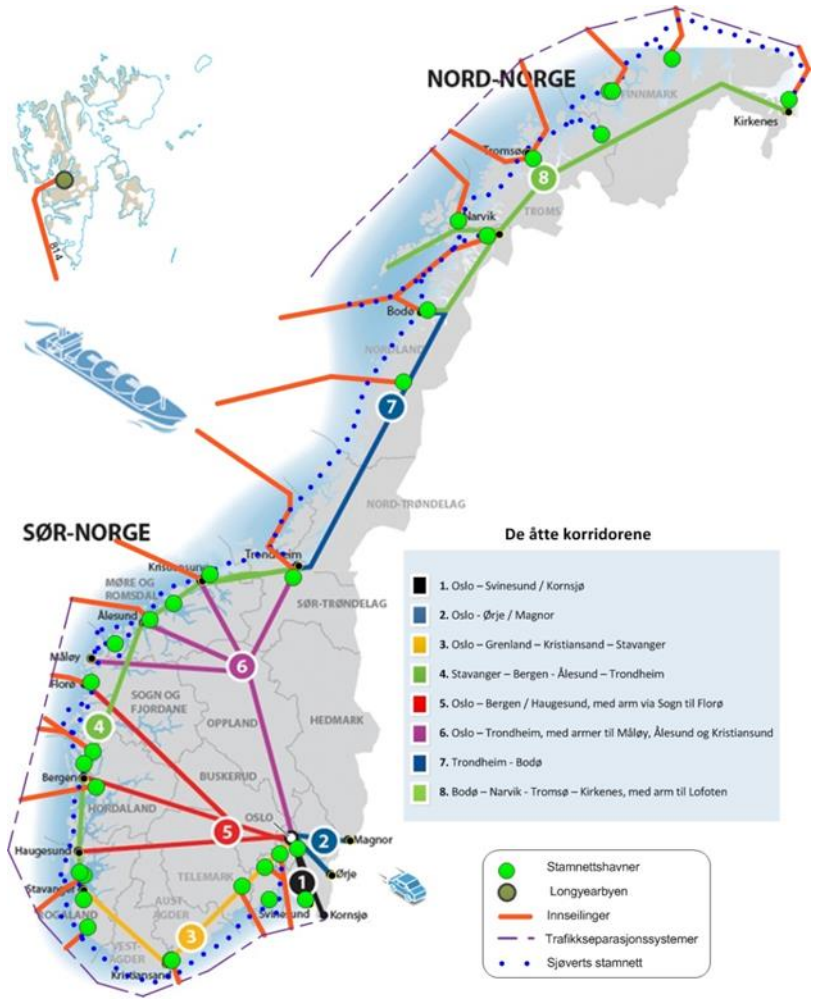


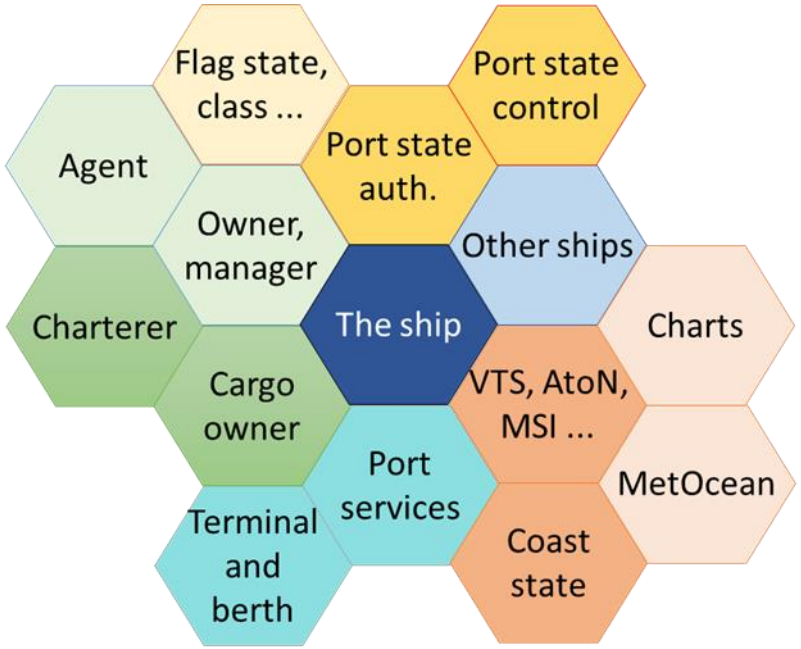

# Not possible without ITS cooperation

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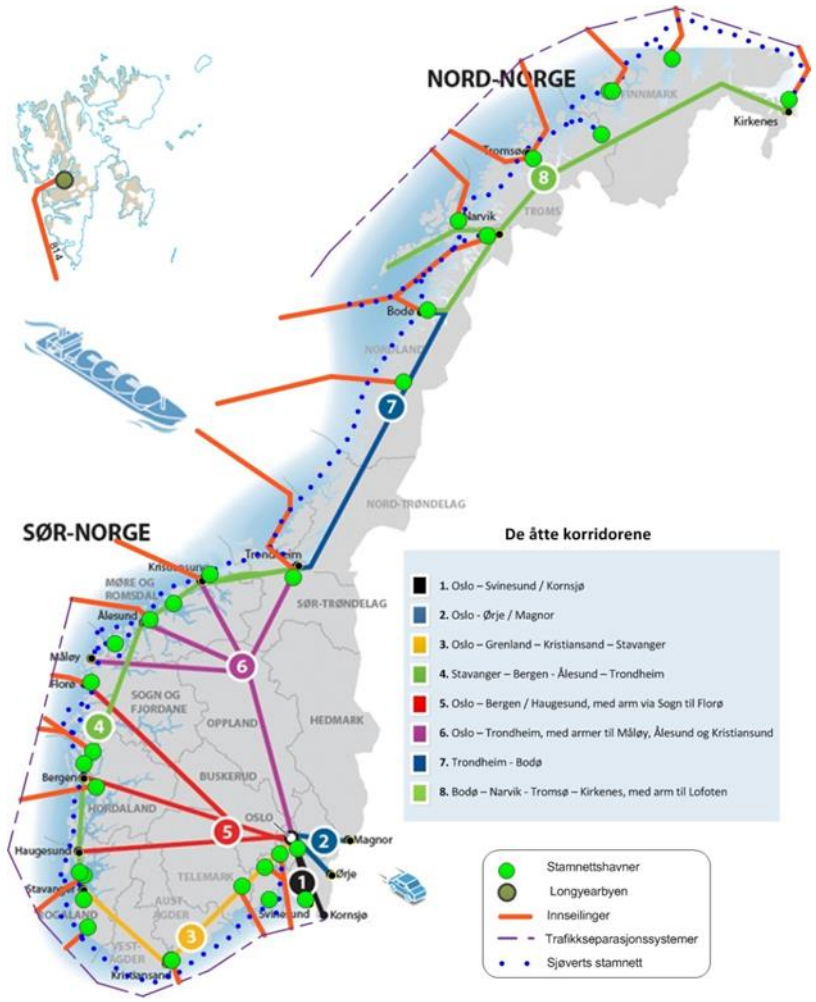


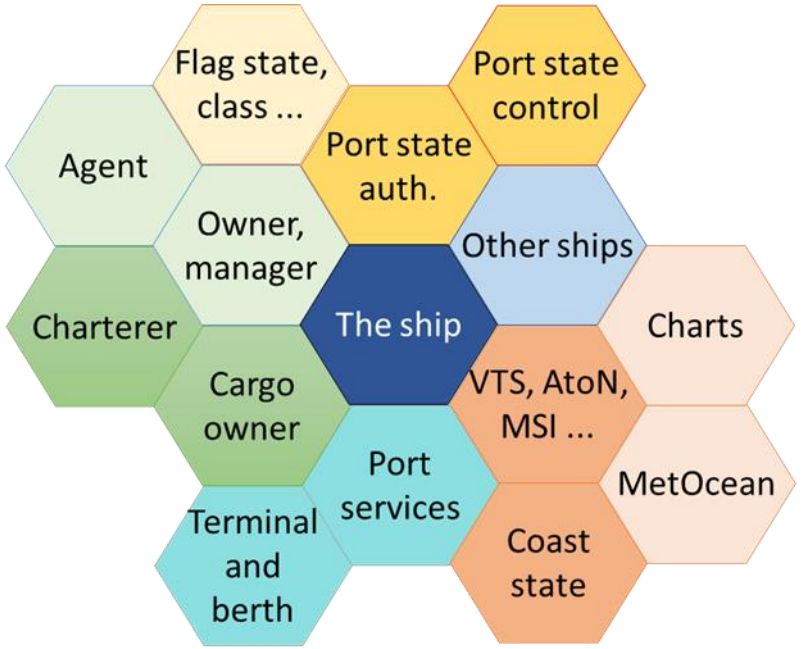

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# CLEAN, SAFE AND EFFICIENT SEAWAYS

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