THE MAGPIE PROJECT:

A Compass for the Greening of Ports

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In Jules Verne's 20,000 Leagues Under the Sea, Captain Nemo's submarine, the Nautilus, is propelled by a mysterious engine that produces seemingly endless power. The French writer's books paint a world of balloons and aircrafts, inspired by the discoveries of his time: electricity, radio waves, and… increasingly global supply chains. Considering this, who knows what stories today's innovations would inspire Jules Verne to write? Ammonia-fuelled vessels, methanol cracking, hydrogen batteries, connected trucks and autonomous barges; while we don't have the luxury of bending the laws of thermodynamics, the innovations emerging in our own century have little reason to feel outdone by the science fiction of the nineteenth. Verne's protagonists, however, ventured across the globe with little concern for the consequences of their actions on their social and ecological surroundings. Europe follows stricter rules, which can be seen as opportunities to refine innovations. In that regard, the energy transition in port cities offers a case worth considering, and one project in particular: MAGPIE.

Five years of innovation for greener ports

On September 17, 2026, two of the European Green Deal's lighthouse projects for the decarbonisation of ports and port activities from the Horizon 2020 program namely concluded five years of research on the matter. Their work ended with one final event in Rotterdam, the "Ports in Transition: Building Resilient Ecosystems" conference. There, MAGPIE (sMArt Green Ports as Integrated Efficient multimodal hubs) and its sister project, PIONEERS (Portable Innovation Open Network for Efficiency and Emissions Reduction Solutions), presented the sum of solutions they developed over the last five years. These lessons took the shape of a Green Port Master Plan, handed over to representatives of the European Commission. The event showcased some of the most spectacular innovations of the two projects: an autonomous barge, an offshore electricity charging crane, a hybrid locomotive and a green, connected truck, all of which would have had Jules Verne himself calling us fantasists.

The European Green Port Master Plan stood at the centre of the promise both projects had made to Brussels' decision-makers. Together, the two projects brought Europe's leading ports (Antwerp-Bruges and Rotterdam) alongside a diversity of ports from seven European countries, each with its own configuration: Barcelona (Spain), Constanța (Romania), Deltaport (Germany), HAROPA Port (France), Sines (Portugal) and Venlo (Netherlands), each serving different territories and hinterlands. Both launched in 2021, the projects lived through a pandemic, the war in Ukraine and, more recently, the conflict in the Middle East. The changing geopolitical and economic context has tested the project's original premises, showing that ports' green transition needs to be resilient and adaptable as priorities change; the word "resilience" here is not overused. The projects initial objective was to help the European Commission move towards its Net Zero ambitions in the transport sector. Their navigating a volatile geopolitical and technological context, however, allowed them to present today's world with a repository of practical, ready-to-use solutions, at a time when ports need them most.

The challenge of social acceptance in the energy transition

AIVP played a central role in MAGPIE. Leading dissemination, we managed the project's communication activities. The project thus gave life, among other things, to two exhibitions dedicated to the energy transition of ports, designed to reconnect ports with the public. One took place at Le Havre Port Center, in France, and the other at Portlantis, in the Netherlands, with both places acting as forums for people from the port cities and the project to meet; the French exhibition will be on display at this year's AIVP World Conference in Dunkirk. Their purpose was namely to connect the project with resident communities, to allow them to engage with MAGPIE and make it their own. Europe's Twin Transition, green and digital, is indeed, in practice, a Triple Transition: Green, Digital and Social.

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The European Commission seems to have reached similar conclusions. The EU Ports Strategy, published in the Spring of 2026, places social cohesion and skills among its key pillars. MAGPIE contributed to this broader agenda by addressing the infrastructure, operations and the workforce as part of the transition towards energy and climate resilience. All depend on a skilled next-generation workforce and on the technical and social ability of both large and medium-sized ports to support infrastructure, training and skills development.



When the energy transition transforms the Port-City relationship

What does, indeed, the energy transition mean to port cities, their future and their people? Alongside the exhibitions, AIVP organised port-city workshops to bring ports and communities together to try and figure this out. The project, namely, considered the spatial impact and social acceptance of its innovations, involving the people who would ultimately be affected by their implementation. An electric vessel is indeed quieter than one with a conventional engine, changing the experience of the people living and working around it. AIVP's leitmotif throughout the project was connecting it with expert communities and residents, allowing them to engage with it and make it their own, helping the project's pilots take root. AIVP also contributed to monitoring the project's impact and to building its legacy, including through its involvement in surveys and interviews with port-cities experts to assess the project's consequences, or to rethink its approach of non-technical solutions (price incentives, public-private venture for the governance of shore power…).

Sharing solutions to accelerate the transition

The EU Ports Strategy recognises the importance of dialogue and the exchange of good practices in strengthening port-city relations and supporting a successful transition, reflecting the approach shared by AIVP and MAGPIE. The completion of the projects leaves behind a repository of good practices open to ports across Europe. Rotterdam indeed carries on MAGPIE's spirit with an app open to all interested port authorities, the Green Innovation compass, which lists all solutions (technical or otherwise) developed by MAGPIE. MAGPIE has also made its public deliverables freely accessible through its website. Visitors, professionals and researchers can still find there the project's lessons, demonstrations, tools and innovations, five years of work, left open for others to build upon. There, you may find, among other things, AIVP's work on categorising the state of transition based on port configurations and a summary of the workshops assessing the energy transition consequences for port cities.

We have been proud contributors to this lighthouse project, working with industry leaders and highlighting the importance of the relationship between ports, cities and citizens. Regarding Jules Verne, some have seen in the Nautilus's perpetual engine an early prefiguration of nuclear power, which Verne himself never lived to see. As the 21st century now seeks to close the parenthesis opened by the fossil-fuel era, perhaps the technologies developed through MAGPIE can help make another vision a reality: port cities that are carbon-neutral, liveable and welcoming places for their communities.