



# Waterborne Transport



# HORIZON EUROPE

## Workshop:

“Horizon 2020 Research and Innovation  
delivering smart, green, safe and  
competitive waterborne transport”

07/02/2022 | 09:30 – 16:15

Residence Palace (Brussels) and online

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Innovation Manager

*NOVIMAR – The Vessel Train*

# General project information

- 22 partners
- 7 EU, 2 associated countries
- June 2017 – November 2021
- Contribution: € 7,9 Million
- Coordinator: Netherlands Maritime Technology Foundation



# NOVIMAR partners

- Argonics
- Autena Marine
- Bureau Veritas Marine & Offshore
- Duisburger Hafen
- Compagnie Fluviale De Transport
- Entwicklungszentrum für Schiffstechnik und Transportsysteme DST
- In-Innovative Navigation
- Marlo
- Netherlands Maritime Technology Foundation
- Plimsoll
- Pro Danube Management
- Scandinaos
- Stichting Bureau Telematica Binnenvaart
- Stichting Deltares
- Stichting Maritiem Research Instituut Nederland
- Stichting Projecten Binnenvaart
- Technische Universiteit Delft
- Touax River Barges
- Universiteit Antwerpen
- University of Belgrade – Faculty of Mechanical Engineering
- Van Moer Group
- Viadonau

# NOVIMAR – Strategic aim & objectives

Project NOVIMAR strategic aim is to adjust the waterborne transportation such that it can make optimal use of the existing short-sea and inland waterways and vessels, while benefitting from a new system of waterborne transport operations that will expand the entire waterborne transport chain up and into the urban environment.

# NOVIMAR - Research and impact

- NOVIMAR researched a new system of waterborne transport operations on short-sea, sea-river and inland waterways based on the concept of Vessel Trains.
- Such a Vessel Train consists of a Lead Vessel and a number of Follower Vessels, remotely controlled from the Lead Vessel. Components of the control systems individually have shown the potential to be used in practice, even outside the VT.
- For optimal cargo planning and handling NOVIMAR advertises a combination of optimised ship designs, cargo handling vehicles, cross transfer platforms and mix move match software.
- To assess profitability of Vessel Trains on certain trajectories (benchmarked) calculation models are available at UANTW.

# NOVIMAR's key results



+ New waterborne transport system

+ Simulation model for transport systems

+ Transport system performance indicators for full social cost-benefit analysis

+ Input to regulatory developments for joint operations of conventional and unmanned vessels

+ Recommendations for optimised working conditions and human reliability, and training needs

+ Command and control technology for vessel trains

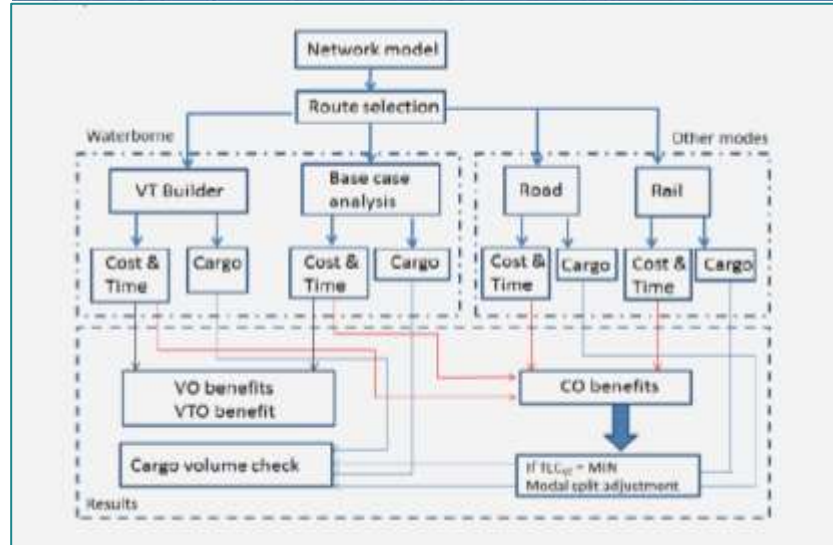
+ Navigation aid for IWT vessels and vessel trains advising speed and track on the river

+ New and revised concepts for RORO cargo systems and vessels

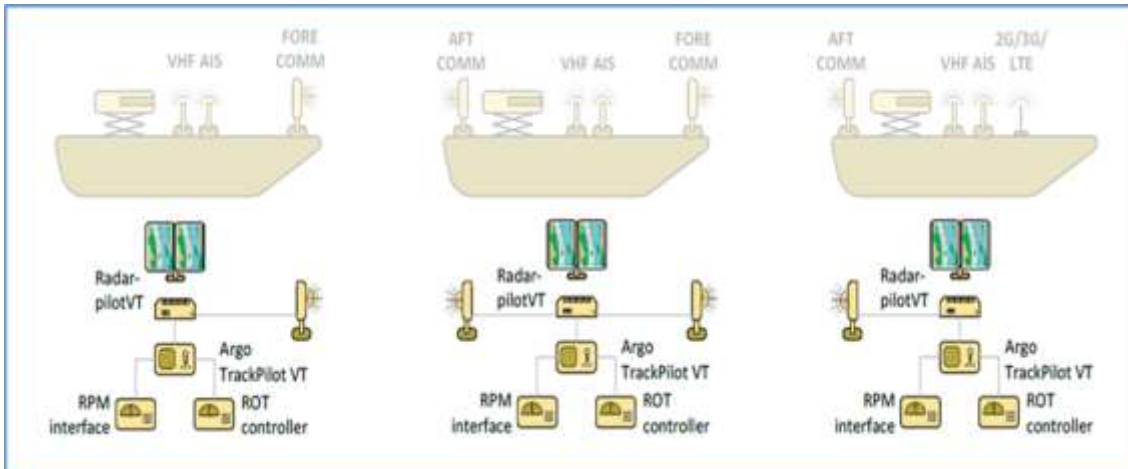
+ Vessel train handbook



# New Waterborne Transport System

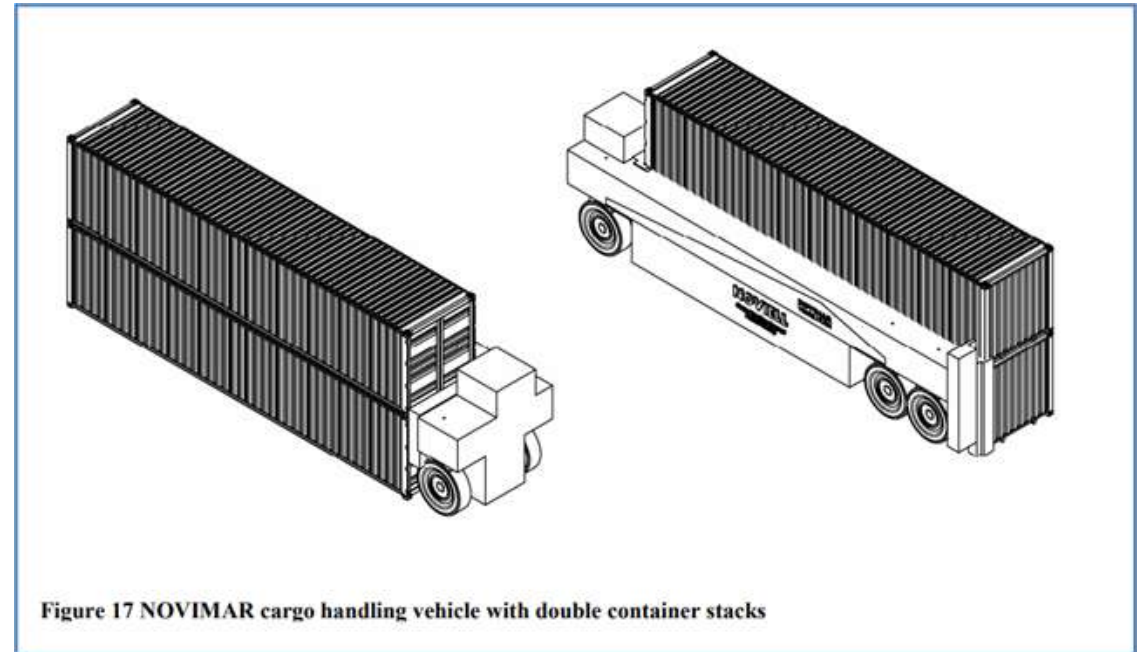
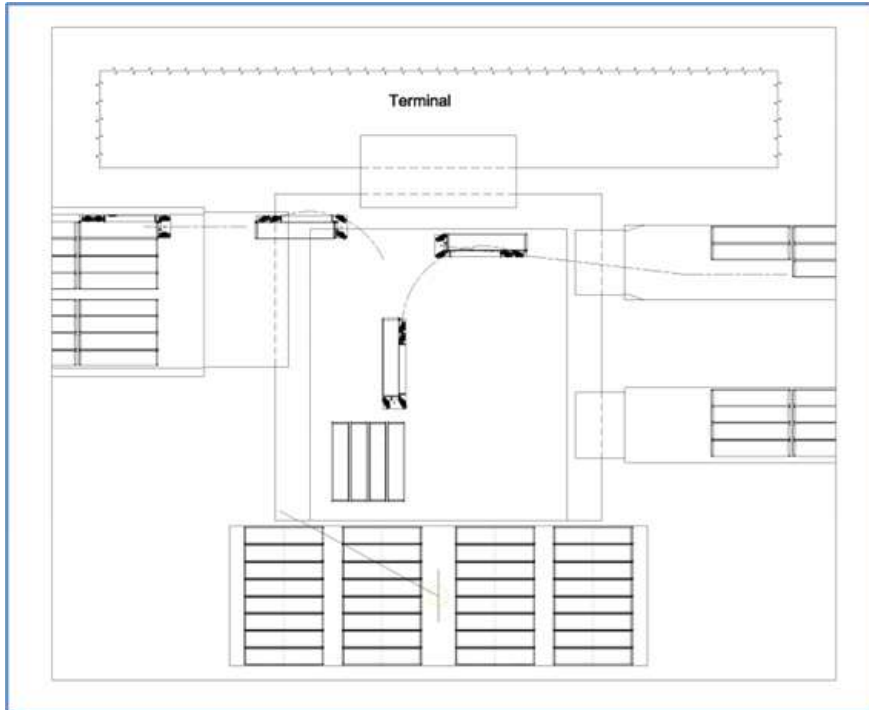


# Vessel Train Control & Monitoring

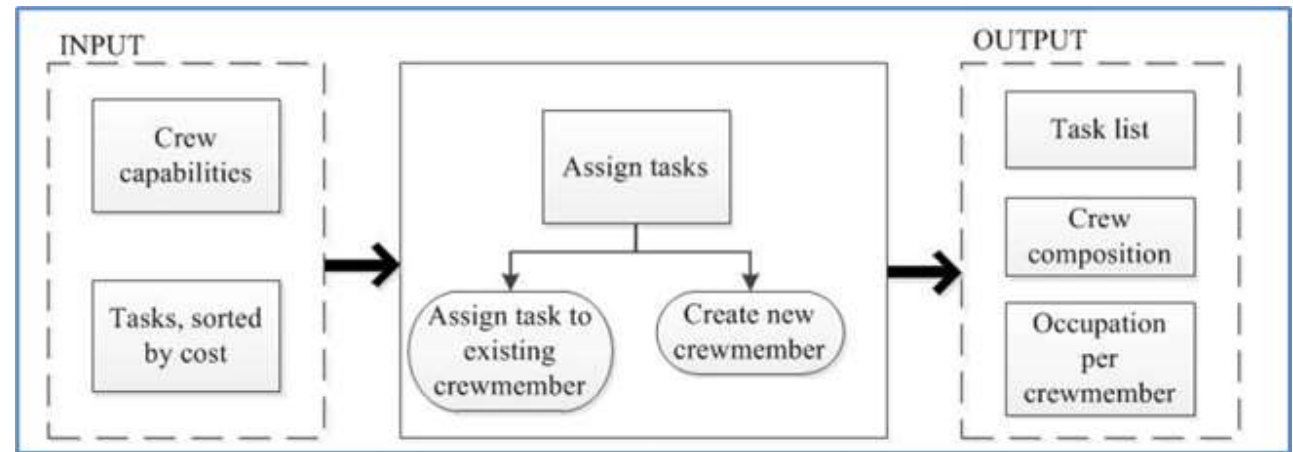
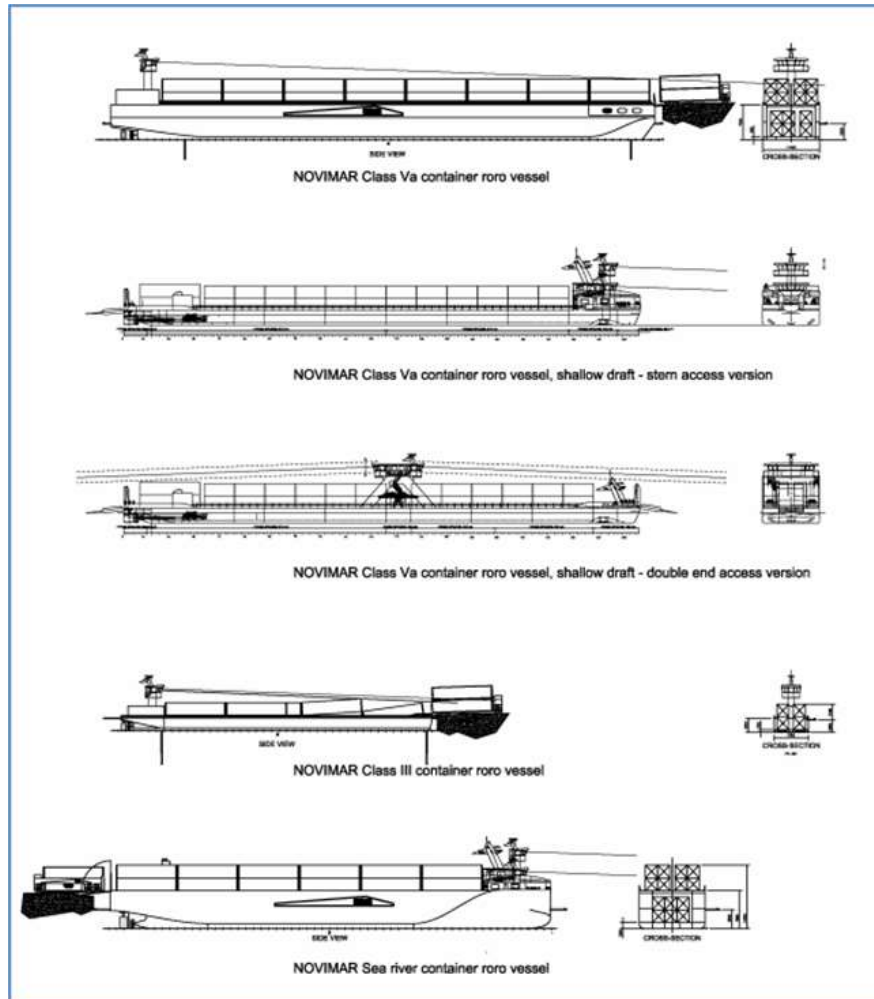




# Cargo Handling



# Vessel design & operation



# The Vessel Train Handbook

### Structure of Handbook Information

The screenshot shows a handbook page with the following sections and annotations:

- Topic of the respective handbook page:** Points to the title '4. Vessel and cargo systems'.
- Explanation of the topic by a NOVIMAR consortium representative:** Points to a video of a person speaking.
- Related resources (links, deliverables, scientific articles, drawings, news reports and videos):** Points to a list of links and resources on the right side.
- Summary of the main results of the topic:** Points to a text block in the middle of the page.
- Link to the other investigated topics:** Points to a grid of navigation buttons at the bottom.

**NOVIMAR VESSEL TRAIN**



# Exploitation potential & challenges

- Business case for Vessel Train limited to high intensity traffic systems;
- Business case may be overtaken by potential application of autonomous ships;
- Main potential in the application of the key results individually;

Thank you for your attention  
Questions?

