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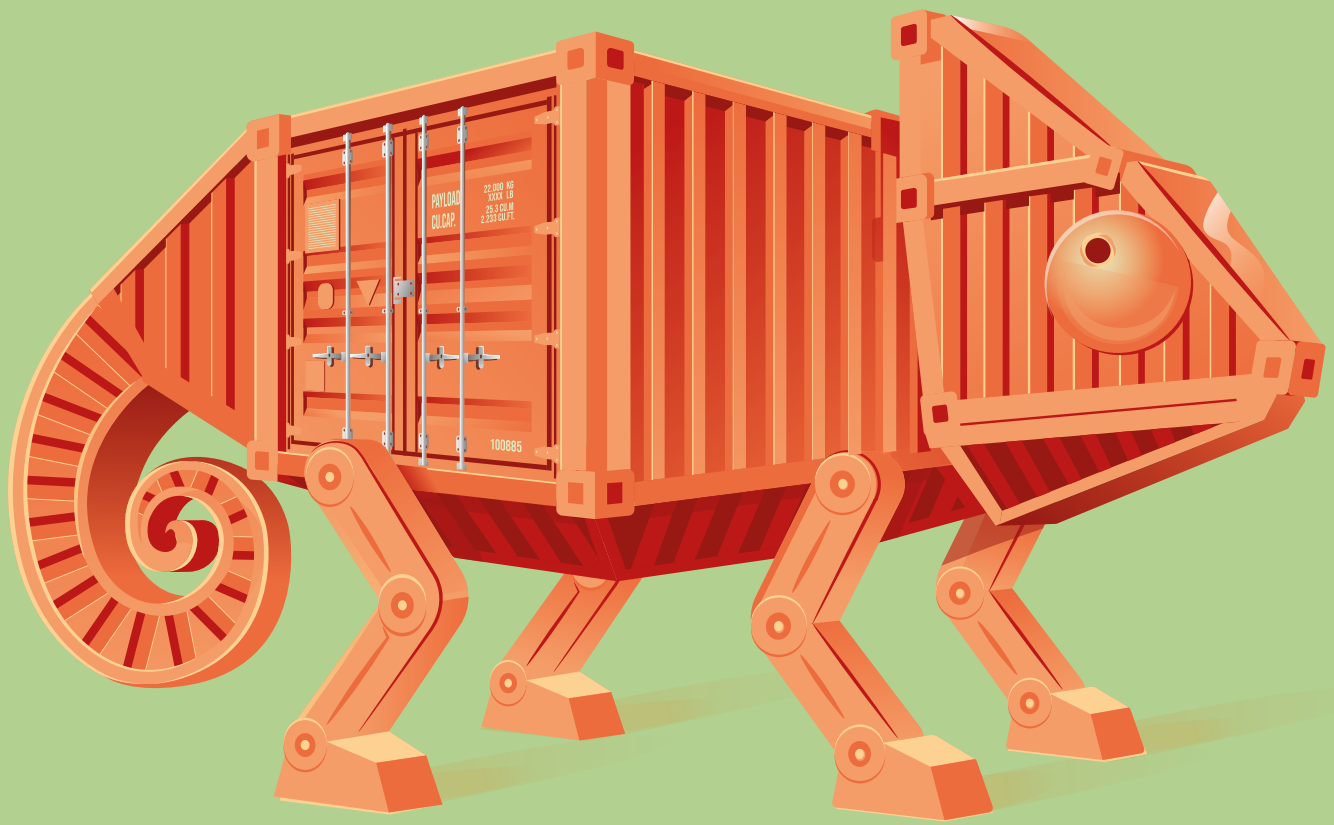
2nd semester 2026

The magazine of a port in motion



CONTAINERS: PORTS IN THE MIDST OF CHANGE

HAROPA PORT
Le Havre
Rouen
Paris

PORT 2000
20 YEARS OF CONNECTIONS

HOW CAN THE CONTAINERISATION MODEL COPE WITH INCREASINGLY FREQUENT CRISES WITHOUT JEOPARDISING THE BENEFITS THAT HAVE MADE IT SO SUCCESSFUL?

A LEADING EXPERT SHARES HIS VISION AND ANALYSE:

Marc LEVINSON, historian and economist, author of **The Box: How the Container Changed the World**, a global reference published in 2006.

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What is **Port 2000** and what is its purpose? How is the terminal developing to **remain attractive**? What will it look like **in the future**?

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editorial

Twenty years ago, Port 2000 was inaugurated. The challenge at the time was to provide France with a container terminal capable of handling the giants of the seas and to make Le Havre a gateway for global trade into Europe. It was a visionary piece of infrastructure, given that the container – that simple, standardised metal box – has since reshaped the landscape of trade, ports and territories.

More than 190 million TEUs were shipped across the seas in 2025, a figure that continues to rise.

This rise is set to continue, driven by massive investment by shipping companies in the modernisation and expansion of their own facilities. However, the model that drove globalisation now faces multiple challenges: shipping routes disrupted by crises, reshuffled shipping alliances, the climate emergency and issues of sovereignty. Ports must now combine performance with resilience.

Against this backdrop, HAROPA PORT's container business continues to grow. Following a record 3.2 million TEUs in 2025, traffic rose by a further 8.6 per cent in the first half of 2026. Our strategy sets the course: 4.5 million TEUs by 2030, in support of the national ambition to regain market share. Port 2000, designed to handle 6 million TEUs, has the capacity to do so, and the future rail link will further strengthen its connection to the hinterland.

This sixth issue of Courants explores these changes with experts from a wide range of fields – historians, economists, geographers and practitioners on the ground – covering topics such as the influence of the container on globalisation and the transformation of regions, and the challenges facing the sector, from the volatility of market share to port security and decarbonisation. And to mark this anniversary, we have chosen to devote part of this issue to the history of Port 2000, its influence and its future.

We hope you enjoy reading it.



Benoît ROCHET,
Managing Director and Chairman
of the Board HAROPA PORT



"The box that changed THE WORLD"

FOR CENTURIES, CARGO WAS LOADED AND UNLOADED BY MEANS OF MANUAL LABOUR, ONE PIECE AT A TIME. IN JUST A FEW DECADES, ONE INVENTION REORGANISED THE PLANET: THE STANDARDISED METAL BOX. SEVENTY YEARS AFTER ITS INVENTION IT CONTINUES TO TRANSFORM PORTS AND THEIR REGIONS.

"The container didn't just reduce the cost of transport: it made the very idea of a global supply chain conceivable."



Marc Levinson, a historian and economist specialising in international trade, is the author of *The Box: How the Shipping Container Made the World Smaller and the World Economy Bigger*, the standard work on the subject, published in 2006 and updated in 2016. He went on to publish *Outside the Box* in 2020.

Following the Second World War, Europe's dream was of peaceful trade. With the Marshall Plan and the European Coal and Steel Community, international trade became as much a political project as an economic one. One major obstacle remained: sea freight. In the 1950s, ships carried mixed break-bulk cargo: crates, sacks, barrels and bales. A typical load might comprise as many as 200,000 separate items, each handled manually from factory to quayside and from there on to trucks. "*Shipping was highly labour-intensive, and international trade was extremely costly*," Marc Levinson explains. In Le Havre, as elsewhere, large numbers of dockers made their living from this well-paid but irregular work, work that was the financial mainstay for entire city neighbourhoods.

AN OLD IDEA, A RECENT BREAKTHROUGH

The idea of standardising shipping crates was not a recent one. It was already in the air in the 18th century and it resurfaced in 1930s Europe, but it never brought costs down. Then, in 1956, Malcolm McLean, an American road transport entrepreneur frustrated by road congestion, hit upon the idea of separating the box from its chassis so that it could be stacked on a ship. On 26 April 1956, the Ideal-X made the very first commercial voyage, a domestic run from Newark to Houston, with 58 containers on board. The real breakthrough came ten years later with the standardisation of container form factors imposed in part by the US Navy, which was funding the ships. "*Nobody wanted to invest in a container ship until the standard had been adopted. Once it had been established, the money poured in*," the historian recalls.

THE REAL ENGINE OF GLOBALISATION

Historic ports, built as they were within cities, lacked the space to accommodate these giant vessels. Forty years later, Le Havre would build Port 2000 to provide that space. In New York and Rotterdam alike, traffic was moving away from historic centres in country after country. The container did more than cut costs. It also made delivery times more reliable because rotations and schedules became more predictable. As a result, between 1987 and 2007, world trade grew twice as fast as the global economy. Today, by volume, most of the world's freight travels by container. "*The container didn't just reduce the cost of transport: it made the very idea of a global supply chain conceivable.*"

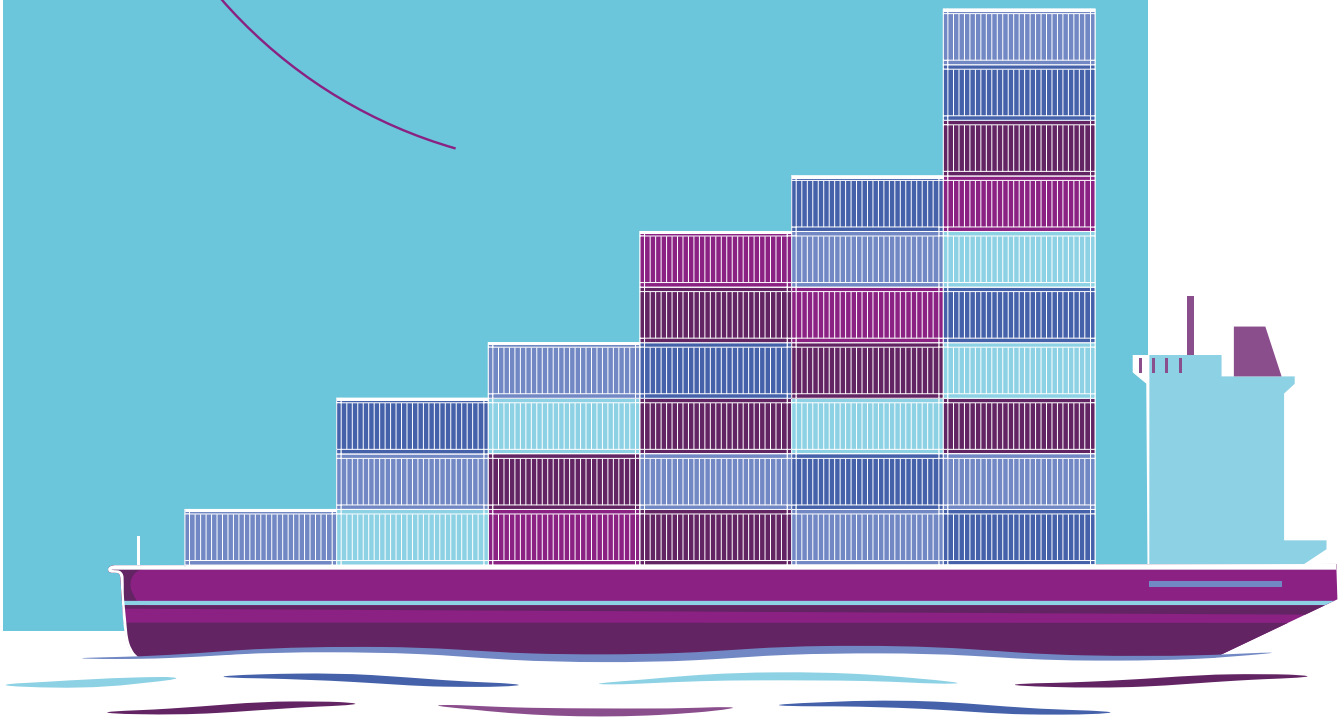
This fluidity has transformed our habits as consumers and our relationship with goods. A 'Made in France' label is often a mask behind which there are eight or ten supplier countries, with final assembly taking place here at the end of the chain. Mark Levinson observes that "*today, people are far more aware of these long supply chains than they used to be.*" They have questions about manufacturing conditions, carbon footprint and traceability, questions that arose less often so long as transport remained visible. The container has made goods ubiquitous and their journeys invisible, and this fuels a degree of mistrust.

THE FUTURE OF THE CONTAINER

He adds that "*as for the environmental question, far from being the enemy of the transition, the container has a role to play in it*": it consolidates freight, avoids empty runs, facilitates the move to inland waterways and rail, and reduces the number of transhipments. On the Seine, some of the freight that would otherwise have gone by road from Le Havre to Paris now travels by barge. Under pressure from their customers - brands and retailers - the major shipping lines are slowing their vessels down and once moored at the quayside, they plug them into the port's power grid and switch off the their engines. Ports, for their part, are electrifying their handling equipment, especially their gantry cranes. Marc Levinson concludes that "*companies are responsive to their customers' expectations: they will do whatever it takes to keep them.*"

Supply chains have adapted to cope with international crises such as the blockage of the Suez Canal, tensions around the Strait of Hormuz and the closure of Dubai. Adapting took longer and cost more, but the chains have held. However, these crises also come with costs of a more regulatory kind: to avoid the EU carbon tax, some ships are increasingly calling at ports in the UK. Brussels now intends to regulate this practice more closely, because it is hurting ports such as Le Havre. Corporate consolidation in the sector adds a further pressure: "*Alliances between shipping lines reduce competition and give them real bargaining power over shippers and terminals*," Marc Levinson observes. Buoyed by record profits since 2020, the biggest lines are buying up terminals, freight forwarders and warehouses to gain control of the entire logistics chain. "*But there is no guarantee that manufacturers will want to hand over control of their supply chain to a single provider*," he points out.

ANA-LYSE



Container terminals: TEUs around the world

WITH 192.6 MILLION TWENTY-FOOT EQUIVALENT UNITS (TEUS) CARRIED IN 2025, GLOBAL CONTAINER TRAFFIC GREW BY 4.5%. THAT GROWTH IS NOW THREATENED BY ITS OWN SUCCESS, AS CONGESTION COMES BACK TO BITE. BELOW IS A SNAPSHOT OF A SYSTEM IN CONSTANT ADAPTATION.

The World Shipping Council's ranking is unequivocal: Asia, and especially China, dominates world trade. Intra-Asian flows account for a quarter of global volumes, and Shanghai (55 million TEUs in 2025), Singapore and Ningbo-Zhoushan are far ahead of the field. Rotterdam and Antwerp, at 11th and 13th, top the rankings both outside Asia and in Europe. Africa's leading port, Tangiers, comes in at 16th. As for the American ports, Los Angeles, Long Beach and New York–New Jersey are 18th, 21st and 23rd respectively.

Looking beyond volume, Asian ports also dominate the top places in the Container Port Performance Index[1]. Leveraging digitalisation, operational resilience, coordination with the hinterland and governance, they have drastically reduced the time containers spend in port. This is a significant competitive factor at a time when shipping lines are changing or lengthening their routes in response to geopolitical and climate crises. It is a fact that in order to avoid Houthi attacks in the Red Sea and the Strait of Hormuz, their vessels now sail round the Cape of Good Hope, to the benefit of African ports such as Tangiers. Meanwhile, since 2025 high-performing American ports such as Los Angeles have been experiencing peaks of congestion linked to the US–China trade war.

"Intra-Asian flows account for a quarter of global volumes."

IN EUROPE, THE RACE FOR THE NORTHERN RANGE

European ports are also affected and have to cope with vessel delays. Rotterdam and Antwerp, which attract nearly 60% of Northern Range container traffic, are suffering from congestion despite their considerable strengths, which include their hinterland connections (a rail line to the German border for Rotterdam and inland waterway links in the case of Antwerp). This congestion benefits ports that still have room to expand, among them Gdańsk in Poland and, in the Southern Range, Gioia Tauro in

1. The 2025 rankings of the World Bank and S&P Global Market Intelligence.



Floriane TORCHIN,
Director of Rail and Inland Waterway Transport and Ports at the Directorate General for Infrastructure, Transport and Mobility, Ministry of Transport

A port strategy for France

What are the main pillars of the National Port Strategy (SNP)?

The strategy is constructed around four pillars: attractiveness, decarbonisation, robustness and security. Where attractiveness is concerned, the aim is obviously to make French ports more efficient and competitive in order to win market share. By supporting investment, the SNP aims by 2050 to raise from 60% to 80% the share of containerised freight passing through French ports when entering and leaving France. Decarbonising port activities involves developing inland waterway and rail transport, supplying vessels with greener energy sources (quayside shore power included), and attracting industries that contribute to decarbonisation. Robustness has become essential in the face of increasingly serious and frequent geopolitical, economic, climate and health crises. Ports must combine the pursuit of performance with robustness. To become more resilient, they need to diversify their activities and geographical links, as well as adapting their infrastructure to cope with climate-related risks. And lastly, security involves in particular the combat against drug trafficking, a growing threat and one of our central concerns.

How does the French government intend to help French ports decarbonise transport?

The national combined transport master plan is aimed at developing multimodal infrastructure by planning for capacity increases at multimodal terminals and by providing financial support for projects. For rail, we are working with all sector stakeholders on a five-year advance programme for rail slot scheduling to ensure that freight has a substantial share. Together with the stakeholders concerned, we have also drawn up a ten-year investment plan called "Ulysse Fret". We also have a financial incentive mechanism to encourage modal shift towards mass volume transport, with various forms of State aid for rail and combined transport operators. Finally, under Article 18 of the draft framework law on transport, we intend to work with the various industry sectors on modal transfers that consolidate flows while taking their constraints into account. We are already working with grain producers, for example, on a joint projection that matches their investment needs in production and storage facilities (in silos, for example) against the capacity of the inland waterway and rail modes.

Italy, which has risen from 8th to 6th place in Europe. Where France is concerned, HAROPA PORT, the country's leading port, has a major asset: at Le Havre, traffic now exceeds 3 million TEUs a year and is gaining market share thanks to the scale of its infrastructure. Thanks to an ambitious multi-modal development policy, including the project for a direct waterway/sea port access channel (see pages 36–37) to increase inland waterway traffic, and investment in greening its operations, it is possible that HAROPA PORT will in the future take market share from the giants of the Northern Range.

The hinterland: the new front ligne in port competitiveness

ADMITTEDLY, THE CONTAINER HAS REVOLUTIONISED MARITIME TRANSPORT, BUT ITS INFLUENCE HAS EXTENDED FAR BEYOND THIS FIELD. IT HAS EXPANDED HINTERLANDS, REORGANISED LOGISTICS NETWORKS AND INTENSIFIED COMPETITION BETWEEN PORTS. FOR ARNAUD SERRY, GEOGRAPHER, A PORT'S PERFORMANCE IS NOW DETERMINED ON LAND.



Arnaud SERRY

THE CONTAINER: ARCHITECT OF NEW LOGISTICS TERRITORIES

For Arnaud Serry, containerisation has reshaped hinterlands – which were historically juxtaposed – by reducing the cost of transhipment and making it easier: "*With the container, it is becoming increasingly easy to go further and further, faster and faster, and at ever-lower cost. Hinterlands are expanding, overlapping and competing with one another. Competition is no longer played out solely along the coastlines, but on the ability to efficiently connect increasingly distant hinterlands with ports.*" And this is not the only geographical consequence of containerisation, which has also redistributed logistics functions across the landscape. Whilst proximity to a port used to be the determining factor in the location of logistics hubs, it is now proximity to transport corridors that is decisive. The relationship between the city and the port has also been altered as a result, since container terminals – which require vast amounts of land – have moved the port further away from the city. Finally, "*behind the scale and growth of ports lies a question of economic development. Port regions that succeed in attracting the giants of the seas are regions that, on the whole, have experienced more marked and extensive economic changes than others,*" observes Arnaud Serry.

THE HINTERLAND AS A STRATEGIC ISSUE

When asked whether the connection between ports and their hinterland has become a new criterion for competitiveness, Arnaud Serry's response is immediate: "*Quite clearly. It always has been, but what has changed is the scale and intensity of the competition. Just because we're two hours from Paris doesn't mean we're the port of Paris.*" And indeed, French ports face competition – and are sometimes overshadowed – by foreign ports. "*The vast majority of goods imported into Seine-Maritime pass through Le Havre. By contrast, the leading port in the Vosges is more of a Benelux port. To reach certain regions of France, it is sometimes easier to*

Arnaud Serry is a professor of geography at the University of Le Havre Normandie, specialising in the geography of maritime transport, and coordinator of the national port research strategy.

go via Antwerp than via Le Havre.[1]" With limited connections to the hinterland, a port is therefore more easily outcompeted. This is explained in particular by the multitude of choices available to customers: in a context of free movement within Europe, regardless of the port of arrival, the technical and administrative constraints will be the same. The choice therefore falls on the most efficient solution in terms of transit time and price.

INVESTING TO BOOST THE CONTAINER SECTOR

The Seine corridor is no exception to these changes. "*For example, there is a concentration of logistics hubs in eastern Paris, which is better integrated into the national logistics corridors for the retail sector*", notes the geographer. He considers the axis to be "*a textbook example of this reorganisation, particularly since the merger of HAROPA PORT in 2021, which reinforced the concept of a Seine-based corridor for container transport.*" The modal share of river and rail transport reached 20.3 per cent in 2025, "*but 85 per cent of containers are still transported by road, which is higher than in other European ports.*" For Arnaud Serry, the main obstacle to the development of modal shift in containerised freight remains the rail network: "*France is lagging behind in terms of rail freight transport. Connections need to be simpler, faster and more efficient. This requires massive investment that goes far beyond the ports themselves. It is a bold political choice that was made in the Netherlands a few years ago but has not been made in France. Yet the return on investment would be very attractive, both economically and environmentally.*" Among the public investments, the 'chatière' in Le Havre will remove a structural bottleneck by providing river access to Port 2000. "*This will inevitably improve matters.*" But private-sector players also feel this issue concerns them. "*MSC's investments in Le Havre are both a driving force behind and a sign of the improving container traffic dynamics in Le Havre and along the Seine corridor, as well as the interest this is generating among global operators. Nevertheless, these operators may quickly reassess their strategy. The region's appeal must not be taken for granted.*" Other telling investments include those made by Sénalia. The grain cooperative based in Rouen has invested in multimodal hubs, demonstrating manufacturers' growing awareness of the need to reorganise logistics. "*We're heading in the right direction*," sums up Arnaud Serry. "*The question is whether we're*

"Just because we're two hours from Paris doesn't mean we're the port of Paris."

1. Arnaud Serry, Ronan Kerbiriou, *L'arrière-pays des ports français : dynamiques et typologie en contexte européen [The hinterlands of French ports: dynamics and typology in a European context]*, Flux 2026/4 Advance Publications, pages i21 to xxiii, published by Université Gustave-Eiffel.

“The region’s appeal must not be taken for granted.”

moving fast enough compared to others and in line with global developments. For example, we have concerns about the ETS[2] and its impacts: we know that this system will increase the cost of shipping to European ports and that some shipping lines will no longer use them.”

A TOOL FOR THE GREEN TRANSITION THAT IS NOT BEING USED TO ITS FULL POTENTIAL

The standardisation brought about by containers has made it possible to consolidate freight flows using very large container ships and to facilitate a modal shift. Yet river and sea transport are the least polluting modes when emissions are calculated per tonne per kilometre transported. A river convoy is equivalent to 250 lorries. “*On paper, the container can fit perfectly into an ecological transition strategy,*” points out Arnaud Serry. “*But in operational reality, too many containers are still transported by road. The ‘chatière’ should facilitate the modal shift to river transport and thus form part of a virtuous ecological approach. Nevertheless, it requires the development of around fifty hectares. It’s a matter of perspective, but for me, the positive impact of the ‘chatière’ will outweigh the negative. However, the transition driven by container transport shifts the ecological strain towards other environmental pressures.*” Containers also offer an environmental benefit in terms of handling: when a ship calls at port to load or unload bulk cargo, it remains at berth for several days. Unloading containers is quicker and is increasingly carried out using electric or hybrid straddle carriers. There is also a trend towards the containerisation of bulk cargo.[3] “*Bulk cargo is traditionally transported in bulk, so for these goods in particular, containers allow for de-bulking by transporting much smaller, cost-effective consignments. This has the potential to develop new trade routes, but remains fairly marginal for the time being.*” At a time when transport is being decarbonised, the challenge is therefore no longer simply to move containers around, but to fully exploit their potential in the interests of more sustainable logistics.

“Hinterlands are expanding, overlapping and competing with one another.”

2. Emissions Trading System: established by the European Union, it imposes a price on carbon emissions from ships.

3. Theo Notteboom, Athanasios Pallis et Jean-Paul Rodrigue, *Port Economics, Management and Policy*, published in 2022, revised in 2026, published par Routledge.

Containerisation: the DRIVING FORCE behind infrastructure development



Ronan KERBIRIOU

Ronan Kerbiriou is a geographer and cartographer at Université Le Havre Normandie.

FROM THE OUTSET, THE RISE OF CONTAINERISATION PUSHED PORTS TO INVEST IN FACILITIES AND DEVELOP THEIR INFRASTRUCTURE. TODAY, BECAUSE THEIR BUSINESS DEPENDS ON IT, SHIPPING LINES THEMSELVES ARE INVESTING IN PORT INFRASTRUCTURE SIZED FOR THEIR VESSELS. RONAN KERBIRIOU EXPLAINS THIS SHIFT, WHICH HAS RADICALLY CHANGED THE FACE OF PORTS.

How has the rise of containerisation gone hand in hand with the development of port infrastructure?

Historically, ports were deeply embedded in their cities. In the 20th century they began gradually to move out to more peripheral areas, notably to meet a growing need for land. Containerisation was a major stage in this process. After two decades of steady growth, container traffic underwent a geographical shift in the 2000s linked to Asia's rise as the world's industrial centre, particularly China. Transiting the Panama Canal was no longer a necessity. Shipping lines were able to build ever larger vessels, and ports needed to create new terminals capable of handling ships carrying 15,000 TEU, and later 24,000 TEU. Today, one container in every three is loaded in a Chinese port.

What was at stake for ports in adapting to these container ships?

For ports, keeping pace with this transformation and the enormous vessel sizes was essential if they were to stay connected to the major shipping routes and keep their place in globalised networks. In the end, it was the entire logistics chain from ship to hinterland that had to be adapted. Shipping lines were calling for additional port infrastructure to enable them to expand their traffic. To give one example, without Port 2000, Le Havre would have lost its position as a gateway for international trade. It was an issue of national sovereignty!

What infrastructure is essential to support container ship operations?

The largest container ships now reach 400 metres in length and can carry up to 24,000 TEU. To accommodate them, ports need sufficiently large terminals with long, adequately extensive quays and deep water, as well as new-generation gantry cranes designed to unload these ships quickly. The newest cranes can reach across up to 26 rows of containers and have a twin-lift capability (unloading two 40-foot containers simultaneously). They are operated remotely to keep port calls as short as possible. Finally, multimodal connections to the hinterland are also an important factor. The largest ports of the Northern Range, such as Rotterdam, Antwerp and Hamburg have developed efficient rail and inland waterway links.
Added to which there is now another issue: support for the energy

"Ports need to anticipate such needs and build them into their infrastructure."

“Shipping lines invest in port infrastructure to gain greater control over the various stages of the logistics chain.”

transition in maritime transport. Specifically, ports need to adapt their infrastructure to supply ships with new forms of energy, such as shore power and, in time, a range of low-carbon fuels. This is increasingly making ports a key link in maritime transport’s energy transition.

How did shipping lines begin investing in port infrastructure?

Over the past ten years, the shipping market has been becoming increasingly globalised. The ten largest shipping lines now account for 85% of the world market. Shipping lines invest in port infrastructure to gain greater control over the various stages of the logistics chain. By acquiring equity in strategic terminals, they can secure access to handling capacity and enjoy more operational control. This in turn allows them to guarantee more reliable, better-performing shipping services.

How do these investments fit into shipping lines’ strategy?

They are part of a vertical integration strategy. The major shipping companies are no longer simply operating ships: they are investing not only in port terminals but also in land transport and logistics services. The goal is to achieve more control over the chain from ship to end customer, and to offer an increasingly integrated transport service. For example, MSC acquired Bolloré Africa Logistics, which gave it port terminals in Lomé (Togo), Abidjan (Côte d’Ivoire), Tema (Ghana) and Douala (Cameroon). The investment also covered land transport and logistics operations. North and West Africa have become new strategic locations for shipping lines because they constitute expanding commercial markets. This example clearly illustrates how shipping lines are investing not only in terminals but also in controlling infrastructure and logistics networks.

How are ports’ and shipping lines’ investments mutually complementary?

Today, the port authority manages the land, with an overview of the activities set up there and their impact on the surrounding region. The shipping lines, for their part, invest in the port infrastructure they need for their own growth, including multimodal transport facilities.
A major issue for ports is vessel access. Maintaining sufficient water depth requires regular dredging and sometimes major works on the approach channels, all the more so in estuary ports. To this we can add issues surrounding land-side access and consolidation of freight flows, together with the challenge of decarbonisation and the energy transition (bunkering of alternative fuels, shore power connections, etc.). Ports need to anticipate such needs and build them into their infrastructure.

Containers: as revolutionary on land as at sea!

WHEN, IN APRIL 1956, AMERICAN HAULIER MALCOLM MCLEAN LOADED HISTORY'S FIRST CONTAINERS ON TO A SHIP, DID HE KNOW THAT HIS INVENTION WOULD HAVE SO MANY POSITIVE EFFECTS ON GLOBAL REGIONS?



Nicolas PORTIER

Probably not. Yet his invention radically changed them, bringing a wealth of benefits in its wake. "*These profound changes relate to the splitting of freight flows*," explains Nicolas Portier, lecturer and consultant. Containerised goods are initially shipped in massive volumes by sea aboard giant vessels to hubs, or pivot ports, equipped with terminals. There the containers are unloaded and sorted, and the freight is then broken down for onward shipment by other modes of transport – trucks, trains, boats – to its final destination, with intermediate stages along the logistics chain where necessary. "*Combined with the immense possibilities offered by digital technology, this development has completely changed certain port complexes, starting with those located on the major freight corridors, such as the Seine axis and the Rhône valley, or those close to the great urban crossroads and their consumer markets, such as Paris and Lyon. They are now effectively logistics nodes, multimodal platforms at the centre of a dense network of road, rail and inland waterway infrastructure*," Nicolas Portier continues. Inaugurated in 2006, Port 2000 has, in particular, made Le Havre France's leading container hub and placed it among Europe's foremost commercial ports.

HIGH VALUE-ADDED HUBS

Highly attractive because of their economic weight, container shipping's hub ports have drawn in shipping lines (CMA CGM, indeed, has had its head office in Marseille since its creation in 1978), logistics operators with increasingly complex operations and processing companies in sectors such as chemicals, metallurgy and energy production. Vast ecosystems have thus taken shape, with multiple impacts on the areas where they are based. Ambitious development projects have equipped the ports and their hinterlands with infrastructure and facilities ranging from goods warehouses to telecommunications installations, by way of the motorways, railway lines and inland waterway transhipment quays needed to distribute the freight. Local growth has been energised

Nicolas Portier teaches at the Sciences Po Urban School, and is co-director of the Chair in Ecological Planning, Industrial Policy and Territories and President of the Cercle pour l'aménagement du territoire.

and tens of thousands of jobs have been created. "*Container shipping is the segment that generates the most jobs, consisting not so much of direct employment due to increasing digitalisation and automation of port operations, but rather indirect jobs. According to a recent Senate report, 1,000 containers handled will generate a single port job, six in dispatching, which is central to logistics, and three or four in transport*," Nicolas Portier points out.

A TAX WINDFALL AND SYNERGIES

The rapid rise of port hubs has also brought substantial tax revenue to local government in their hinterland, to the benefit of local residents. "*For many years, the talk was of a cornucopia, because the hubs bring together highly capital-intensive, profitable activities that pay a great deal of tax. But this windfall has dried up somewhat due to successive tax reforms*," notes Nicolas Portier. To these positive effects for local areas must be added a proliferation of synergies and partnerships. "*A few years ago, a silo mentality prevailed on port industrial sites. There was very little communication. With the growth in flows and in the number of players on the ground, we have seen collective approaches emerge around issues that matter to local life, such as the management of real estate, resources and skills. Clusters have emerged to stimulate research and innovation. These collaborative dynamics have even given rise to innovative forms of cooperation, such as industrial and regional ecology, one of the pillars of the circular economy.*"

> ***"Ambitious development projects have equipped the ports and their hinterlands with infrastructure and facilities."***

STRATEGIC CHOICES

Does this mean that a number of container terminals should be used to cover the entirety of France? The construction of a second terminal at Dunkirk, launched in mid-2026, might suggest that this is the choice France has made – all the more so since Dunkirk is one of the three ports (along with Le Havre and Marseille) on which the new national port strategy is based. But Nicolas Portier is cautious: "*The container business is all about mass volume, which means large-scale facilities. The number of major container hubs cannot be increased in the country without the risk of mutual cannibalism. We can certainly bet on ports specialising in particular sectors or geographical destinations, but we need to avoid overly head-on competition between them. In any case, France must be clear in its determination to consolidate Le Havre's position in containers. It is our trump card for capturing global flows.*"

80 %
of containerised freight
HANDLED

In French ports by 2050, compared with 60% today: this is the target set by France's national port strategy adopted in 2021 and updated in 2025. Gaining 10% of market share could generate €1 billion in added value, along with 25,000 direct and indirect jobs.

Choosing a terminal : the criteria that make a difference

WHAT LEADS FREIGHT USERS TO CHOOSE ONE CONTAINER TERMINAL OVER ANOTHER? JEAN-MICHEL GARCIA OF THE AUTF OFFERS SOME ANSWERS.



Jean-Michel GARCIA

To compile its barometer, every year the AUTF surveys freight transport users, including those reliant on maritime shipping, which is now overwhelmingly containerised. "*They are mostly large groups and mid-sized companies in the chemical, retail and agrifood industries, but there are also firms in the construction and the automotive sectors. In our latest survey, 73% said that they use maritime transport for their exports and 56% for their imports*," summarises Jean-Michel Garcia.

ECONOMIC COMPETITIVENESS: THE NUMBER ONE CRITERION

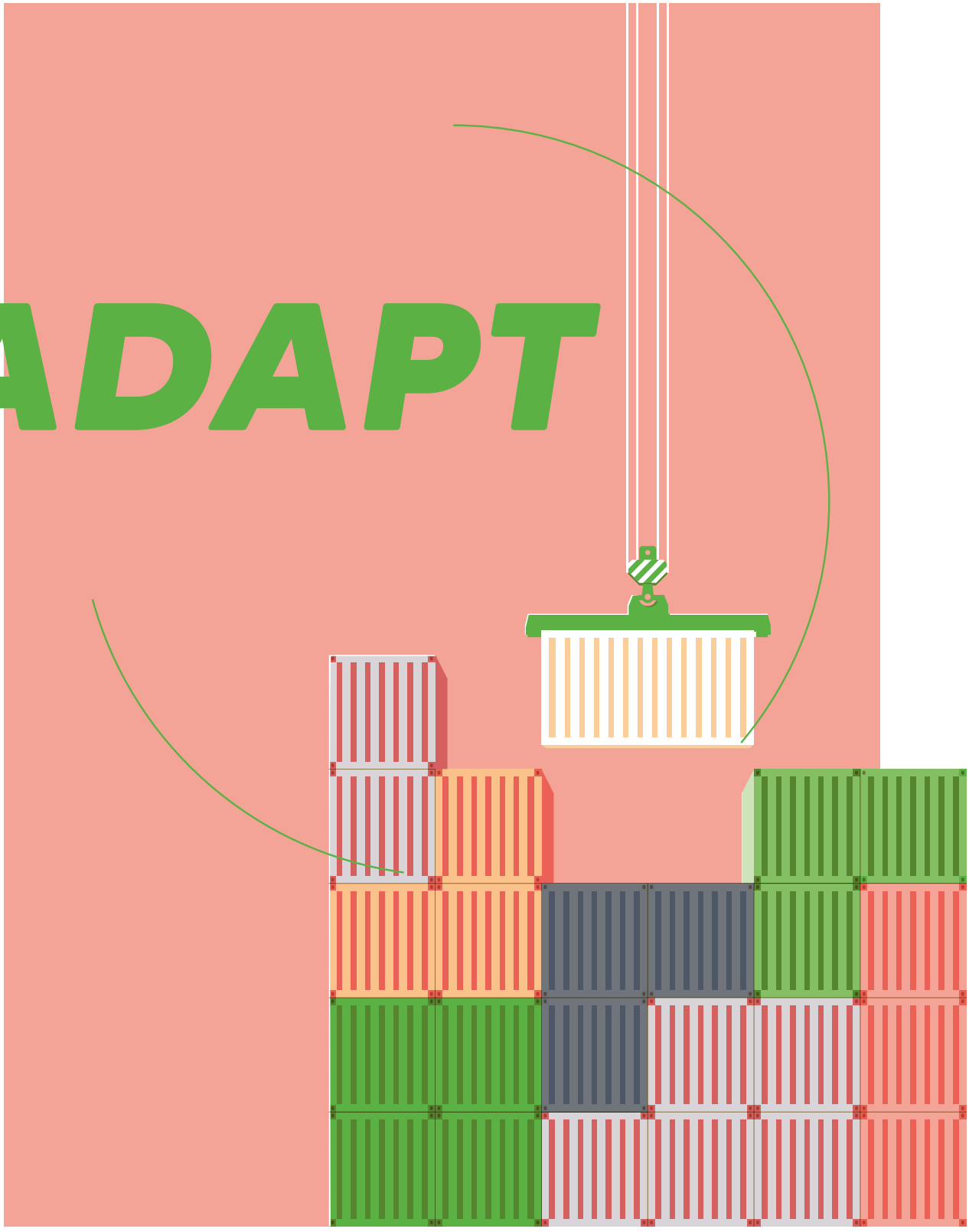
The AUTF barometer includes a "Top 5" of shippers' port selection criteria. "*There are variations, but economic performance always comes first, followed by operational performance*," notes Jean-Michel Garcia. Indeed, the criterion that carries the most weight is the total cost of transport, including access to container terminals, handling charges, free time, potential financial penalties, and so on. Where the focus on operational excellence is concerned, this is reflected in high expectations in terms of speed, reliability and simplicity. Hence the importance attached to transit times, the smooth running of customs and health inspections, and the risk of congestion and blockages (this even ranks second in 2026).

NEW EXPECTATIONS

Some criteria, although absent from the Top 5, nonetheless remain decisive in the choice of ports and terminals. This is particularly the case for a multimodal transport offering serving an extensive hinterland, and for the quality of the connections on offer. Moreover, in a global environment marked by ecological and geopolitical crises, new expectations are emerging. "*For example, luxury product companies, which are switching from air to sea freight to decarbonise their operations, are asking for cargo security services*," explains Jean-Michel Garcia. "*The combat against climate change also makes infrastructure such as Le Havre's direct river/port access channel (see pages 36–37) attractive to shippers since it will allow goods to be carried directly from Port 2000 to Paris by inland waterway.*"

Jean-Michel Garcia is head of international transport at AUTF (freight transport users association), which supports and represents shippers in their role as transport clients.

ADAPT



The search for a new balance?

FOR THE LAST SIXTY YEARS CONTAINER TRAFFIC HAS BEEN GROWING CONTINUOUSLY, ALTHOUGH THE PACE HAS NOW SLOWED. WITH ALLIANCES SHIFTING, SHIPPING LINES DOMINATING PORT COMMUNITIES AND EMPTY CONTAINERS PILING UP, THE MODEL THAT ORGANISED WORLD TRADE MUST NOW LEARN TO ABSORB SHOCKS.


Theo NOTTEBOOM

When it was introduced in 1956, however, the container was far from an obvious success: it was expensive, and nobody knew whether it would be worth it. Not until 1966 did Le Havre receive its first container. "*There was nothing revolutionary about the early days*," says Theo Notteboom, co-founder of PortEconomics. The model then established itself for a compelling economic reason: profitability. Cut costs, simplify logistics, improve efficiency: three imperatives that drive the sector.

THE RACE TO CONSOLIDATE

To make ever-larger ships pay, the industry is consolidating. Mergers and acquisitions have reduced the number of shipping lines: ten now dominate the world market. The same trend can be seen for ports, with Rotterdam, Antwerp and Singapore handling the lion's share of the traffic.

But consolidation has a downside. For some years shipping lines struggled to make it pay: ships ordered en masse during the boom years were delivered just as the 2008–2009 crisis crushed demand, sending freight rates plummeting. Their results stayed in the red until 2020. As Nooteboom notes: "*The world changed beyond recognition.*"

WEAKNESSES THAT HAVE BECOME STRUCTURAL

Today, it is the shipping alliances, more than the ports, that have the upper hand. These alliances are reshaped whenever companies merge or partner up, regularly forcing ports and customers to adjust to a new balance of power. Theo Notteboom explains: "*Shipping alliances decide everything: if, for one reason or another, they switch from Le Havre to Antwerp, a hundred thousand containers change port.*" Ports are also competing among themselves,

Theo Notteboom, an economist and co-founder of the PortEconomics research network, teaches port and maritime economics at Ghent and Antwerp Universities. He is also a research associate at Texas A&M University in the United States.

and their market shares have become far more volatile. This volatility is closely linked to transhipment, when containers are transferred from one ship to another during port calls. In Antwerp, this applies to one container in three, and shipping lines can move this traffic from one port to another overnight. Another weakness, exposed by Covid, is the system's inability to absorb surges in demand. In Antwerp, the average time a container spends in port rose from two or three days to five or six, and once congestion sets in, it persists long after the initial peak. Another continuing imbalance involves empty containers. In 2025, Asia shipped almost 20 million TEU (twenty-foot equivalent units) of loaded containers to Europe, but Europe sent back full to Asia only 6.4 million. Most go back empty, which makes repositioning them a logistics activity in its own right. Added to that is the problem of coordination: some terminals have no idea what becomes of more than half their containers once they leave port, because shipping lines and inland carriers do not share the information.

"Shipping alliances decide everything: if, for one reason or another, they switch from Le Havre to Antwerp, a hundred thousand containers change port."

GOING GREEN AND REINDUSTRIALISING

Traffic keeps growing, and emissions with it. Faced with environmental pressure, shipping lines are ordering dual-fuel vessels designed to run on ammonia or methanol. LNG (liquefied natural gas) remains a transitional solution on the way to the zero emissions promised for 2050. Ports are also investing to be able to plug ships into shore power at quayside.

Another, less expected, challenge is reindustrialisation. Europe was counting on the Green Deal to make its economy greener, but the regulatory burden ended up worrying the steel and chemical industries, tempting them to offshore their investments. "*If energy costs remain three times higher than in China, it's game over,*" Theo Notteboom concludes. This has given new impetus to the debate on nuclear power, long excluded from the Green Deal: unlike wind or solar, it is a source of energy that does not depend on the weather.

Given these vulnerabilities, the challenge is no longer simply efficiency but resilience. Which means developing inland ports, shifting freight to rail and waterways, and improving information flows. Digitalisation of trade remains the main task, since information on container locations is still being lost between the various players. Another way forward? Containerisation of some bulk cargo. In short, a port without an expansion plan today loses the confidence of the shipping lines that serve it. Theo Notteboom sums up: "*The real test is to be the best-prepared to deal with disruption, not necessarily to be the cheapest.*"

A climate paradox to be resolved by 2050

THE SHIPPING CONTAINER WAS NOT DESIGNED TO BE 'GREEN'. ITS PURPOSE IS EFFICIENCY: STANDARDISING FLOWS, REDUCING HANDLING TIMES AND STREAMLINING SUPPLY CHAINS. YET, INDIRECTLY, COULD THIS INVENTION BE AN ALLY IN THE GREEN TRANSITION?

With globally standardised dimensions of 20 or 40 TEU, this metal box is very easy to stack. The container therefore offers a clear advantage for the green transition: mass transport. The container facilitates the use of maritime transport, which is one of the modes of transport with the lowest environmental impact[1]. Carried by container ships capable of holding up to 24,000 TEU, this mode of transport allows energy consumption to be spread out, thereby reducing CO_2 emissions per tonne-kilometre transported. It also plays a vital role in the development of low-carbon supply chains by eliminating transhipment and facilitating the modal shift to river and rail transport.

GLOBALISATION AND THE REBOUND EFFECT

But the real revolution brought about by the container is an economic one. Whilst transport costs used to account for up to 25 per cent of the price of goods[2], this invention has made them almost negligible by optimising cargo loading and reducing the time ships spend at berth. Containerisation is thus said to have reduced port call times by between 70 and 95 per cent[3]. The drastic fall in these costs has helped to drive an explosion in the volumes transported, fostering the emergence of global value chains. A single product can now be designed, manufactured and assembled in different countries before being sold across several continents. The container has thus become an essential part of the infrastructure underpinning globalisation[4]: according to the United Nations Conference on Trade and Development (UNCTAD)[5], maritime transport accounts for over 80 per cent of global trade in goods by volume. According to the same source, the volume of goods transported annually worldwide reached over 183 million TEUs in 2024, compared with just 50 million in the early 2000s. The shipping sector, which has come under widespread criticism, currently accounts for 3 per cent of global greenhouse gas emissions. Even though the energy efficiency of ships has improved, emissions from the sector have continued to rise, increasing by 20 per cent over the

1. European Environment Agency, *Rail and waterborne — best for low-carbon motorised transport*, 2021 .
2. Douglas C. MacMillan et T.B. Westfall, *Competitive General Cargo Ships, Transactions of the society of naval architects and marine engineers 68*, 1970.
3. César Ducruet, Réka Juhász, Dávid Krisztián Nagy and Claudia Steinwender, *How Containerization Reshaped Global Trade – And Our Cities*, EconPol Forum 2 / 2025 April Volume 26.
4. Marc Levinson, *The box: How the shipping container made the world smaller and the world economy bigger*, Princeton University Press, 2006
5. UNCTAD, Review of maritime transport 2023.

"The World Bank estimates, for example, that container ships are the vessels with the greatest potential for decarbonisation."

last decade. For example, emissions rose from 977 million tonnes of greenhouse gases in 2012 to 1,076 million tonnes in 2018, an increase of 9.6 per cent[6].

This paradox is linked to what economists call the rebound effect, which can be defined as the increase in consumption resulting from the removal of constraints on the use of a technology[7]. In other words, cheaper and more efficient transport leads to a surge in the volumes transported.

DECARBONISING TRANSPORT VOLUMES

Recognising this does not, however, mean that containerisation is incompatible with climate targets: the challenge is not to call this logistics tool into question, but to decarbonise its ecosystem. The World Bank estimates, for example, that container ships are the vessels with the greatest potential for decarbonisation and that energy efficiency measures alone could reduce the sector's emissions by nearly 40 per cent by 2030. These include reducing speed, lowering ships' energy consumption, using sail assistance, optimising routes and port calls, and improving load factors[8]. Other levers for decarbonisation lie onshore, in the ports. These include the electrification of cargo-handling equipment and the roll-out of refuelling infrastructure for alternative fuels such as LNG. Financially, this transition is supported in particular by the European carbon market (EU ETS), which is gradually imposing a cost on maritime transport emissions, with part of the revenue funding the development of low-carbon technologies via the European Innovation Fund. The International Maritime Organisation (IMO) goes even further. It has set itself the target of achieving carbon neutrality in maritime transport by 2050 by using a range of complementary measures, including the use of alternative fuels such as methanol or ammonia[9].

"The International Maritime Organisation (IMO) set itself the target of achieving carbon neutrality in maritime transport by 2050."

Beyond the ideological debates on globalisation and international trade, one of the key challenges is therefore not so much to transport fewer containers, but to transport them differently – using more fuel-efficient ships, lower-carbon fuels and supply chains that rely more heavily on rail and inland waterways. From this perspective, the container emerges as one of the tools that could contribute to the green transition.

6. Fourth IMO Greenhouse Gas Study 2020, a report published in 2021 by the International Maritime Organisation.
7. François Schneider, *« L'effet rebond », in L'Écologiste*, French edition of *The Ecologist*, n°11, Octobre 2003, Vol 4, n°3, p. 45.
8. World Bank Group, Keys to Energy-Efficient Shipping, 2025.
9. 2023 IMO strategy on reduction of ghg emissions from ships.

From ship to warehouse: the transformation of logistics

SEVENTY YEARS AFTER ITS INVENTION, THE CONTAINER IS IN EXCELLENT HEALTH. NEARLY 45 MILLION OF THEM ARE THOUGHT TO BE IN CIRCULATION AROUND THE WORLD TODAY. FOR GLOBAL TRANSPORT, IT HAS BEEN A REVOLUTION – AND FOR LOGISTICS TOO!


Michel SAVY

What makes the container revolutionary is one particular feature: its intermodality. "*It was designed to carry freight from one point to another by sea, road and/or rail without changing receptacle, so that handling operations would be simpler, faster and cheaper. As an added advantage, the goods are protected*," explains Michel Savy, a transport specialist and author of *Les nouveaux enjeux de la logistique** (2025).

A TOTALLY OVERHAULED SUPPLY CHAIN

Because containers require special equipment, there are increasing numbers of gantry cranes and reach stackers (heavy-duty lift trucks) at logistics sites, added to which lorries, ships and freight trains have also been transformed to carry out their new role. Yet the evolution of equipment has not been the only consequence of the ramping up of containerised transport - far from it. For optimum performance in the context of intensive expansion of international trade, the entire supply chain has had to adapt, from the collection of goods to their delivery to end customers. "*This chain is a succession of flows and stocks in which every link counts, contributes to the quality of service and creates added value. In France, roughly as much value and employment is generated by 'static' logistics operations (loading, unloading, packing, warehousing and so on) as by so-called 'kinetic' logistics, i.e. transport-related*," explains Michel Savy. The major shipping lines fully understand this and want to control the supply chain from end to end, moving from "port-to-port" to "door-to-door". While it is true that maritime transport remains their core business, they are expanding their land-side activities in order to offer a seamless, integrated service that combines all modes. "CMA CGM has taken this logic very far, even investing in an air freight subsidiary," Michel Savy observes.

* Michel Savy, *Les nouveaux enjeux de la logistique*, (the new challenges of logistics), Éditions Odile Jacob, 2025.

Michel Savy, an engineer and economist, is Professor Emeritus at the École des Ponts and the École d'Urbanisme de Paris, and Director of the Observatory of Transport Policies and Strategies in Europe (OPSTE).

WAREHOUSING – A KEY LINK

While every link in the supply chain counts, some are particularly important. Warehouses, in particular, have become strategic assets, on a par with port terminals. And with good reason: they are essential for storing, stuffing and stripping containers, and for inspecting, consolidating and dispatching goods. They thus make it possible to optimise flow management. "*What's more, the boundary between logistics and industry is becoming blurred in warehouses. Repairs and the final stages of product processing (delayed differentiation) are increasingly carried out there,*" Michel Savy points out. This means that if it is to stay competitive, retain customers and maintain traffic, it is in a port's interest to add an efficient network of warehouses to the logistics platforms and corridors that serve its hinterland. Especially given that recent crises (Covid, trade tensions and armed conflicts) have highlighted the fragility of the "just-in-time" strategy that businesses had favoured to improve efficiency and cut operating costs. "*If the desire is to limit the risk of supply delays or even shortages, it now seems wise to hold some stock,*" Michel Savy confirms. "*The aim is not to return to the old model, but rather to strike the right balance between efficiency, competitiveness and resilience.*"

"The major shipping lines [...] want to control the supply chain from end to end, moving from port-to-port to door-to-door."

"Warehouses have become strategic assets, on a par with port terminals."

A NEW ROLE FOR PORTS

Another effect of the widespread adoption of containerised transport is that it has given major port hubs a central place in the logistics organisation of their surrounding regions. "*They are becoming planners and trusted third parties that attract logistics providers and manufacturers, then encourage them to talk and work together and turn the port into a powerful industrial zone. This includes sustainable development issues such as setting up circular economy loops,*" notes Michel Savy. This new role puts ports on the front line of the many issues surrounding containerisation in the early 21st century. They need to find solutions to challenges specific to ports, including maintaining quality of service as ships continue to expand in size. At the same time, they are being called upon to address the concerns of national and European transport policy. "*Concerns such as the ecological transition and decarbonisation, food and energy sovereignty, and securing flows in the event of military mobility,*" lists Michel Savy, before concluding: "*We're a long way from vessel reception alone!*"

How do CRISES affect shipping ROUTES?



Antoine FRÉMONT

Antoine Frémont is a professor at the Conservatoire national des arts et des métiers, where he holds the Chair in 'Transport, Flows and Sustainable Mobility'. He is also co-author of the book Maritime Ports, Supply Chains and Logistics Corridors*.*

ATTACKS IN THE RED SEA, TENSIONS IN THE MIDDLE EAST, SHIFTING ALLIANCES: MAJOR SHIPPING ROUTES ARE REGULARLY DISRUPTED. YET, FAR FROM CAUSING LASTING DAMAGE TO MARITIME TRANSPORT, THESE CRISES ABOVE ALL REVEAL ITS CAPACITY TO ADAPT. ANTOINE FRÉMONT EXPLAINS.

Is the hub model affected by crises?

A hub is a tool for consolidating traffic and a maritime crossroads. It enables traffic to be drawn in from various origins, sorted and redistributed, thereby linking main and secondary routes. I believe that hubs are tools for resilience in the face of crises. By consolidating flows, they diversify traffic and the areas served, which provides the flexibility needed to adapt maritime networks and reroute containers in the event of a crisis. Crises tend to result in temporary repositioning, and therefore in winners and losers. Admittedly, the hubs in Dubai and the UAE are suffering from the closure of the Strait of Hormuz, and the Mediterranean hubs from the diversion around the Suez Canal following the Houthi attacks in the Red Sea, but this is, conversely, beneficial for Tangier Med and Algeciras.

Can we say that shipping alliances are crisis management tools?

A shipping alliance involves the pooling of shipowners' technical resources. The restructuring of alliances was triggered by MSC's decision in 2024 to break away from its alliance with Maersk and go it alone. It is therefore not directly linked to crises. Nevertheless, the considerable resources of alliances make it easier to reorganise shipping services by redeploying vessels, whereas individual shipowners would not have this capacity. They provide flexibility in the face of crises, and crises serve to test the internal strength of the alliance.

"Crises tend to result in temporary repositioning, and therefore in winners and losers."

Could all these developments alter the global ranking of ports?

No. Crises will not change the global ranking overnight. Beyond the disruptions, we are witnessing a fundamental shift driven by the growth in trade across the entire Indian subcontinent. This is linked to a geo-economic repositioning: companies that had outsourced production to China are relocating their assembly plants as a result of US policy. The role of South-East Asian ports as transhipment hubs is likely to emerge stronger as a result.

What does the disruption to shipping routes reveal?

The diversion via the Cape of Good Hope demonstrated the great resilience of the shipping industry, which adapted very quickly. Transit times

*Cyrille Bertelle, Nathan Gouin et Antoine Frémont (ed.), *Maritime Ports, Supply Chains and Logistics Corridors*, Routledge, collection "Routledge Studies in Transport ANALYSE", 2024. Available as open access on taylorfrancis.com.



Kris DANARADJOU is Deputy CEO in charge of development at HAROPA PORT.

were extended, and this also had an impact in terms of CO_2 emissions, but once the delays were known, supply chains were back up and running on an international scale.

"The diversion via the Cape of Good Hope demonstrated the great resilience of the shipping industry, which adapted very quickly."

In the event of a crisis, how does an alliance decide to use one hub rather than another?

The primary criterion is geographical: the hub must be situated on a major shipping route. Secondly, shipping lines tend to invest in dedicated, non-shared hubs so as not to be dependent on a third party to manage priorities regarding vessel access or cargo handling. Having several hubs worldwide allows for repositioning in the event of a crisis. CMA-CGM has announced a major investment in the port of Jeddah, on the Red Sea: this is a typical way of finding an alternative to the Strait of Hormuz.

In the long term, what could bring about the most profound change to maritime routes: geopolitics, climate change or the energy transition?

As far as container shipping is concerned, routes are relatively stable. Let us hope that the Arctic route from East Asia to Europe – which reduces transit times – will remain virtually impassable despite global warming. Ships fitted for this route can only navigate it with difficulty between August and October due to the melting ice. The energy transition may help to differentiate between ports and enable those capable of offering alternative bunkering solutions to heavy fuel oil to emerge or be strengthened. Major global economic shifts are affecting, and will continue to affect, shipping routes. The transatlantic world that prevailed until the 1970s is gradually giving way to a vast 'Asian Mediterranean', stretching from East Asia to the Persian Gulf states. North America and Europe, which were previously central, could find themselves on the periphery.

How does HAROPA PORT ensure its place at the heart of strategic alliances?

HAROPA PORT has several strengths that enable it to remain an essential port of call. Firstly, its geographical location at the crossroads of the Asia-Europe and Europe-America routes. It is the first port of call for ships arriving from Asia and the last before ships depart from Europe for the Americas. Secondly, it is a deep-water port and is also ideally situated to serve the French market, which is one of the largest in Europe. It is served by the three major global alliances (see pages 36-37) and MSC. Our strategy is to be – as we always have been – a port open to all alliances and all shipping lines in a volatile world where shipping companies are agile. With dedicated terminals and terminals open to all, we are able to offer a solution tailored to all shipping lines whilst maintaining a privileged relationship with our largest clients. The Seine corridor is also a key differentiating factor: it is a green corridor offering all players in the supply chain the opportunity to achieve carbon-neutral logistics right through to final delivery. Our customers can thus stay one step ahead of the logistics challenges they will face in the coming years.

Foreign interference: hands off my port!

ENSURING PORT SECURITY, AND ESPECIALLY PROTECTING THEM AGAINST FOREIGN INTERFERENCE, IS ONE OF THE PILLARS OF THE EUROPEAN UNION'S NEW PORTS STRATEGY UNVEILED IN 2026.


Marie KRPATA

This comes as no surprise. As Marie Krpata, a research fellow at CERFA, points out, "*ports are increasingly central to supply chains, and therefore to geopolitical rivalries.*" The invention of the shipping container in 1956, combined with the ever-increasing, enormous size of vessels, has very much accelerated the expansion of global maritime transport. "*Today, almost 90% of international trade in goods goes through ports. That makes them essential infrastructure for connecting industrial areas with their markets and for moving raw materials*," Marie Krpata continues. She describes port hubs as genuine "*economic development multipliers*". Which explains the interest they attract, interest that translates into massive investment. The shipping company MSC, for example, recently acquired 49% of the port of Vizhinjam in India for $1.4 billion, a record sum for the country.

CRITICAL ASSETS

The hardening of international geopolitical relations in recent years has further increased the importance of port infrastructure. Marie Krpata explains that "*Ports play a key role in the new trade wars between imperialist powers, and can be seen to be critical assets in armed conflicts such as that between Ukraine and Russia because they determine access to energy, food and military hardware.*"

States are particularly fearful of political interference and the loss of sovereignty that can come with the acquisition of equity. She observes that "*awareness of these dangers has developed gradually within the EU, but is now widespread, including in Germany, where economics and politics are kept separate.*" She adds: "*We saw this with the controversy in 2023 over the acquisition by Chinese shipping company Cosco of a 24.9% stake in the company operating the Tollerort terminal at the port of Hamburg.*"

States are also concerned about cyber risks, and with good reason: ports are currently undergoing a digital transformation driven by the Internet of Things, big data and AI, and this leaves them vulnerable to threats such as data leaks and the hacking of their logistics systems. Evidence of this is the increasing numbers in recent years of cyberattacks such as the hacking in early 2022 of oil terminals in Germany, the Netherlands and Belgium that disrupted energy deliveries at several ports.

European countries are therefore taking action to protect their ports from foreign interference and the risks it poses for them.

"Marie Krpata is a research fellow at CERFA (study committee on French-German relations). Her work focuses in particular on the EU's international relations."

INTERFERENCE "MADE IN CHINA"

China is not the only nation deploying an influence strategy in pursuit of its ambitions. Its strategy does however have one feature that sets it apart from others: it is directed by government working through public-sector operators able to disregard profitability where necessary. It is also highly proactive, against a backdrop featuring the Belt & Road Initiative and political and commercial rivalry with the United States. China has already invested in 145 foreign ports, some twenty of them in Europe. "*In 2021, over 27% of global container trade passed through terminals in which Chinese and Hong Kong companies held stakes,*" says Marie Krpata. China has another lever of influence in Logink, its real-time

"China has already invested in 145 foreign ports, some twenty of them in Europe."

freight-tracking system, use of which is spreading within the international port community, but which is regarded by many as "*an invisible digital weapon*".

THE EU ON THE FRONT LINE

To counter port interference by China and other states, the EU has tightened its screening of foreign direct investment (a mechanism allowing closer scrutiny of investment from third countries) and has also launched a programme for the evaluation and prevention of risks of malicious cyberattacks by countries such as Russia. The EU is also developing cooperation and equipping itself with cutting-edge technologies. Meanwhile, Member States are adopting their own initiatives. "*But this is an issue better dealt with at European level, which will allow us to set aside national interests and intra-EU competition,*" argues Marie Krpata, before going on to outline some ways forward for more effective protection:

DRUG TRAFFICKING: **a declaration of war**

In 2023, more than 60% of drug seizures in Europe were made at port facilities. It is a fact that container traffic through ports is traffickers' preferred route for moving drugs. The European port security strategy also targets interference by these international cartels. The measures taken include background checks on port staff as standard practice; optimisation of cargo inspections using innovative tools such as X-ray scanners; an emphasis on partnership through bodies such as the European Ports Alliance, set up in 2024.
French anti-corruption agency AFA also provides port operators with several resources for raising awareness of narcotraffic-related corruption risks. These include a video series "Corruption dans les ports, stoppons le risque d'engrenage. Prévenir les risques et adopter les bons réflexes dans un contexte de narcotrafic." [Corruption in ports: let's avoid the slippery slope. Preventing risks and adopting the right reflexes where drug-trafficking is concerned]. Link to the AFA video: https://lnkd.in/gqzA3GER

"*EU countries could join forces to carry out risk analyses that factor in geopolitical risk, develop their own technological solutions for resilient smart ports, and harmonise their crisis management.*"

To find out more: Marie Krpata, "Les ports allemands face à la Chine. Comment concilier ouverture, résilience et sécurité ?" [Germany's ports and China: how to reconcile openness, resilience and security], Ifri Studies, Ifri, April 2024. Available free of charge at ifri.org

CELE-BRATE



Port 2000: TWENTY YEARS of ambition in the service of France



Port 2000 is celebrating its twentieth anniversary. Over the course of two decades, this terminal – designed to accommodate the world's largest container ships – has profoundly transformed the port of Le Havre and strengthened France's position in international trade.

When it was inaugurated in 2006, it embodied a simple ambition: to provide France with a facility capable of supporting the containerisation revolution and competing with the major ports of northern Europe. Twenty years on, this vision has proven its worth.

Every day, it helps to supply the country, supports economic activity and connects French businesses to international markets. Behind the containers passing through its quays lies a tangible reality: that of a supply chain essential to the functioning of our economy.

Its development has helped to expand the Le Havre port complex as a whole, bringing together shipowners, stevedores, logistics operators, hauliers, freight forwarders and port services around a shared ambition: to make Le Havre a leading maritime gateway for France.

Port 2000 is also a human endeavour: day and night, labourers, dockers, port workers and service providers orchestrate a ceaseless ballet of ships, vehicles and handling machinery.

This anniversary comes at a significant moment in its history. With the construction of an additional 700 metres of quay and work on a river access channel, Port 2000 is continuing its development and strengthening its link with the Seine corridor. These new facilities are preparing the terminal for the challenges of growing traffic volumes and the decarbonisation of supply chains.

Celebrating Port 2000's twentieth anniversary therefore means looking back at the journey so far, but also looking to the future. Changes in global trade, the increasing size of ships, and the green transition: the challenges are many.

Port 2000 has continually adapted to changes in maritime transport. Its ability to anticipate future developments will be just as crucial in consolidating HAROPA PORT's position amongst the major European hubs and in continuing its mission to serve the French economy.

Florian WEYER,
Deputy Managing Director of HAROPA PORT in charge of Le Havre's territorial direction.

PORT 2000: FRANCE'S FOREIGN TRADE GATEWAY

Port 2000's terminals handle goods of every kind, both imports and exports. Arriving from all four corners of the world, these cargoes are vital for supplying France and the rest of the continent, as well as for our foreign trade. Here is a quick overview of the main countries and product categories*.

53% CHINA

- **31%** **Manufactured goods:** furniture, plastic goods (derivatives and waste), toys
- **29%** **Machinery and parts (excl. vehicles):** household appliances, lighting/electrical supplies
- **15%** **Textiles, clothing and luggage**

IMPORTS

6% UNITED STATES

- **24%** **Chemicals and waste:** raw plastics, lubricating oils
- **14%** **Manufactured goods:** plastics (derivatives and waste), paper and cardboard (unprocessed)
- **12%** **Machinery and parts (excl. vehicles):** medical instruments and equipment, lighting, electrical supplies, electrical machinery



5% TURKEY

- **57%** **Machinery and parts (excl. vehicles):** white goods, 'brown goods', 'grey goods', air conditioners, radiators
- **13%** **Manufactured products:** furniture, plastics
- **4%** **Fruit and vegetables:** nuts, grapes, exotic fruit

* HAROPA PORT figures for container traffic (including Port 2000), 2015–2025. Average annual market share of the top three countries for imports and exports, and the three main categories of goods.

Spotlight on SHIPPING ALLIANCES



17 % UNITED STATES

- 29 % **Wines & spirits:** fine wines, cognac, champagne
- 14 % **Chemicals and waste:** perfumes and eaux de toilette, beauty products, make-up, raw plastics
- 10 % **Sundry manufactured goods:** plastic goods (derivatives and waste), paper/cardboard/cellulose (processed and unprocessed)

13 % FRENCH OVERSEAS TERRITORIES

- 15 % **Special operations:** groupage, used personal effects (e.g. household removals between mainland France and its overseas territories)
- 13 % **Sundry manufactured goods:** furniture and plastics (derivatives and waste)
- 10 % **Coffee, tea and groceries:** food preparations

12 % CHINA

- 17 % **Unprocessed timber:** raw logs
- 17 % **Perishable and semi-perishable foodstuffs and preserved foods:** dairy products, meat and offal
- 15 % **Chemicals and waste:** raw plastics, synthetic rubber, beauty products/make-up

Three alliances and one independent shipping line call at Port 2000:

- **Ocean Alliance**
  CMA CGM, COSCO, Evergreen, OOCL
- **Gemini Cooperation**
  Maersk, Hapag-Lloyd
- **Premier Alliance**
  ONE, HMM, Yang Ming
- On 1st January 2025, **MSC** left the 2M alliance it had formed with Maersk. It now operates independently, entering into targeted slot-sharing partnerships.

DID YOU KNOW?

To prevent monopolies and artificial price rises, EU competition law strictly prohibits collusion between companies in the same industry. Until 2024, an exemption allowed shipping lines to form alliances in order to share space on board their vessels and coordinate schedules and routes. But since 2024, while such alliances are still permitted, carriers must now assess for themselves, case by case, whether their agreements are lawful. Any alliance that restricts competition or harms customers faces heavy EU penalties.

The emergence of a CORNERSTONE of LE HAVRE'S international development



Paul SCHERRER

Deputy Director General of the Port of Le Havre in 2013 and 2014, Paul Scherrer led the Port 2000 project from 1994 to 2013 as Technical Director.

CONCEIVED AS EARLY AS 1994, PORT 2000 WAS THE FIRST FRENCH PORT TERMINAL DESIGNED TO ACCOMMODATE LARGE CONTAINER SHIPS. THANKS TO ITS FACILITIES, LE HAVRE IS NOW ONE OF EUROPE'S GATEWAYS FOR INTERNATIONAL SHIPPING LINES. PAUL SCHERRER, THE PORT'S FORMER TECHNICAL DIRECTOR, TELLS US THE STORY OF HOW IT WAS CREATED AND HOW IT HAS EVOLVED.

Could you describe Port 2000 as it was conceived in the 1990s?

Port 2000 was intended to adapt the Port of Le Havre to handle large container ships by greatly increasing its capacity. Following the initial studies carried out as early as 1994, the project entered its construction phase in 2000. It consists of a single continuous quay, protected by breakwaters, designed to handle large container ships. At the time it was designed, this meant vessels with a draught (depth) of up to 14.5m, a length of 350m and a beam (width) of 32m. In order to be able to process these 9,000 twenty-foot equivalent unit (TEU) vessels – i.e. carrying 9,000 containers – we needed in fact to provide deep-water docks, a large turning basin to allow the ships to turn round, and extensive quayside hardstand. As a result, 4.2km of quays were built, allowing draughts initially up to 14.5m, and later 16m, along with a 5km breakwater for protection. Such was the core of the project, but the environmental side of Port 2000 involved other particularly ambitious programmes!

"To stay in the global race the port had to adapt if it was to accommodate large container ships."

How did the project come about, and what challenges was it responding to?

To begin with, Port 2000 sprang from two factual observations: container traffic was expanding steadily and vessel size was increasing. The facilities at Le Havre were reaching saturation point and to stay in the global race the port had to adapt if it was to accommodate large container ships. In 1994, André Graillot, the port's director, championed a forward-looking vision: to design a new French port capable of meeting the future needs of the major international shipping lines. It was André Graillot who recruited me to lead the Port 2000 project as Technical Director. The project really took off in September 1995,

"Thanks to these facilities, traffic doubled in Port 2000's first year of operation, between 2007 and 2008!"

when Antoine Rufenacht, Mayor of Le Havre, convinced President Jacques Chirac of the project's importance: its location makes Le Havre a true gateway to Europe for international trade, particularly for Asian and American vessels. Other individuals played a decisive role: Pascal Galichon, the project's administrator, François Lerat, Upper Normandy regional director of the environment, and Jacques Le Bas, head of the Maison de l'Estuaire. The aim was to integrate this new infrastructure into a protected biodiversity area from the outset.

How was the issue of extending the port into a protected area resolved?

Once Jacques Chirac had declared it to be of national and major public interest, the project could go ahead despite its proximity to this Natura 2000 protected area. We wanted to go beyond simply providing environmental compensation by bringing all stakeholders together to devise ambitious biodiversity preservation measures. In 1996 we therefore began a consultation process at the Maison de l'Estuaire involving environmental protection bodies and scientists, along with professional fishermen. This consultation led to a formal public debate that unfolded from November 1997 to March 1998. The port tabled seven possible options, each with a full environmental assessment. Some forty meetings made it possible to shape the project together with local stakeholders, who themselves put forward more than ten additional options. Thanks to this consultation, when Port 2000 went to public inquiry in 2000 it was not contested. At the time, this was a pioneering approach: Port 2000 was the first public debate overseen by the Commission nationale du débat public (national commission for public debate)!

Could you describe the environmental side of Port 2000 for us?

Of the €537 million for first phase of works, €46 million was allocated to environmental measures. That is an enormous commitment! We worked with the estuary scientific and technical committee right from initial conception through to monitoring project execution, in consultation with environmental and fishing associations on all the major projects. The first of these, costing €23 million, involved restoring and developing mudflats, a precious ecosystem in the Seine estuary that is essential to biodiversity. A channel was dug to slow the spread of salt marshes, and a groyne was built against the northern wall of the Rouen channel to create new mudflats. We also created artificial islets as high-tide roosts for birds, in collaboration with GONm, the Normandy ornithological group. Finally, we allocated €5 million to scientific monitoring to measure the environmental impact of the developments. This commitment

was exemplary and groundbreaking for its time. This makes Port 2000 a true case study for the "Working with Nature" concept of PIANC (Permanent International Association of Navigation Congresses, now the World Association for Waterborne Transport Infrastructure).

How has the infrastructure for handling container ships evolved since the first phases of construction?

The project was carried out in several stages because, obviously, it had to keep pace with traffic growth: an initial phase from 2001 to 2006 brought 1,400m of quay into service (four berths for 9,000 TEU vessels), a second phase from 2007 to 2010 added 2,100m of quay, followed by a final phase from 2019 to 2023 with 700 m of quay (making a total of 4,200 m of continuous quay, allowing great flexibility for adapting to vessel size). These phases also allowed the facilities to evolve. The original design vessel was 9,000 TEU. To enable the quays to take 24,500 TEU container ships with a 16-metre draught, we designed the phase 2 quays for 16.5 m from the outset, while also deepening those in phase 1. Today, this infrastructure is sized for the future. Draughts are no longer increasing; they are constrained by port facilities worldwide. And in terms of traffic, it is still oversized: it can handle at least 6 million TEU a year, whereas traffic at Le Havre currently stands at 3 million TEU.

"Today, this infrastructure is sized for the future."

In your view, what developments would allow Port 2000's activity to grow further?

First, it is worth remembering that, thanks to these facilities, traffic doubled in Port 2000's first year of operation, between 2007 and 2008! But multimodal transport links from the port still need to be developed. That is the purpose of the direct inland-waterway access channel (see pages 36–37). This project is not new. In march 1998, the port proposed a solution for the end of public debate, xith an extended main dike sheltering a 200 ha artificial wetland and allowing barges direct accesse between old port and Port 2000. This project was abandoned for both ecological and financial reasons. The development of rail freight is also crucial, and that is as much a question of organisation as of infrastructure. Like all the major European ports, Le Havre's future will depend on its connections to its hinterland.

An ASSET for the port community and for Le Havre's APPEAL as a port hub



Hervé BONIS

Since 2021, Hervé Bonis has chaired the Union Maritime et Portuaire (UMEP), the body that brings together the Port of Le Havre's professional associations and organisations.

HOW DO MEMBERS OF THE UNION MARITIME ET PORTUAIRE IN LE HAVRE SEE PORT 2000? HERVÉ BONIS OFFERS HIS INSIGHT.

Who are the members of the Union Maritime et Portuaire?

UMEP brings together 600 private companies operating in the Port of Le Havre. Between them they account for 36,000 direct and indirect jobs and fall into three broad groups: terminal operators and stevedoring companies and freight forwarders/logistics providers, plus a third group made up of shipping lines, liner agents and ship's agents, port service providers and multimodal transport operators.

What have been Port 2000's most fundamental impacts for these companies?

Port 2000, among the most remarkable port facilities in the Northern Range, has resolved the capacity issue caused by increasingly massive container ships. It has made traffic flow more smoothly, and seamless throughput is fundamental to our business: it is the key to attractiveness and competitiveness. As a result, Le Havre has been able to continue to accommodate mother vessels and remain in the premier league of international port competition. Today it is a hub and transhipment port integrated into the world's largest shipping routes.

When it came into service, did Port 2000 attract new activities and create jobs?

The make-up of UMEP's membership has not changed, but some companies have begun investing in container terminals, such as MSC through its subsidiary TiL and CMA CGM through GMP. In addition, more than 1m sq. m. of logistics space has been developed in Le Havre since Port 2000 came into service, creating thousands of jobs.

Has sharing this infrastructure encouraged UMEP members to address certain issues collectively?

Yes. Our community has, for example, been a driving force behind the project for the direct river/port access channel linking Port 2000 and the Seine that will strengthen Le Havre's multimodal transport offering. In the 1980s we also jointly founded SOGET, a company specialising in digital solutions that facilitate international trade. More recently, we have taken action to counter drug trafficking, which is a growing threat. We are looking at introducing procedures and tools to strengthen security across the entire supply chain.

"Port 2000 has made traffic flow more smoothly, and seamless throughput is fundamental to our business."

The project completed, a new era begins

HAROPA PORT IS CONTINUING TO BRING ITS MAJOR MARITIME PROJECT TO FRUITION WITH THE COMPLETION OF THE THIRD AND FINAL PHASE OF PORT 2000 WORKS AND THE CONSTRUCTION OF THE WATERWAY. THE AIM IS TO STRENGTHEN ITS COMPETITIVENESS IN THE NORTHERN EUROPEAN MARKET, WHILST ADDRESSING THE CHALLENGES OF INDUSTRIAL SOVEREIGNTY AND THE GREEN TRANSITION.

THE "CHATIÈRE": A LINK BETWEEN THE SEINE AND THE SEA

Scheduled to become operational by the end of 2027, this channel will link the Seine to Port 2000 regardless of weather conditions. This 1,800-metre-long and 100-metre-wide channel, protected by a breakwater, represents a decisive step in the development of inland waterway transport along the Seine. Its commissioning will remove a major constraint: at present, the transport of containers between Port 2000 and the river requires an intermediate mode of transport, as only 10 per cent of the river fleet can access the terminals directly, making river traffic less competitive. By eliminating transhipment, the channel will enhance HAROPA PORT's competitiveness on the northern route.

"The completion of Port 2000 fulfils a clear ambition: to consolidate Le Havre's position amongst Europe's major maritime gateways."

The stakes go beyond mere logistical performance. By enabling a 50 per cent increase in the volumes transported by river, the channel will contribute to the decarbonisation of freight transport between Port 2000, the Seine corridor and the Île-de-France region, as river transport

TiL's terminals ARE TAKING ON a new scale

Having become the sole shareholder in the TPO/TNMSC terminals at Port 2000 at the end of 2021, Terminal Investment Limited (TiL) has since been pursuing an ambitious modernisation programme. The first stage of this plan involved the deployment of nine mega gantry cranes capable of handling the world's largest vessels, with capacities of 24,000 TEU and above, and the modernisation of its fleet of equipment, notably including 78 hybrid straddle carriers, which are more efficient and produce lower emissions. This first stage, due to be completed by the end of 2025, will significantly improve the terminals' operational performance. The stated long-term objective is to triple the terminal's handling capacity whilst streamlining the flow of goods and transitioning to 100 per cent electric operations, thereby making a significant contribution to the energy transition.

emits five times less CO_2 per tonne transported than road transport.
The project will last two years and presents a real technical challenge: the breakwater is made up of natural rockfill and nearly 20,000 Accropodes™, locally produced ultra-high-strength concrete blocks. Carried out in the open sea, in an area that was bombed during the Second World War, the works required an underwater mine clearance and explosive detection programme. These measures are accompanied by ambitious environmental compensation initiatives, such as the creation of a 10.8-hectare wetland, monitoring of underwater noise, a scheme to protect sea kale, and monitoring of changes in biodiversity.
The project represents an investment of 197 million euros, funded by HAROPA PORT, the European Union, the French Government and the Normandy Region.

THE TERMINAL CONTINUES TO RAMP UP OPERATIONS

The completion of Port 2000 is not limited to the access channel. Scheduled for completion in 2024, the third and final phase of the terminal's development has involved the construction of berths 11 and 12 at a cost of 150 million euros, funded by HAROPA PORT. These additional 700 metres will enable Port 2000 to reach its full capacity of 4.2 kilometres of quays once they come into service.
To support this growth, HAROPA PORT plans to invest 60 million euros in modernising rail links – including those at Port 2000. Furthermore, the installation of a substation in collaboration with Enedis will pave the way for the electrification of the quays. Alongside public investment, terminal operators are also demonstrating their commitment to Port 2000 through substantial investments aimed at modernising the terminals (see boxes).
The completion of Port 2000 fulfils a clear ambition: to consolidate Le Havre's position amongst Europe's major maritime gateways. By increasing its capacity, facilitating the use of bulk transport modes and preparing for the electrification of its infrastructure, HAROPA PORT is equipping itself to achieve its targets: 4.5 million TEUs in 2030 and 6 million TEUs in 2035. Other expected benefits include gaining international market share, strengthening the competitiveness of the Seine corridor's low-carbon logistics offering, and generating wealth for the region.

GMP IS SHAPING THE TERMINAL of the future

In Le Havre, Générale de Manutention Portuaire (GMP) is constantly aiming higher. Encouraged by the growth in traffic from its long-standing clients, the company is rolling out a strategy of major investments, notably in the financing of a fourth-generation fleet of container cranes. This modernisation drive will enable the infrastructure at the Terminal de France (Port 2000) to be adapted to the colossal size of the world's new container ships. To address climate challenges, GMP is accelerating its green transition with a major decarbonisation plan. The company is modernising its fleet of handling equipment, having reached an initial milestone in its key objective: 80 per cent of its straddle carriers are now fitted with hybrid powertrains. The terminal of the future also relies on technology and innovation: GMP is rolling out its private 5G network and advanced digitalisation tools, notably a real-time 3D digital twin to optimise handling operations, enhance safety and improve the flow of traffic through the port.

Port 2000: Transition Test Bed

PORT 2000 IS EMBLEMATIC OF THE GREAT SHIFTS IN WORLD TRADE. IN THIS FORWARD-LOOKING ANALYSE, YANN ALIX EXAMINES WHETHER IT CAN CONTINUE TO BE A TEST BED FOR ECONOMIC, ENVIRONMENTAL AND TECHNOLOGICAL TRANSITIONS THROUGH TO 2050.


Yann ALIX

PORT 2000: A TEST BED FOR LOCAL GLOBALISATION

December 2001: China formally joins the World Trade Organisation. Its accession radically changes global value chains, bringing with it an unprecedented acceleration in the volume and value of seaborne trade. Port 2000 is a sovereign instrument for France that ensures the national economy has infrastructure capable of accommodating the largest container ships, whose capacity has grown by 10,000 TEU between 2006 and 20261. Port 2000 will forever remain the strategic test bed for the transition to a trade globalisation in which the planetary economy has become "*Sinocentric*". As previous analyses have pointed out, Port 2000 is emblematic not only of a political, economic and logistical vision, but also the embodiment of regional, industrial and human goals. Port 2000 makes France part of the highest-volume logistics networks while also incorporating an unprecedented local environmental aspect. It has therefore established itself as a test bed for consensual compromises between economics, ecology and society. Environmental compensation measures are worked out jointly, out of fiercely debated demands as diverse as they are contradictory. And yet, from 2006 onwards, the largest container ships call at Port 2000 without disturbing the birds nesting on their artificial island, and without disrupting the new mudflats formed alongside a 15-hectare dredged side channel – and all this for an investment of €46 million.

PORT 2000: TEST BED FOR THE COGNITIVE ECOSYSTEM OF THE FUTURE

Twenty years after Port 2000's formal opening, globalisation, previously positive, could be seen to be riven with systemic crises (climate, geopolitics, energy). Uncertainty now goes hand in hand with volatility. Without calling into question the advances of digitalisation, artificial intelligence is now leading Port 2000 to become a test bed for new forms of organisation and management. Port 2000 must lead the way towards so-called cognitive management of the Le Havre port system and the Seine-Axis logistics corridor. Digital twins and predictive algorithms

*When Port 2000 was formally opened, the largest container ship was the EMMA MAERSK, which had a claimed nominal capacity of 15,500 TEU. At time of writing, several container ships exceed 24,300 TEU, and all can be processed at Port 2000's terminals.

Yann ALIX, a transport geographer, is Executive Director of the SEFACIL Foundation, a forward-looking strategic thinktank dedicated to the port, maritime and logistics industries. He has written or co-edited more than twenty publications, the most recent being Port : un écosystème sous tension *[Ports: an ecosystem under pressure] (EMS, October 2026).*

optimise strategic decision-support tools. Port 2000 is a test bed for simulations aimed at anticipating the negative externalities of potential congestion and rising sea levels. The experiments of the future are being designed with a concerted, coordinated approach. Anticipating disruption and optimising adaptation call for so-called cognitive management methods that take account of the development trajectories of all stakeholders, whether private, public or semi-public, without ever neglecting the population. Put differently, the Port 2000 port and logistics ecosystem is increasingly a learning organisation capable of adjusting decisions and operations on the basis of consolidated, shared information. Port 2000 is turning into a test bed for smart systems in which human beings remain at the productive heart of the region's attractiveness and productivity. Artificial intelligence brings human capital on board by transforming its jobs and skills. Port 2000 is increasingly a test bed for the transition to a technological and human model that optimises energy use, anticipates logistics disruption, simulates the consequences of lasting geopolitical disorder, and strengthens its ability to cope with increasingly numerous cyber threats in order to process container ships that could reach 30,000 TEU capacity within the next decade.

"Port 2000 has therefore established itself as a test bed for consensual compromises between economics, ecology and society."

PORT 2000: A TEST BED FOR COLLECTIVE INTELLIGENCE

Port 2000 is the main gateway to a multimodal transport corridor in which the direct river access channel to Port 2000 and the forthcoming inland-waterway links of the Seine-Nord Europe Canal give practical reality to a planned reduction in the environmental footprint of the value chains that will use the integrated HAROPA PORT system. The criteria of economic performance are already closely intertwined with those of logistics performance, which pairs efficiency with ever-greater environmental performance in the resulting transport equation. Green and renewable energies are the indispensable fuels of Port 2000's future. Backed by an industrial and energy zone that is experimenting with decarbonised energy mixes (hydrogen, methanol, biofuels, synthetic fuels, among others), Port 2000 turns tonnage handled into a goldmine for high value-added.

A robust, uninterrupted supply of decarbonised energy is turning out to be one of the greatest challenges for port ecosystems that need to contend with the constantly increasing capital concentration among private operators that are now providers fully integrated across the entire transport chain. That shipping routes are both volatile and unpredictable needs no further demonstration in 2026. An ability to read and anticipate the realities of fragmented, atomised global trade requires a strategic intelligence that the entire Port 2000 ecosystem needs to embrace. Given that the population of the African continent is set to reach 2.5 billion by 2050, Port 2000 could become the northern European multimodal connector for traffic flows whose intensity is not evident as yet. The geostrategic chokepoints of Panama, Suez and Malacca now sit at the heart of issues that reach well beyond the shipping industry. Port 2000 could therefore make the most of its geographical location within newly organised transport systems that will be seeking reliable, secure services.

At a time when the talk is of economic sovereignty and reindustrialisation, it is the collective intelligence of a region that will enable Port 2000 to influence the shape of a maritime globalisation that will necessarily be more sustainable. That collective intelligence will bring academic research into Port 2000's strategic planning and into the logistics configurations of the HAROPA PORT corridor. It will help cushion the radical changes imposed, for example, by the unilateralism of an international administration. It will project Port 2000 to 2050 and beyond by simulating growth/degrowth scenarios, including futuristic developments such as a "container island" serving as a geo-economic outer port for northern Europe as a whole. Ranging from the "bird island" environmental innovation of 2000 through to affirmation of European sovereignty based on a post-2050 floating platform, it will truly be a living transition test bed!

2000 WAYS TO SHARE THE ESTUARY

In the Seine estuary, the Port 2000 gantry cranes rise above vast meadows and wetlands, symbolising the coexistence of strategic maritime infrastructure and a Natura 2000-designated natural area. For over twenty years, the development of the terminal has been accompanied by conservation and ecological restoration measures aimed at reconciling port development with biodiversity.

