NELSON
Innovative Solutions for Maritime Services

NELSON in Short

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Co-funded by
the European Union

NELSON has been set up to develop improved digital solutions and practices for maritime services.

NELSON – Development of Navigational Efficiency and Safety with Digital Solutions for Future Fairways

What Do We Do?

The project will develop the physical and digital infrastructure of fairways in two ways:

1) by creating new innovative maritime services and
2) providing support for the deployment of remote pilotage.

NELSON

Where Are We Heading?

- The solutions will help **improve information flow** concerning vessel traffic between the authorities and port operators/stakeholders.

- This will **increase safety and efficiency** and **facilitate the mitigation of environmental impacts**.

How Do We Get There? Work Packages and Scopes 1/2

WP1

Efficient implementation of project management, coordination, communication and stakeholder activities.

Lead: Fintraffic VTS

WP2 Fairway infrastructure

Development of fairway infrastructure to support ships' safe navigation by enabling digital information exhange in Finland and in Sweden.

Lead: Fintraffic VTS

WP3 Remote Pilotage

The objective of WP3 is to develop a universally agreed process for the future remote pilotage concept made globally available to be freely utilised by pilotage service providers, authorities, and manufacturers.

Lead: Finnpilot Pilotage

How Do We Get There? Work Packages and Scopes 2/2

WP4

The primary goal of is to establish a technical platform for digital traffic management information services that authorities offer to traditionally manned, remotely controlled, or remotely piloted vessels.

Lead: Fintraffic VTS

WP5 Testing and validation

The objective of WP5 is to technically and functionally test and validate the developed maritime digital information service interfaces against specifications.

Lead: Fintraffic VTS

WP6 Enhanced connectivity by maritime solutions

The objective of WP6 is to develop and deploy innovative digital maritime service solutions tailored for the Canary Islands.

Lead: Hiades Business Partners

Ten Partners in the NELSON Consortium

Fintraffic Vessel Traffic Services

Fintraffic

Swedish Maritime Administration

SJÖFARTSVERKET

Finnish Meteorological Institute

FINNISH METEOROLOGICAL INSTITUTE

Finnpilot Pilotage

FINNPILOT

Hiades Business Patterns, S.L.

hiades Consulting

Aalto University

Aalto University

Advian Software Ltd

Brighthouse Intelligence Ltd

BRIGHTHOUSE INTELLIGENCE

Port Authority of Huelva

Port of Huelva

Port Authority of Huelva

Port Authority of Las Palmas

Puertos de Las Palmas

Autoridad Portuaria de Las Palmas

NELSON Facts and Figures

1.9.2025–31.8.2028

Bugdet of ~15 million euros. 50% is co-funded by the European Union (Spanish partners 70%).

https://www.fintraffic.fi/en/maritime_traffic/projects-and-development/nelson

WP2 Fairway Infrastructure

WP2 Fairway Infrastructure

1/2025–8/2028

Lead: Fintraffic
Others: SMA

TASKS
T2.1 VDES implementation plan
T2.2 Terrestrial VDES implementation

WP2 Objectives and Scope

- The main goal of WP2 is to develop and implement fairway infrastructure.
- The fairway supports the ships' safe navigation by enabling exchange of information in digital format in accordance with the requirements of remote pilotage operations and automated ship systems.
- Scope consists of a study as well as works/investments

WP3 Remote Pilotage

WP3 Remote Pilotage

1/2025–4/2028

Lead: Finnpilot
Others: Fintraffic VTS, SMA, Advian, BHI, Hiades, and Aalto

TASKS
T3.1 Operational procedures of remote pilotage
T3.2 Technological description of remote pilotage
T3.3 Development of technical solutions
T3.4 Deployment of remote pilotage
T3.5 Risk and cost-benefit assessment

WP3 Objectives and Scope

- Develop a universally agreed process for the future remote pilotage concept made globally available to be freely utilised by pilotage service providers, authorities, and manufacturers.
- Establish a consistent operational approach for RP in different EU member states as well as third countries, enabling as uniform provision of RP services as feasible in practice. A minimum viable product will be developed to enable effective first deployment of the service, i.e., implementing RP on selected fairways and with selected vessels.

WP3 Objectives and Scope

- Implement remote pilotage capabilities on several European fairways by:
  - creating remote pilotage concept and implementation plan
  - deployment of remote pilotage process on EU level
  - deployment of remote pilotage system in Finland and Sweden
  - producing detailed information for regulators in EU and IMO.

- Deploy proactive risk and safety management strategies using dynamic risk analysis tools and methods.

WP4 VTMIS Services and MRS Reporting Harmonisation

WP4 VTMIS Services and MRS Reporting Harmonisation

1/2025–4/2028

Lead: Fintraffic VTS
Others: SMA and Hiades

TASK
T4.1 Maritime service platform development (MCP) in Finland
T4.2 VTMIS digital services for ships at sea
T4.3 MRS reporting harmonisation with MSW port call data
T4.4 VTMIS port call integration

WP4 Objectives and Scope

- Establish a service platform for digital traffic management information services, including an internationally standardised ship route exchange service integrated with Vessel Traffic Services (VTS). Observation data from wave buoys will be converted into a format compatible with Electronic Chart Display and Information Systems (ECDIS).
- Upgrade mandatory ship reporting (MSR) systems to utilise the Maritime Single Window System and the European Maritime Safety Agency's (EMSA) Integrated Reports Distribution (IRD) service, aiming to reduce reporting burdens for vessels.

WP4 Objectives and Scope

- Improve situational awareness between VTS systems and ports by utilising data from different systems (e.g. European Maritime Single Window).
- Integrating this data into e-navigation services, VTMIS systems, and Port Community Systems (PCS) will enhance interoperability between stakeholders and authorities enabling more efficient port call processes.

WP5 Testing and Validation

WP5 Testing and Validation

4/2025–6/2028

Lead: Fintraffic VTS
Others: SMA and Hiades

TASKS
T5.1 Technical and operational validation of smart fairway services in Finland and Sweden
T5.2 Durability of smart fairway services real operating
T5.3 Validations in environment in Spain

WP5 Scope and Objectives

- In WP5, the developed solutions, services, and infrastructure will be tested and validated using actual operational parties e.g. required equipment will be installed on test vessels according to navigation and testing needs. E-navigation services will be tested while VTS and vessels operate normally.
- Remote pilotage demonstrations will be conducted during selected test vessel voyages. A maintenance plan and roadmap for the developed fairway services will be created.
- A cybersecurity assessment will be conducted for the data exchange service platform, the route exchange service, and the remote pilotage solution. All services will be audited for cybersecurity before deployment.

WP6 Enhanced Connectivity by Maritime Solutions

WP6 Enhanced Connectivity by Maritime Solutions

4/2025–6/2028

Lead: Hiades
Others: Las Palmas

TASKS
T6.1 Development of RP software solutions
T6.2 Maritime service platform development (MCP) in Spain
T6.3 MRS reporting harmonisation in Spain
T6.4 Dynamic Risk Management System
T6.5 VTMIS digital services: decision support tool for VTSO
T6.6 Validations in real operating environment in Canary Islands

WP6 Scope and Objectives

- A service platform will be established for digital traffic management information services. Services to be developed on this platform include a port call service, a vessel traffic management service, and a ship route exchange service integrated with VTS.
- Spain's mandatory ship reporting (MRS) system will be harmonised with the national maritime data management system to ease vessel reporting requirements. Additionally, new software will be developed for systematic evaluation of requirements under maritime safety management regulations as well as a decision-support tool to assist VTS operators.
- The digital information exchange solutions will be tested and validated in both the Canary Islands and mainland Spain.

Project Milestones and Deliverables

Altogether 46 Milestones and 32 Deliverables

Milestones

2025: 12

2026: 16

2027: 13

2028: 5

Deliverables

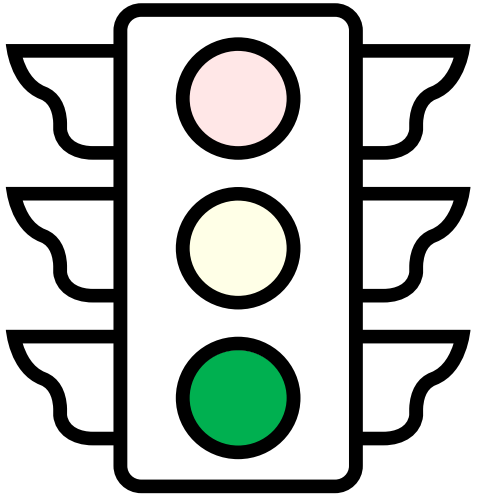
2025: –

2026: 3

2027: 9

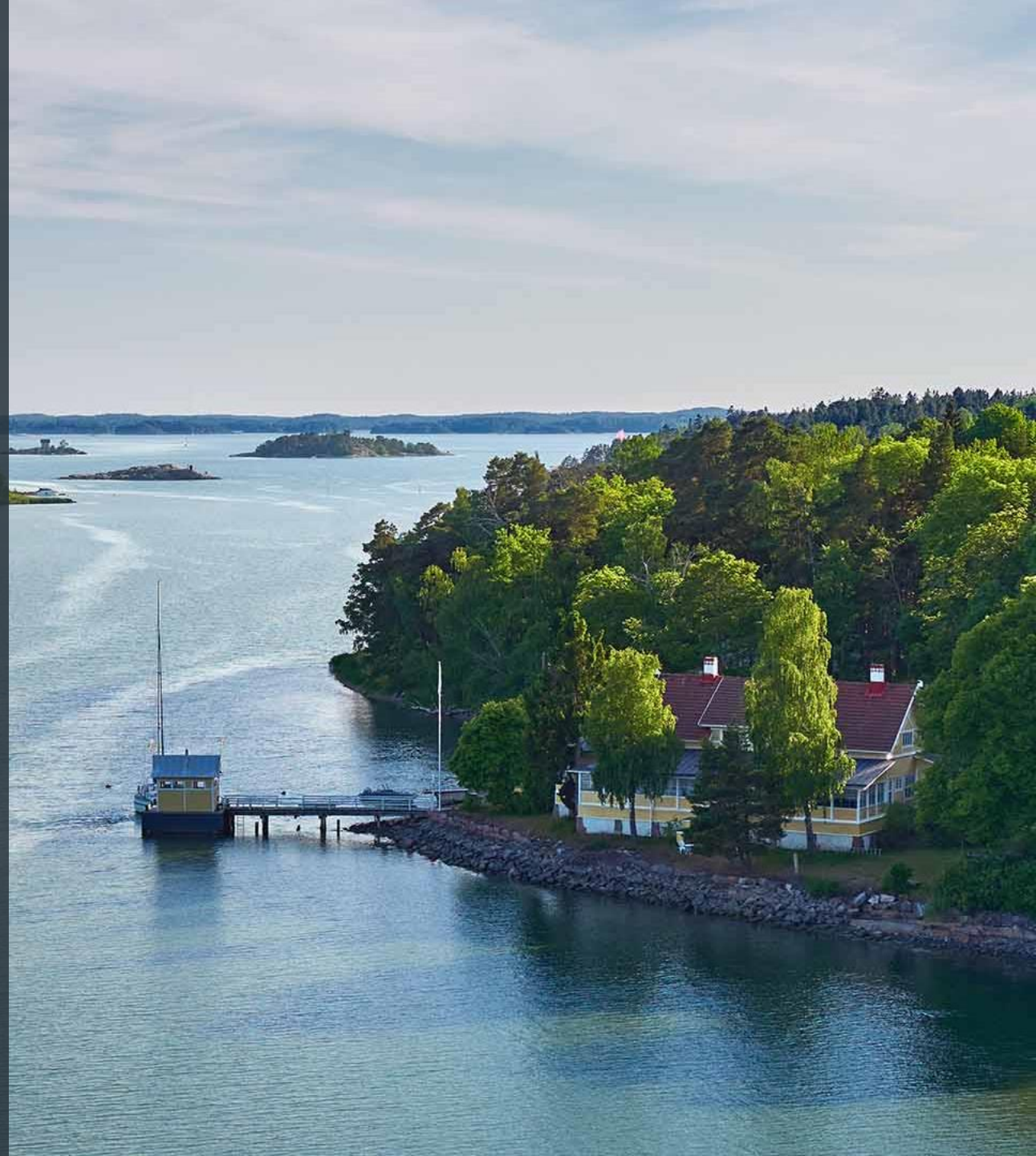
2028: 20

Status



Status 2025

- Project kick-off meeting
- Installation of 1st VDES base station in Sweden completed
- 1st working meeting on RP operational procedures held
- RP risk assessment plan completed
- 1st working meeting on technological description of RP held
- Positioning solution development plan completed
- Stakeholder conference
- Procurement of 1st simulations completed
- Installation of 1st RP workstation equipment in Finland completed
- Planning of VTS integrated view for port calls completed
- 1st working meeting on RP software solutions
- 1st working meeting on MCP



Be in Contact!

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Thank you for your time