



Ferry Go!

**Rules and Regulations for the
use of
Autonomous systems and AI in
(inland) shipping**



Expertise- en
InnovatieCentrum
Binnenvaart

EICB

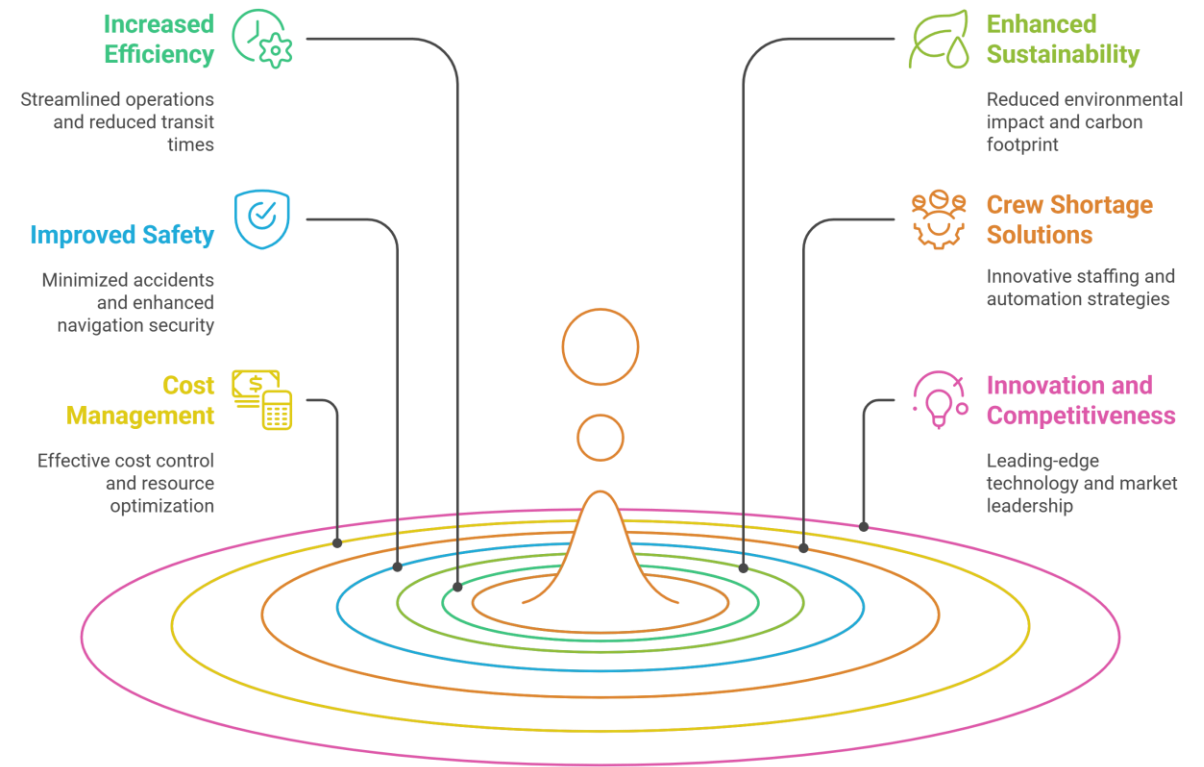
European Policy Measures for Autonomous Inland Shipping

Autonomous shipping for inland navigation has emerged as a significant focus within the European Union, **driven by the need for increased efficiency, sustainability, and safety** in inland waterway transport.

The EU has introduced a range of policy measures and regulatory frameworks to facilitate this innovative sector, **addressing challenges like crew shortages and rising operational costs**.

These measures aim to **align with broader EU goals of innovation and competitiveness in transportation**.

EU Autonomous Shipping Initiatives





Literature

Regulatory framework analysis for the unmanned inland waterway vessel

IAMU Section Article | [Open access](#) | Published: 27 May 2021

Volume 20, pages 357–376, (2021) [Cite this article](#)

Towards autonomous inland waterway vessels — a comprehensive analysis of regulatory, liability and insurance frameworks

Article | [Open access](#) | Published: 15 June 2023

Volume 23, pages 73–101, (2024) [Cite this article](#)

Identifying innovation factors and actors in autonomous inland shipping: a literature review

Review | [Open access](#) | Published: 05 December 2024

Volume 9, article number 30, (2024) [Cite this article](#)

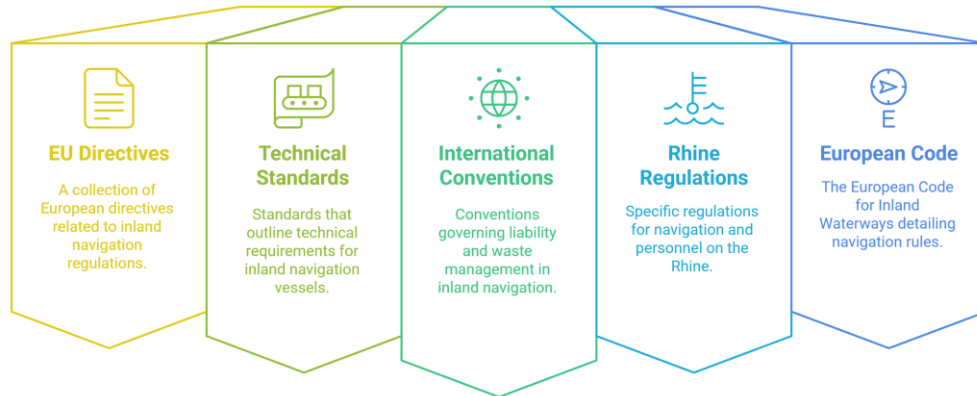
A systematic literature review of factors influencing the regulation of autonomous inland shipping in Europe

Original Paper | [Open access](#) | Published: 30 September 2024

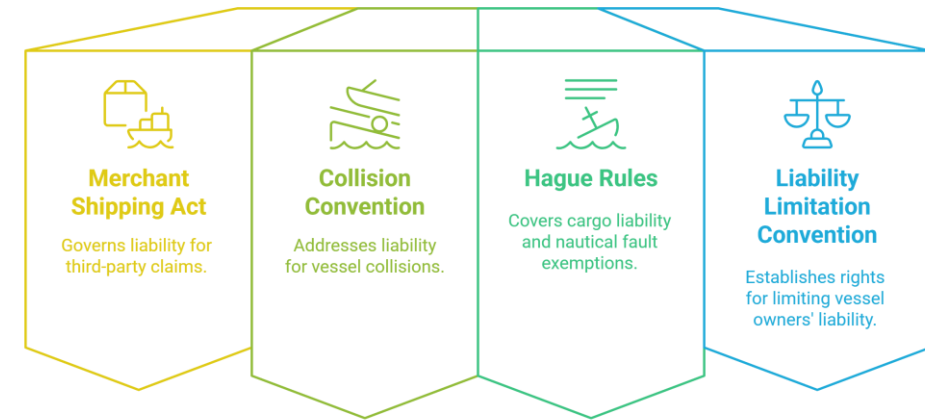
Volume 16, article number 54, (2024) [Cite this article](#)

Regulation Landscape

Regulatory Framework for Inland Navigation

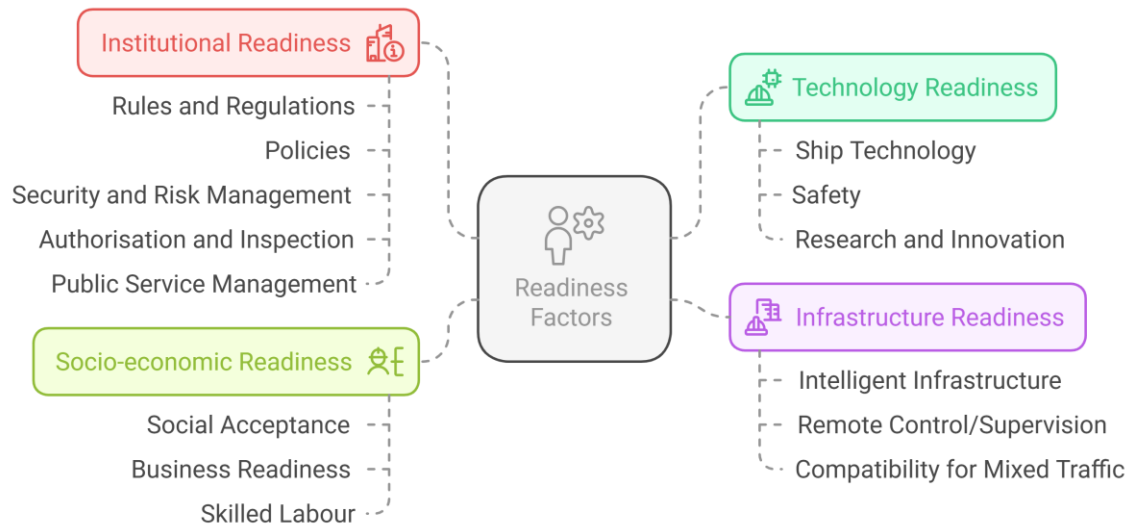


Liability Regulations

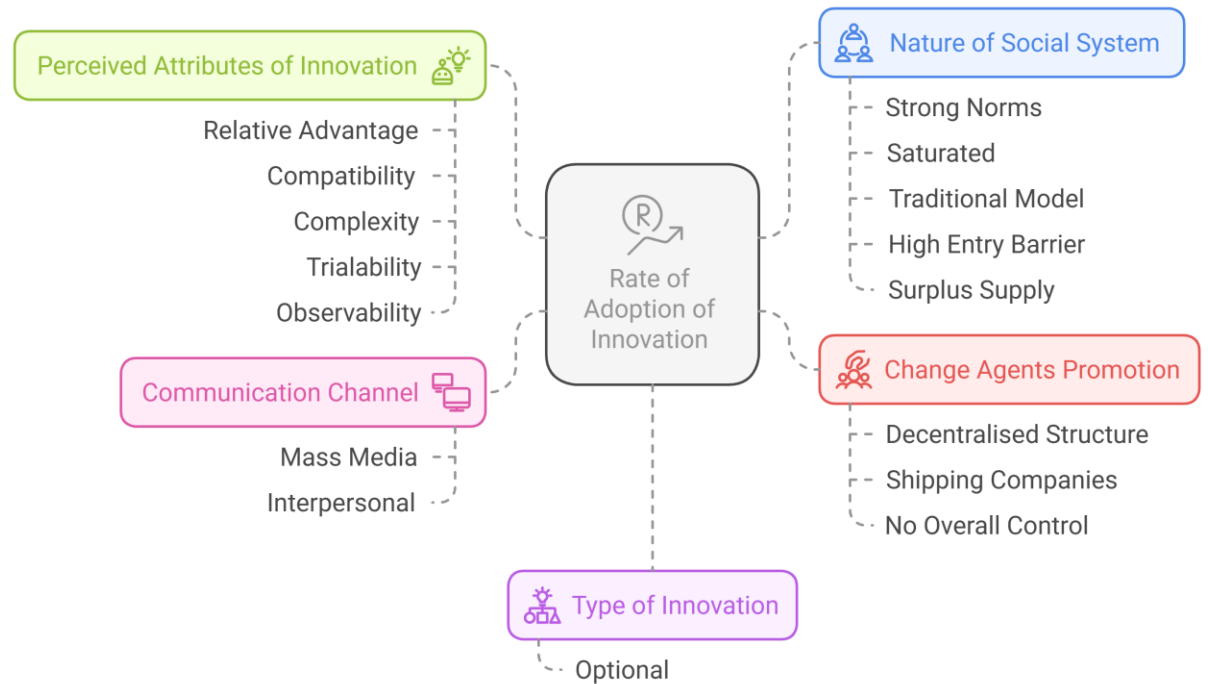


Readiness and Adoption Factors

Readiness Factors for Technological Implementation

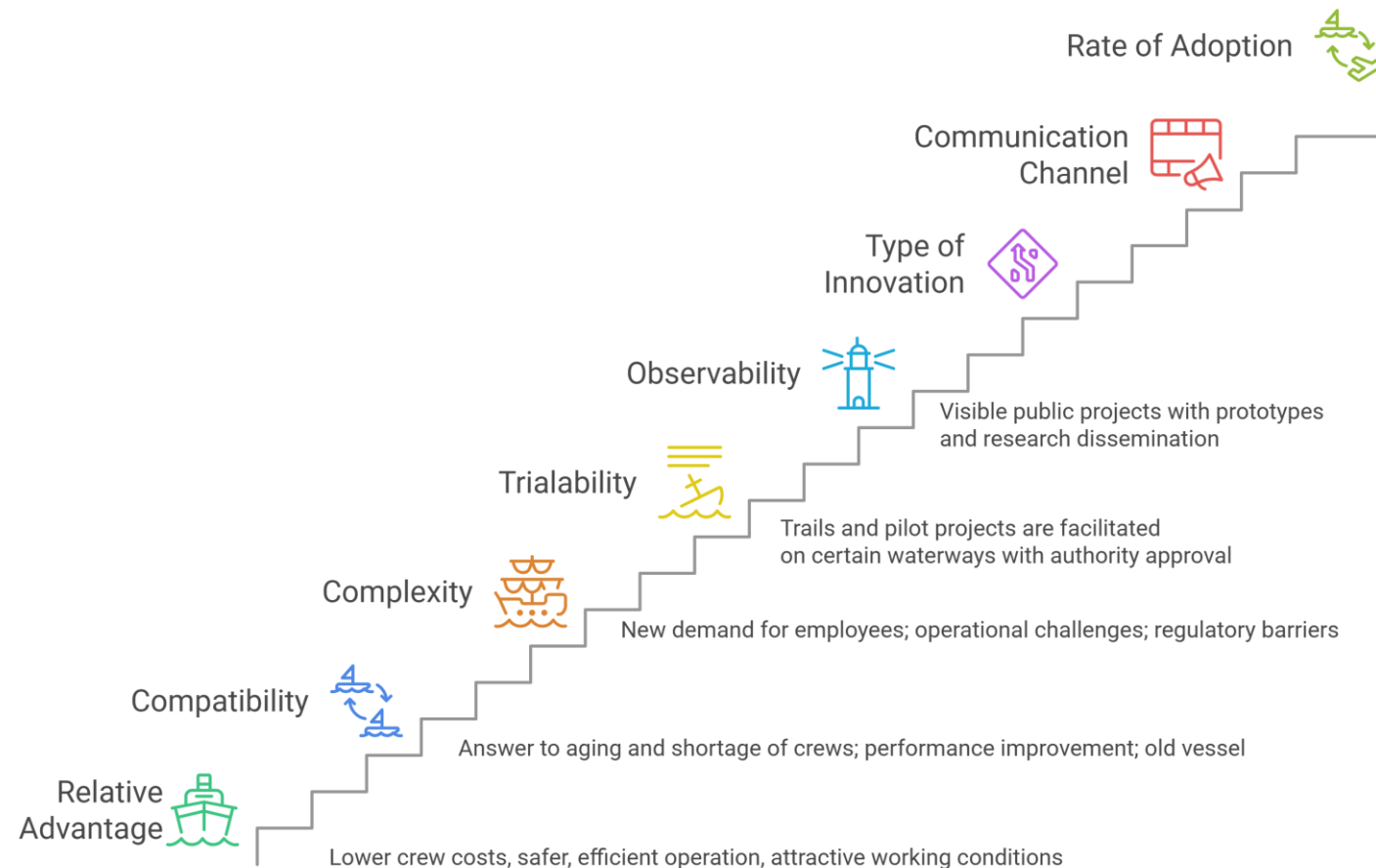


Factors Influencing Adoption of Autonomous Inland Shipping



Steps towards Autonomous IWT Shipping

Steps to Autonomous Inland Shipping Adoption





Recomandations for optimizing the regulatory framework



Harmonizing Regulations and Standards

Amend Existing Regulations

Amend regulations like ES-TRIN, ES-RIS, CEVNI, RPNR, and national decrees to include autonomous and unmanned operations, ensuring clear applicability at various autonomy levels.

Harmonization Efforts

Work with international bodies such as CCNR, UNECE, and IMO to harmonize these standards across regions and countries for seamless cross-border operations.

Develop New Standards

Create new technical standards for autonomous vessels covering remote control, situational awareness, connectivity, and cybersecurity.



Defining Liability and Insurance

Liability Framework

Update liability regulations to clearly define responsibilities and liabilities for autonomous vessel operations, including the roles of vessel owners, remote operators, and system suppliers.

Insurance for Autonomous Vessels

Develop new insurance frameworks that address the unique risks associated with autonomous vessels, such as cyber risks and technology failures.



Testing and Certification for Safety and Security

Testing Guidelines

Develop guidelines for the testing and certification of autonomous vessels, including safety, security, and performance standards.

Certification Process

Implement a certification process that ensures autonomous vessels meet the required technical and operational standards before they can operate commercially.



Incorporating Key Enabling Technologies

Autonomous Navigation Systems

Integrate KETs such as autonomous navigation systems, situational awareness technologies, and remote control centers into the regulatory framework.

Robust Technology Standards

Ensure that these technologies are robust, reliable, and meet the highest safety and security standards.



Pilot Programs and Real-World Testing

Real-World Data and Feedback

Implement pilot programs to test autonomous vessels in real-world conditions, gathering data and feedback to refine regulations and standards.



Engaging with Stakeholders for a Shared Vision

Public and Stakeholder Engagement

Engage with stakeholders, including vessel owners, operators, technology providers, insurers, and the public, to gather input and ensure that the regulatory framework addresses their concerns and needs.

Training and Education

Develop training programs for crew, operators, and other stakeholders to ensure they are familiar with the new technologies and regulatory requirements. Promote education and awareness campaigns to enhance understanding and acceptance of autonomous vessels among the public and industry stakeholders.

Horizon Funded EU Projects

- AUTOBARGE
- AUTOSHIP
- H2H (Harbor-to-Harbor)
- NOVIMAR
- SEAMLESS
- SAS (Smart Autonomous Shipping)
- MOSES
- MAGPIE
- ZEBCOM
- AUTOFLEX
- ATLANTIS
- FOREMAST
- AUTOSUP
- PIONEERS

<https://iwtpprojects.eu/>



AUTOSHIP
Innovative technologies for autonomous ships and improved systems for controlling and managing autonomous shipping.

[View Project](#)



FOREMAST
FOREMAST project targets advancements along four pillars: automation, digitalization, intelligent management, intelligence, and digital optimization tools. It aims to revolutionize MTS, offering a sustainable and efficient approach for Europe's maritime freight industry. MTS's structured approach, FOREMAST provides a solution in a new way of managing and controlling MTS.

[View Project](#)



SETO
SETO will deliver an innovative digital solution that will allow authorities to access all information required for the most comprehensive of transport and safety regulations in real time using the one-click principle.

[View Project](#)



SEAMLESS
SEAMLESS aims at developing and validating existing building blocks and available data to fully automated, autonomous, risk-free, and efficient waterborne freight before being applied for Short Sea Shipping (SSS) across Europe (Short Sea Shipping SSS).

[View Project](#)



PLATINA 4 Action
The PLATINA4 Action project aims to accelerate the implementation of green and sustainable short-sea shipping transport. Activities will focus on: 1) supporting and coordinating research and innovation activities focusing on green and sustainable MTS for long-hauls between coastal developments; 2) impact estimation of MTS4S in action and supporting feasible alternatives to achieve model shift and sustainable MTS and 3) the updating of the Strategic Research and Innovation Agenda for MTS.

[View Project](#)



PLATINA 3 IWT policy platform
PLATINA3 Providing coordination and support to intermodal short-sea transport performance of MTS, connectivity, safe, climate resilient and integrated in a sustainable supply chain MTS sector proper solutions (covering integration of connectivity).

[View Project](#)



PIONEERS
PIONEERS brings together four pilots with different characteristics, but shared common goals: meeting the market demand for low-carbon, secure, and resilient, and in order to address the challenge for European ports of reducing GHG emissions while maintaining competitive. In order to achieve these ambitions, the Ports of Antwerp, Bruges, Ghent and Zeebrugge will implement green port innovation initiatives across four main pillars: clean energy production and supply, sustainable energy, modernized and active operations, and digital transformation.

[View Project](#)



NOVIMOVE
Novimove aims to increase the waterborne share of the EU's freight transport, increasing the modal share of MTS and supporting the EU's climate goals. The project will support water transport operators to improve their competitiveness and supporting the EU's climate goals by increasing the waterborne share of the EU's freight transport.

[View Project](#)



MOSES
The MOSES project is to enhance the MSS component of the European supply chain by addressing the challenges and risks related to the operation of the shipping industry. The MSS strategy will be followed in order to reduce the risk time to market for the MSS industry and stimulate the use of MSS for the shipping industry and for the benefit of the environment.

[View Project](#)



MAGPIE
MAGPIE focuses on the introduction of green energy carriers (batteries, hydrogen, ammonia, Bio-MT and synthetic natural gas) and sustainable fuels, optimization of the supply chain and sustainable operations. The main objective of MAGPIE is to demonstrate technical, operational, and environmental viability and digital evidence for a fully MTS ecosystem to enhance green, clean, and digitalized intermodal transport and sustainable and digitalized intermodal transport.

[View Project](#)



LASTING
LASTING is a communication strategy for waterborne MTS in the EU. To increase engagement, increase stakeholder engagement and impact of MTS.

[View Project](#)



IW-NET
IW-NET will deliver a multimodal optimization platform for the EU's Transport System, increasing the modal share of MTS and supporting the EU's climate goals. The project will support water transport operators to improve their competitiveness and supporting the EU's climate goals by increasing the waterborne share of the EU's freight transport.

[View Project](#)



IWETT
The IWETT project will address the challenges of the MSS component of the European supply chain by addressing the challenges and risks related to the operation of the shipping industry. The MSS strategy will be followed in order to reduce the risk time to market for the MSS industry and stimulate the use of MSS for the shipping industry and for the benefit of the environment.

[View Project](#)



MAGPIE
MAGPIE focuses on the introduction of green energy carriers (batteries, hydrogen, ammonia, Bio-MT and synthetic natural gas) and sustainable fuels, optimization of the supply chain and sustainable operations. The main objective of MAGPIE is to demonstrate technical, operational, and environmental viability and digital evidence for a fully MTS ecosystem to enhance green, clean, and digitalized intermodal transport and sustainable and digitalized intermodal transport.

[View Project](#)



LASTING
LASTING is a communication strategy for waterborne MTS in the EU. To increase engagement, increase stakeholder engagement and impact of MTS.

[View Project](#)



IW-NET
IW-NET will deliver a multimodal optimization platform for the EU's Transport System, increasing the modal share of MTS and supporting the EU's climate goals. The project will support water transport operators to improve their competitiveness and supporting the EU's climate goals by increasing the waterborne share of the EU's freight transport.

[View Project](#)



Green Inland Ports
The Green Inland Ports project aims to address the challenges of the MSS component of the European supply chain by addressing the challenges and risks related to the operation of the shipping industry. The MSS strategy will be followed in order to reduce the risk time to market for the MSS industry and stimulate the use of MSS for the shipping industry and for the benefit of the environment.

[View Project](#)



MAGPIE
MAGPIE focuses on the introduction of green energy carriers (batteries, hydrogen, ammonia, Bio-MT and synthetic natural gas) and sustainable fuels, optimization of the supply chain and sustainable operations. The main objective of MAGPIE is to demonstrate technical, operational, and environmental viability and digital evidence for a fully MTS ecosystem to enhance green, clean, and digitalized intermodal transport and sustainable and digitalized intermodal transport.

[View Project](#)



LASTING
LASTING is a communication strategy for waterborne MTS in the EU. To increase engagement, increase stakeholder engagement and impact of MTS.

[View Project](#)



IW-NET
IW-NET will deliver a multimodal optimization platform for the EU's Transport System, increasing the modal share of MTS and supporting the EU's climate goals. The project will support water transport operators to improve their competitiveness and supporting the EU's climate goals by increasing the waterborne share of the EU's freight transport.

[View Project](#)



COMEX 2
COMEX 2 aims to address the challenges of the MSS component of the European supply chain by addressing the challenges and risks related to the operation of the shipping industry. The MSS strategy will be followed in order to reduce the risk time to market for the MSS industry and stimulate the use of MSS for the shipping industry and for the benefit of the environment.

[View Project](#)



MAGPIE
MAGPIE focuses on the introduction of green energy carriers (batteries, hydrogen, ammonia, Bio-MT and synthetic natural gas) and sustainable fuels, optimization of the supply chain and sustainable operations. The main objective of MAGPIE is to demonstrate technical, operational, and environmental viability and digital evidence for a fully MTS ecosystem to enhance green, clean, and digitalized intermodal transport and sustainable and digitalized intermodal transport.

[View Project](#)



LASTING
LASTING is a communication strategy for waterborne MTS in the EU. To increase engagement, increase stakeholder engagement and impact of MTS.

[View Project](#)



IW-NET
IW-NET will deliver a multimodal optimization platform for the EU's Transport System, increasing the modal share of MTS and supporting the EU's climate goals. The project will support water transport operators to improve their competitiveness and supporting the EU's climate goals by increasing the waterborne share of the EU's freight transport.

[View Project](#)



AUTOFLEX
AUTOFLEX is a fully automated project for the transition to autonomous ships. The project aims to develop a fully autonomous ship and to demonstrate its operational viability and digital evidence for a fully MTS ecosystem to enhance green, clean, and digitalized intermodal transport and sustainable and digitalized intermodal transport.

[View Project](#)



AUTOBARGE
AUTOBARGE is a fully automated project for the transition to autonomous barges. The project aims to develop a fully autonomous barge and to demonstrate its operational viability and digital evidence for a fully MTS ecosystem to enhance green, clean, and digitalized intermodal transport and sustainable and digitalized intermodal transport.

[View Project](#)



AEGIJS
AEGIJS is a fully automated project for the transition to autonomous ships. The project aims to develop a fully autonomous ship and to demonstrate its operational viability and digital evidence for a fully MTS ecosystem to enhance green, clean, and digitalized intermodal transport and sustainable and digitalized intermodal transport.

[View Project](#)



IWT
The IWT project aims to address the challenges of the MSS component of the European supply chain by addressing the challenges and risks related to the operation of the shipping industry. The MSS strategy will be followed in order to reduce the risk time to market for the MSS industry and stimulate the use of MSS for the shipping industry and for the benefit of the environment.

[View Project](#)

Thank you for your attention

Expertise- en InnovatieCentrum Binnenvaart
Khalid Tachi
k.tachi@eicb.nl

© 2025 EICB