Port de Barcelona

2021–2025

PORT OF BARCELONA FOURTH STRATEGIC PLAN

Port vision 2040

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Port of Barcelona
Fourth Strategic Plan
2021 – 2025

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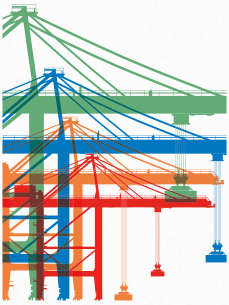

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01 INTRODUCTION

01.01 PRESENTATION. BACKGROUND

Historical Review

The Port of Barcelona is the result of a historical evolutionary process extending over approximately 2,500 years.

The Port is a multi-faceted organisation with seven main and very diverse components: legal-administrative, geographical, infrastructural, operational, economic, logistical and social.

Depending on these dimensions, the precise moment of its birth can be set at different historical moments:

From the 5th and 4th centuries BC., the time of the first goods loading and unloading operations associated with the Iberian population centres to the west of Montjuïc, up to the creation of the first permanent legal structure for the overall management of the port, the *Junta d'Obres* or Works Board of 1870.

The physical transformation of the port has accompanied the evolution of the economy it serves, essentially that of Spain, Catalonia and Barcelona. The port has undergone four major transformations, starting with the first major works begun in 1477, the subsequent enlargements of 1860 and 1966 and the latest, that began in the 1980s with the complete reform of the northern area (Port Vell) and the extension to the south as a result of the diversion of the river Llobregat.

It was particularly during the 19th century, when the port became a key factor for the competitiveness of Barcelona and Catalan industry, which arose from the onset of the industrial revolution. The transformation of the economy of our immediate area from the second half of the 19th century and of the rest of the Spanish economy from the second half of the 20th century were the drivers of the three great port enlargements that have occurred since then.

The latest major enlargement of the port area agreed in the 1980s coincided with the exponential and interrupted growth of world and European maritime foreign trade from that decade onwards. This growth was the result of the liberalisation of world trade, the diverting of productive capital to Asian countries and the growing competitiveness of maritime transport thanks to the consolidation of containers and ever-larger ships. The expansion also responded to the desire to diversify the port business and break down the barriers between the city and the sea caused by the commercial activity at the northern end of the port. The result of this process was the construction of the first logistics activities area in the Mediterranean to the south and the Port Vell, or Old Port, that we know today to the north.

The 2008 crisis marked the end of this period of expansion of European and Spanish maritime trade during which the port had become a unique multidisciplinary space in the Mediterranean and heralded a new period marked by challenges for the European port sector. The financial crisis definitively shifted the centre of gravity of the world economy to the Pacific and turned Europe into a peripheral continent with limited capacity for influence in the world.

The COVID-19 pandemic has helped to definitively close the period that began in the 1980s and to accelerate the expansion of a series of new trends that were already emerging in 2008, such as the stagnation of European and Spanish maritime trade, Asian pre-eminence in the world, digitalisation, e-commerce, climate change and energy transition, among others.

Aerial photograph of the Port of Barcelona, 1981

Aerial photograph of the Port of Barcelona, 2020

The four Strategic Plans of the Port of Barcelona

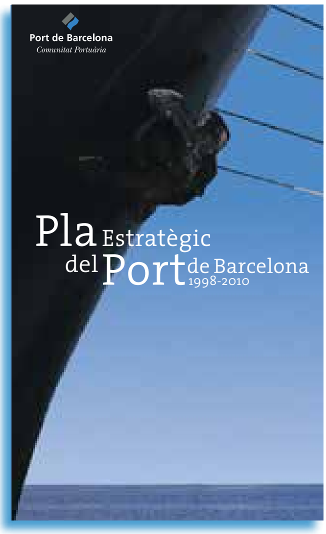
This is the Fourth Strategic Plan since the Port of Barcelona formally began its strategic planning in the mid-1990s with the preparation of the Green Paper published in 1997.

The following Strategic Plans have identified various short-term strategic objectives and projects while keeping the Port of Barcelona’s mission —its raison d’être— practically unchanged.

“To contribute to the competitiveness of customers by providing efficient services responding to their needs for maritime transport, land transport and logistics services”.

After the Third Strategic Plan expired, a new Plan was needed to face up to the new scenario that emerged in 2008 and was accelerated by the COVID-19 crisis, and the rapid, intense and disruptive transformations that are taking place in all sectors that directly affect logistics and the Port of Barcelona.

This change in the European scenario, the frequent and potentially more global and systemic disruptions and the great unknowns facing the European logistics sector as a result of these elements require a new plan with a double time horizon. **A short-term one with a group of goals and projects for the more immediate period from 2021–2025 plus a 2040 vision that sketches out the most plausible future scenarios and indicates the long-term lines of action** required to guide the action of the Logistics-Port Community and ensure its competitive positioning in the most popular of the scenarios identified.



The First Strategic Plan 1998-2010 defined the objective of making **Barcelona the first Euro-Mediterranean logistics platform.** This meant acting as an intermodal centre and as a distribution and supply platform.

The Second Strategic Plan 2003-2015 focused mainly on the **strategy in the hinterland and brought in the networked port concept:** a group of cargo collection centres distributed throughout the territory and connected to the port by intermodal corridors.

The Third **III** Strategic Plan 2015-2020 set the objectives of the port to become **the main regional euro distribution centre in the Mediterranean,** with specific milestones around three axes: growth, competitiveness and environment.

01.02 METHODOLOGY

How this Plan was drawn up

The meeting of the Steering Council's Strategy and Innovation Working Group in November 2018 was the starting point for drafting the Fourth Strategic Plan in which the main methodological lines for its development were defined.

It was agreed that this would mainly be done using internal resources from Barcelona Port Authority (APB) and the collaboration of the Port-Logistics Community, although it was planned to hire external experts for certain specific aspects.

Five working groups were created based on the main areas of activity and traffic of the port, fostering a participatory and integrative model that includes not only the Port Community but also end customers and, in general, all public and private agents involved and interested in the future of the port. Meanwhile, as the analysis, conceptualisation and drafting work was performed by the APB Strategy Department, several debate and discussion meetings were held in the governing bodies of the organisation involving the key people and areas of the entity, such as port operations and planning, environment, economic-financial and information systems.

The combination of these sources of analysis led to the preparation of a first version of the Strategic Plan, completed at the end of the first half of 2019. This version was subject to several subsequent changes until it was approved by the APB Management Board in January 2021.

More than 200 representatives from the Port Community and port stakeholders took part in the drafting process.

01.03 EVALUATION OF THE THIRD STRATEGIC PLAN 2015–2020

Lessons learned from the previous strategic planning and evaluation of the Third Strategic Plan 2015 – 2020

After evaluating the degree of attainment of the quantitative and qualitative objectives of the Port of Barcelona Third Strategic Plan 2015–2020 and detecting the omissions and aspects that were not sufficiently remedied at the time, we drew the following lessons for this Plan:

The degree of attainment of the objectives set out in the Third Strategic Plan was in general moderately satisfactory, with two relevant exceptions: the execution of railway infrastructure and the degree of achievement of traffic objectives. The delay in performing the planned works on the Barcelona-Zaragoza line, implementing the third line to Portbou, the old Llobregat riverbed and the new rail accesses to the port can be put down to external factors that were unfortunately largely outside the control of the Logistics-Port Community of Barcelona and in particular the APB. The traffic targets set in the Third Plan did not take into account three main factors: the depth of the change in trend involved in the 2008 crisis; the infrastructural, commercial and operational barriers that the Port of Barcelona suffers in the expanded hinterland in three relevant segments of traffic: containers, finished cars and short sea shipping trucks with North Africa; and increasingly frequent disruptions that can substantially alter the way forward initially planned, such as the COVID-19 crisis.

Strategic Axes		
Growth	Competitiveness	Sustainability
SO – 1 Increasing strategic traffics SO – 2 Enlarging the Port of Barcelona's hinterland SO – 3 Improving connectivity with the foreland SO – 4 Completing the great enlargement of the Port of Barcelona	SO – 5 Improving the efficiency and quality of Port Services SO – 6 Reducing the logistics costs of the movement of goods SO – 7 Creating new services and enhancing existing differential services (brand services) SO – 8 Promoting innovation in Port services and processes	SO – 9 Improving accessibility and mobility SO – 10 Fostering intermodality SO – 11 Growing sustainably SO – 12 Improve integration between the Port and the city SO – 13 Becoming one of the main centres of the nautical industry in the Mediterranean

Strategic axes and objectives (SO) of the Port of Barcelona Third Strategic Plan 2015 – 2020

The need for the process of drafting the Strategic Plan to be a participatory one involving all the players interested in the future development of the Port and not only the Port Community of Barcelona. This was already the case in the previous Strategic Plan, but the process excluded important players such as port customers and some public administrations. It is especially important to actively involve shippers in the development of the Plan because the Port Community serves its logistics chains.

The need to establish indicators and objectives that allow for regular monitoring (annual or biannual) of the degree of compliance with the Strategic Plan. Only a few quantifiable and measurable indicators and/or objectives should be identified and these must be sufficiently representative of the port's mission and vision.

The increasingly changing situation obliges us to anticipate and to perform a **a mid-term review of the Plan** (for the Fourth Plan, this would correspond to 2023) and to update it if necessary.

The need to reconcile the short-term vision (2021 – 2025) with a long-term vision to sketch out at least a few possible future scenarios based on certain variables.

The fact that certain professional groups are unaware of the Plan and therefore the need to improve dissemination both internally and externally.

02

STRATEGIC ANALYSIS

02.01 WHAT IS THE PORT OF BARCELONA TODAY?

A tool for economic and social development involving many dimensions

Geographic	The Port, located at coordinates longitude 41°22’ north and latitude 2°10’ east, is a strategic enclave in north-eastern Spain located about 120 km south of the French border. In recent decades, the Port’s commercial activity has been moving south towards El Prat de Llobregat.
Infrastructural	Comprising a water surface on which the ships manoeuvre and anchor during their mooring operations and a land surface with wharves, logistics storage areas, leisure activities, restaurants and nautical installations. 1,125 ha of land area in the municipalities of Barcelona and El Prat de Llobregat including such elements as 23.2 km of wharves and moorings and 47 km of railway lines.
Operational	A space essentially dedicated to loading and unloading activities of goods and people (apart from other activities such as towing, piloting and mooring) between ships, trucks and trains, in an increasingly automated way. Over the past 30 years the Port has been incorporating other activities (essentially recreational areas, marinas for yachts and a logistics activities area).
Legal	The Law on State Ports and the Merchant Navy, published in the Official State Gazette (BOE) on 20 October 2011, is the essential text under the Spanish legal system, which regulates its activity. Another fundamental piece of applicable legislation is Regulation (EU) 2017/352 of 15 February 2017 establishing a framework for the provision of port services and common rules on the financial transparency of ports and adopts common rules on financial transparency.
Social	The Port is a space of interaction of the more than 500 companies comprising the Logistics-Port Community, where about 37,000 people work daily and which has a direct, indirect and induced impact on more than a quarter of a million jobs. It is a point of entry and exit for about 4.5 million passengers and is visited annually by more than 16 million people including residents, tourists and workers (data from 2019, prior to the COVID-19 crisis).
Economic	The Port can essentially be defined in two main ways: a platform for the interaction between demand (international foreign trade mainly by sea) and logistics operators and an intermodal node of international trade in southern Europe. According to data from 2019, the Port channels €65 billion of foreign trade (including cabotage and excluding transshipment) and generates €11.553 billion and 7.1% of Catalonia’s Gross Value Added (GVA).
Logistics	The Port plays a key role in the competitiveness of the logistics chains that use it to route foreign trade and cabotage. It also plays an essential role in the competitiveness of other sectors - nautical, storage/logistics real estate, leisure and catering. Barcelona and the Port form a unique ecosystem in the Mediterranean and southern Europe, a first-class logistics-industrial capital thanks to four complementary attributes that make up a unique logistics offer in the region: 1. Industrial specialisation: home to powerful production centres of the main economic sectors, such as chemical, pharmaceutical, agri-food, automotive, textile and distribution centres of major retail brands. 2. Logistics specialisation: home to an ecosystem of national and global logistics operators that provide all kinds of specialised services to these economic sectors. 3. Concentration of logistics infrastructures: a port and an airport with high international connectivity and logistics areas in a compact location that is unique to the region. 4. Distribution capacity: companies can deliver their products in 24/48 hours to more than 200 million consumers in ten European and Maghreb countries by truck, train, plane and boat.

A diversified port

The Port of Barcelona is characteristically an enormously diversified space. This aspect is one of its main strengths. The diversification of traffic in the commercial port has accentuated since the 1980s. The process of diversification of the rest of the port was given a great boost with the reform of the Port Vell as a result of the 1992 Barcelona Olympic Games and the development of the first phase of the logistics activities area. The Port of Barcelona has also spread beyond the strict territorial limits of port land by investing and participating in various facilities in Spain and France. The various facilities and activities of the port can be grouped into four main segments: the commercial port, logistics port, city port and outer port.

Logistics port   Commercial port   City port

THE COMMERCIAL PORT

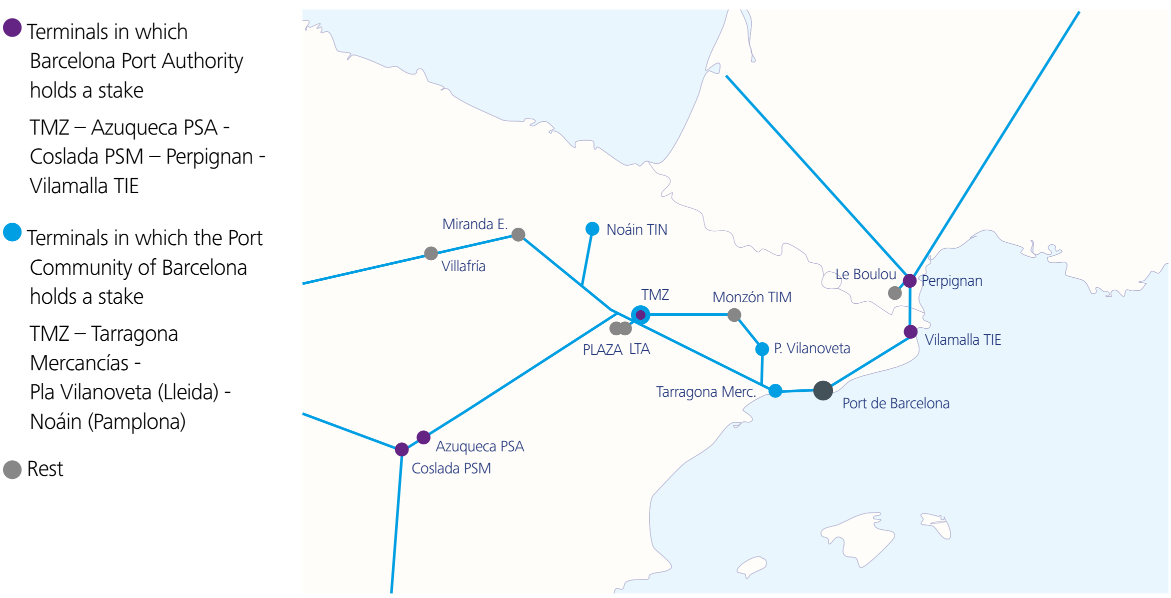
This port handles all types of bulk and general cargo goods, particularly those with a higher added value thanks to the economy it serves. It channels over €80 billion worth of goods (including transshipment) with only 65 million tonnes of traffic. Each main cargo segment has at least two dedicated terminals, ensuring competition between private operators. The installation includes all the main land-based goods transport systems (pipeline, train and road) for receiving and distributing the goods that are loaded and unloaded at the port's forty specialised terminals. About 4.5 million cruise and ferry passengers also pass through the port's dozen specialised terminals.

THE CITY PORT

The Port Vell, or Old Port, hosts leisure facilities and all kinds of activities for locals and tourists alike, as well as facilities and services related to the nautical and maritime sectors, such as repair and maintenance of large yachts. In the last ten years, Barcelona has become one of the main European and Mediterranean capitals in this sector. It also houses dedicated areas for fishing activities, an extensive area with moorings for pleasure craft, two world-class hotels, historic sports clubs, and one-off activities throughout the year that are visited by millions of people, such as the *Saló Nàutic* international boat show and the Christmas Fair. The Port also hosts a benchmark innovation hub, called Pier01, comprising more than a hundred companies and start-ups. It is the embryo of what should become a technological district of the Blue Economy.

THE LOGISTICS PORT

This area comprises the most important storage and logistics facilities in the Mediterranean. Over two successive phases, the first in the early 1990s and the second in the 21st century, 239 hectares of land were developed for logistics warehouses with a current occupancy rate of 97%. Here are located the warehouses of key brands such as Decathlon, Lidl (European division) and Carrefour alongside others managed by logistics and freight forwarding operators that often serve several countries and markets and make the ZAL Port a unique multi-country distribution centre in the region.



Intermodal terminals in the hinterland of the Port of Barcelona

THE OUTER PORT

To bring maritime-port services closer to its customers located furthest away in Spain and in the south of France, the Port has been involved in building and/or managing intermodal terminals located in strategic locations of the Port's hinterland (Zaragoza, Madrid, Guadalajara, Girona, Perpignan). The APB initially led this policy and is now involved in managing five intermodal terminals. Private port operators such as BEST, APMT and Transportes Portuarios have also been involved in terminal development or management. Other operators use them to build rail services with the Port of Barcelona.

A Euroregional port

The port not only participates in and leads the logistics cluster of Barcelona that has emerged to serve the consumers, industry and mass distribution of Barcelona, its metropolitan area and Catalonia in general. In the last fifty years, and even more intensely in the last thirty years, the Port has become a main part of the logistics cluster of the entire north-east of the Iberian Peninsula (Aragon, Navarre, La Rioja, Castille-Leon and Andorra) and to a lesser extent also of the centre of the Iberian Peninsula and the south of France.

The Port is also used regularly by German car manufacturers, Portuguese importers and exporters and by Italian importers (Sardinia, for food products, for example), and has thus become a port that regularly serves five European countries. Barcelona is therefore home to a unique multi-country port in the Mediterranean.

Port of Barcelona

Hinterland

Containers, finished vehicles and semi-trailers

Finished vehicles and semi-trailers

Intermodal terminals connected to the Port by train (containers and vehicles)

Ports connected to the Port by Motorways of the Sea

Motorways of the Sea with the Maghreb

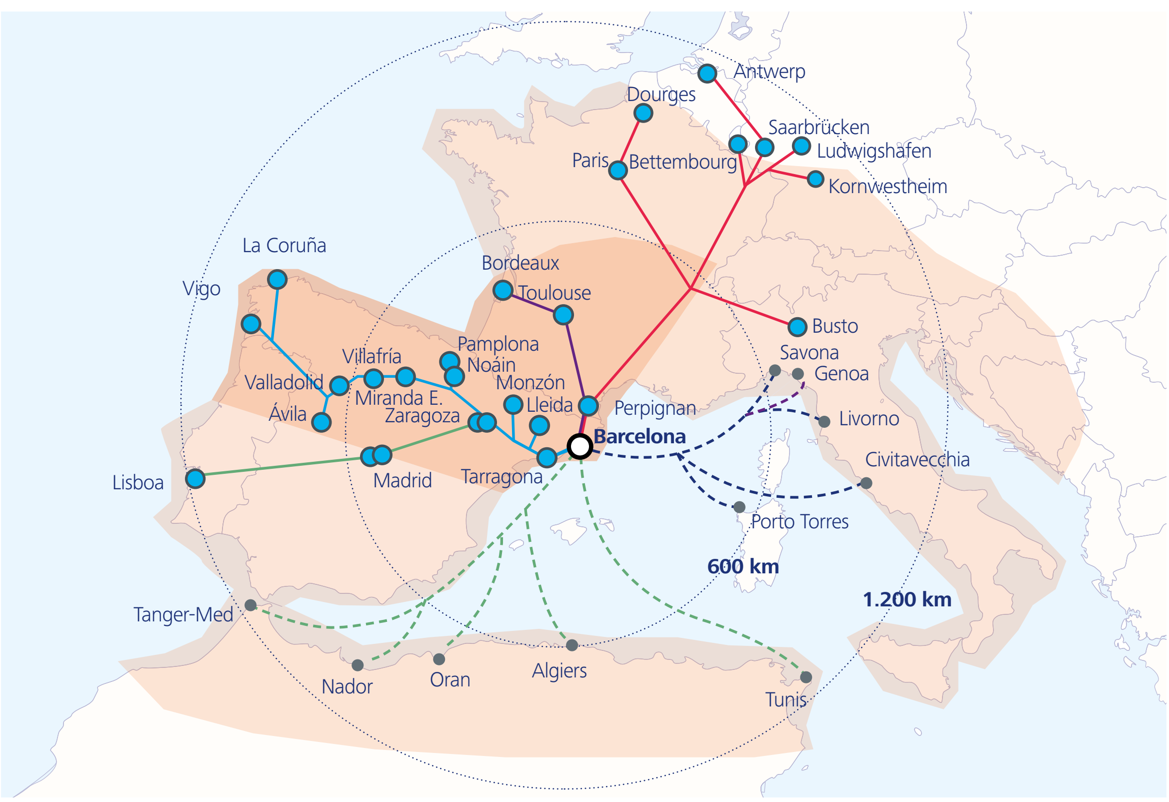
Motorways of the Sea with Italy

South of France

Central Europe

Northwest Iberian Peninsula

Central Iberian Peninsula



Origin and destination of the Port of Barcelona's imports and exports

General cargo: The Port is located in the metropolitan area of Barcelona, which is one of the two most industrialised regions of southern Europe. The Port also serves other areas that have experienced significant growth in the foreign trade sector, such as the rest of Catalonia, Aragon, Navarre, Castille-Leon, La Rioja and Occitania. The powerful market of the north-east Iberian Peninsula continues to be the main driver of traffic for the port in segments such as containers, cars (thanks mainly to the exports of the Spanish automotive plants) trucks and semi-trailers that use the ferries and the Motorways of the Sea. Traffic in the north-east of the Iberian Peninsula currently accounts for almost 90% of port traffic in these segments.

> This traffic comes from three types of companies: small and medium-sized enterprises, which continue to represent the port's primary customer; large distribution centres in the retail and e-commerce sector, like Decathlon, Mango, Inditex and Lidl, among others; and large industrial sectors like chemicals, food and the automotive industry.

In this regard, the main containerised export goods in the Port in 2019 were chemicals, followed by paper and paper pulp, other food products, feed and fodder, machinery and spare parts and wines and beverages. The top imported products are chemicals, other goods according to their nature, machinery and spare parts, tobacco, coffee and cocoa and steel products.

Turning to the origin and destination of goods, Asia is the main continent of origin and destination of the containers channelled by the Port of Barcelona, accounting for 42% of exports and 75% of imports. China is consolidating its position as our leading trading partner, receiving 11% of export containers and sending 42% of our import units. However, the Port of Barcelona is working with a wide variety of markets. Some of the most dynamic countries in terms of trade with the Port in 2019 were: Egypt (+11.1%), Turkey (+10.5%) and Saudi Arabia (+9.6%).

Port traffic in the automotive sector is mainly concentrated in exports of finished vehicles produced in Spanish factories, and imports to serve the Spanish market and some transshipment vehicles in the Mediterranean. Some of this traffic has stagnated or decreased in recent years and future prospects are not very positive. On the other hand, other traffic, such as Central European exports to the rest of the world and the import of Asian vehicles (especially electric ones) for which Barcelona is well positioned, look more promising.

The Port is located on the periphery of Europe, away from the nerve centre of the European economy in the Ruhr Valley. **However, it is well located with respect to large foreign trade generating centres, such as Madrid, Bordeaux, Lyon and Algiers, about 600 km away, and Paris, Milan, Zurich and Tangier, about 1,000 km away.** Operators in these areas already sporadically use container services, car-carriers and ferries from Barcelona to route foreign trade by sea, competing with ports located at similar distances. The Port enjoys a suitable geographical position for connecting North Africa with the Central European markets since it is located at the ideal sea and land distance to act as a bridge between both regions.

Barcelona is one of the many crossing points on the main Europe-Far East foreign trade route therefore, despite the distance to the heart of Europe, it is well located to serve Central European markets. Operators can make port calls in the northern Mediterranean rather than those of the Atlantic coast to access Central European markets. **This can save a whole week of sailing for shipping lines with a similar number of intermediate stops.** However, the Port of Barcelona is still not widely used by Central European operators and customers because of commercial, infrastructural and operational barriers. The Port is also a long way from the main Mediterranean shipping line that connects its two ends, the Suez Canal and Gibraltar, making it unattractive for pure transshipment operations.

The proximity of France and easy access to this market, and that of Italy and North Africa by sea and land from Barcelona, has positioned the city as an ideal location for large operators and distributors to set up multi-country distribution centres.

Such operators take advantage of its geographical location, intense sea, land and air connectivity and Barcelona's logistics ecosystem to set up warehouses that serve the Peninsula and often the whole of southern Europe.

Europe's general cargo maritime foreign trade seems to have peaked and it is unlikely that it will again experience growth like that experienced since the 1980s. In Spain, there is no expectation of a repeat in the increase in exports of recent years, especially in the eastern quadrant of the Iberian Peninsula. There are still segments with high growth potential, such as agri-food, renewable energy equipment, electric mobility and pharmaceuticals, but their volumes will hardly compensate for falls or stagnation in other sectors. And neither is the growth of e-commerce likely to lead to a substantial increase in maritime traffic either.

The main unknown factor in relation to the development of European maritime foreign trade is the possible impact of the future growth of trade in goods by the dynamic economies of Africa and Southeast Asia and the Indian subcontinent. If Europe can become the principal partner in these regions, it will be able to compensate for the foreseeable fall or stagnation of trade with the rest of the world.

In these regions —China, Africa, the Indian subcontinent and Southeast Asia— the positioning of the Mediterranean ports is ideal for capturing exchanges generated with the European continent in both the south-north and east-west directions. The possibility for Barcelona to attract these potential traffics depends on multiple factors, mentioned above (flexibility, agility, cost, etc.) and on the efficient development of intermodal connections with central Europe (trains) and North and West Africa (Motorways of the Sea) and also with the Eastern Mediterranean.

Ferry passengers and Motorways of the Sea for trucks and semi-trailers: The port's baseline freight derived from the movement of passengers of ro-pax services between Spain and Italy and also between Barcelona and North Africa, thanks to tourism and crossings through the Straits of Gibraltar, is an ideal starting point for developing services aimed at ro-ro freight transport. Ro-ro traffic with Italy has taken about a million trucks off European roads in the last decade. The development of new services to countries in the Eastern Mediterranean, such as Turkey, and North Africa, combined with connectivity to central Europe could attract similar volumes in the future.

The agri-food sector: The port serves a metropolitan conurbation of over five million people. It is next to Mercabarna, one of the largest fresh produce markets in southern Europe, and is very well connected with Mercazaragoza and the Saint Charles fruit and vegetable market in Perpignan. The regions of its closest hinterland —Catalonia, Aragon, La Rioja and Navarre— are major producers and exporters of food products, such as meat, fruit, vegetables, preserves and wine. These regions are home to a vigorous agri-food industry that also requires inputs in the form of cereals and other raw materials to manufacture products for human consumption and for animal feed.

The prospects for the agri-food industry, soybean milling, transport of cereals and refrigerated finished food products are positive.

Dry bulk: Apart from bulks for the food and feed industry, the port's dry bulk market is complemented by other traffic segments, two of which are very important. These are potash, extracted principally from the mines in the interior of Catalonia, in Súria, and the steel products of the factories of the industrial cluster of Castellbisbal/Abrera/Martorell. Traffic in dry bulk may soon undergo substantial changes in these and other segments, such as cement and clinker and new minerals dedicated to the energy transition and electronics.

Liquid bulk: This traffic is dominated by chemicals on the one hand, and hydrocarbons, natural gas and petroleum products on the other. Since the new mooring area for supertankers was opened in 2015, traffic in petroleum products in the port has grown significantly thanks, above all, to blending and transfer to other destinations in the Mediterranean, Africa and the Americas.

This increased traffic has caused considerable congestion in the internal moorings in the so-called Energy Channel, which hinder the operation and management of hydrocarbons and chemical traffics. This congestion even jeopardises the safety of certain operations. Here, the construction of the new moorings 34C, 34D and 34E, provided for in the Action Plan, would resolve this problem satisfactorily.

No significant new traffic associated with clean alternatives to fossil fuels is expected in the short term, since the state of research in this area is still incipient and no major breakthroughs are expected beyond 2030. However, the port's need to lead the energy transition in Barcelona obliges us to take an active part in pilot and research projects on alternative fuels such as hydrogen, ammonia, and others.

Like fossil fuels, the traditional chemical sector does not have very favourable medium-term prospects, but there is a wide range of current and future chemicals associated with the energy transition with good prospects for the future.

Advanced logistics services: The Logistics Activities Area (ZAL Port) is in very good health, with 97% of the land occupied and a total 920,000 m2 of warehouses built in 2021, on completion of the last two projects under construction, one of which is the new Decathlon warehouse covering an area of 95,616 m2. However, Barcelona suffers from a structural lack of logistics land. Prospects in this sector are also encouraging. The growing need for warehouses providing more surface area and height due to the increase in e-commerce means the ZAL Port remains one of the most attractive storage and logistics areas in Europe. The current lack of logistics land in the first and second belts of Barcelona limits the metropolitan area's capacity to attract this type of warehouses. It is therefore urgent to prepare new land for development, firstly in the port and metropolitan area and secondly in locations with sufficient intermodal connections to the port such as Tarragona, Lleida and Zaragoza. In addition to the traditional competition from the central Peninsula area as a location for multi-country distribution centres, Mediterranean ports in the Iberian Peninsula and the south of France have also recently begun to compete with Barcelona.

Cruises: Barcelona has become the European leader in cruise traffic thanks to its good terminals, the availability of berthing lines for large ships, an airport with good international connectivity and the tourist attraction of Barcelona, which are all factors difficult to find elsewhere in the Western Mediterranean.

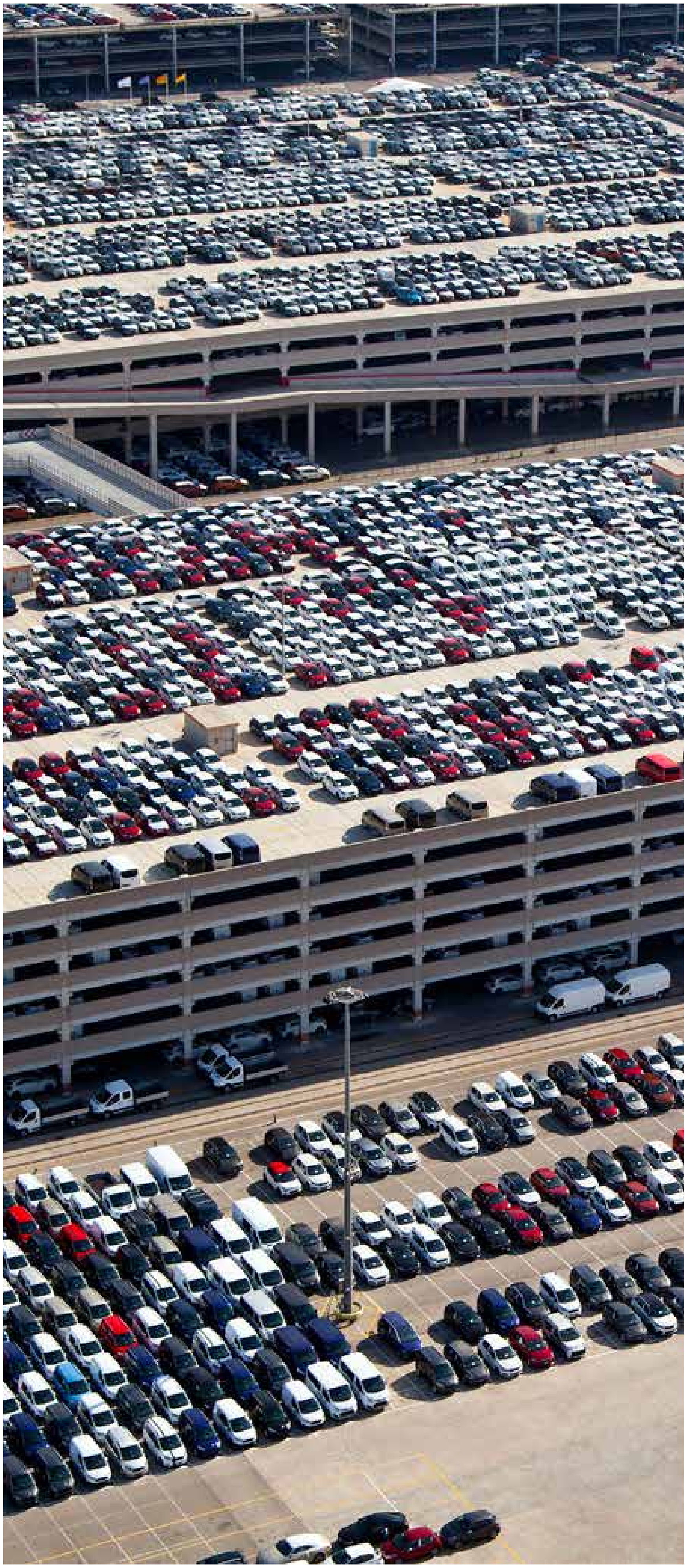
However, the increase in the size of the cruise ships and the additional security requirements implicit in Barcelona's leading position, further highlighted by the COVID-19 crisis, are pushing port terminals to make further efforts to adapt. For example, there is a need to further segregate cruises and freight management.

Barcelona is today the European and Mediterranean capital of home port cruises, which means that many passengers begin and end their journeys there. These cruise passengers in turnaround represent more than half of the total that passed through the port in 2019. Unlike transit traffic, this factor generates a very diversified employment situation. More than 9,000 people work directly for the cruise industry, many of them in sectors other than tourism, such as music, food, technology and ship repairs. This is a sector that generates very positive synergies with Barcelona airport. The cruise industry was also one of the first in the sector to adopt stricter environmental protocols and is working hard to find solutions that limit the impact of its activity on air and water quality and climate change. The COVID-19 crisis has heavily impacted the sector. Once the pandemic is over, we expect to return to activity levels similar to the pre-crisis period within two to three years.

The nautical, leisure and catering cluster: The northern end of the port hosts a very diverse series of activities and facilities focused on the citizens of Barcelona, tourism and the nautical industry. This sector has enjoyed remarkable growth in recent years, positioning Barcelona as one of the nautical capitals of the Mediterranean and has generated a lot of qualified and diversified jobs. The Port Vell is also increasingly home to leisure and recreational activities aimed at the residents of Barcelona, such as the *Saló Nàutic* international boat show, the Christmas Fair and music festivals in a unique setting by the sea. It is also home to a benchmark innovation hub called Pier 01 comprising over 100 companies and start-ups.

Passenger activity and leisure and catering activities in the Port Vell have been severely affected by the COVID-19 crisis. However, most experts agree that once the pandemic is fully overcome worldwide, these activities will gradually enjoy growth levels similar to those experienced before the crisis hit. This is assuming the COVID-19 crisis will not extend beyond 2021. Otherwise, nautical, tourist, catering and leisure activities could take a long time to recover from the severe economic stagnation caused by prolonged restrictions on activity and mobility. If the pandemic can be overcome in Europe and globally in 2021 and there are no new global or regional health crises in the short term, the cruise, tourism, leisure and leisure sector in Barcelona should regain its pre-crisis levels in two to three years. In these growing market sectors, competition from other logistics and port hubs currently developing new facilities and services should not hold Barcelona back from recovering its activity.

The new activities: In the coming decades, European ports will suffer from stagnation of some traditional traffic and will therefore have to diversify their activity more profoundly. Those who manage to position themselves as an international benchmark in innovation, research and training in sectors experiencing growth, particularly those related to e-commerce, electric mobility, telecommunications, the nautical industry, circular economy, advanced logistics and energy transition, will stand out from the rest.



For the last 25 years, customer orientation has been a clear commitment from the Port of Barcelona, which has striven to adapt to its customers' needs for transparency, information, traceability of goods, speed, price, and more recently reducing the carbon footprint of its logistics chains.

The role and bargaining power that our customers are acquiring in the whole of the logistics chains has also been changing.

Shipowners: the growing bargaining power of shipowners is notable in the commercial port area, with reduced margins leading them to exert enormous pressure on their land suppliers, ports and terminals. Their larger ships force them to builder broader alliances, and there are fewer players in need of profitable operations at sea (ships) and land (dedicated terminals). In addition to the horizontal concentration among shipowners, there is also a certain verticalization (a single company offering all the services from shipping to final distribution), as many shipowners, especially in the Peninsula, have their own maritime terminals, intermodal terminals, and have even created or acquired rail and logistics operators. More frequent changes occur in the rotation of shipping lines, which immediately alters the competitive position of some ports and terminals compared to others.

Concentration and verticalisation is especially intense in the container and cruise segments.

Shippers: as a result of the process mentioned above, there is fierce competition between shipping agents, logistics operators and even shippers in the land section and in distribution. In recent years, large companies, particularly in the retail and automotive sectors, have recovered and exercised a great deal of power in relation to maritime agents and logistical operators when deciding where to route their commodities through the various ports.

Logistics operators: logistics operators have also grown and more global players are absorbing local small businesses traditionally linked to Catalan and Spanish small and medium-sized enterprises.

In the other two main business segments of the port, nautical and leisure on the one hand, and storage real estate and advanced logistics services on the other, the situation is substantially different. The customer base is clearly differentiated. In these segments, it would be hard for customers to find an offer of services like that of Barcelona anywhere else in the Mediterranean area.

COMPETITION (AND COLLABORATION)

Ports are slowly turning into commodities. Port offers are being matched and are therefore relatively easily interchangeable, especially as demand moves further inland away from the sea. The attributes that set Barcelona apart from the competition are above all the powerful nearby market, which offers large volume to generate economies of scale and is concentrated in Barcelona, Catalonia and Aragon; the ability to serve various markets due to its proximity to the French border, Italy and North Africa, which makes it very attractive from a storage and logistics point of view; and the ecosystem of local and international logistics infrastructures and operators that offer diversified and specialised services to the industrial sectors with the most value-added.

The port offer in Spain and the rest of the Mediterranean is growing. New ports and terminals are emerging to serve traffic for which there were previously only one or two port offerings in a subregion and which now have more alternatives. This therefore increases the bargaining power of customers (shipowners, logistics operators and shippers), reduces the margins of suppliers (terminals and ports) and increases competition.

Port terminals also belong to large global groups. The competitive positioning of ports and the negotiations between the terminals and their customers (especially shipowners) are part of overall negotiations in which the Barcelona business unit can be promoted or sacrificed for reasons beyond the competitiveness and efficiency of the Barcelona terminal. This port terminal operator sector has also seen falling margins in recent years, coupled with the fact that managing terminals no longer offers the profitability that it used to.

In the container segment in Spain, the main terminal operators and maritime agents, which manage more traffic in Spain and have more power over the routing of goods, have more interests outside Barcelona. This factor has become more accentuated in recent years, reducing the importance of Barcelona in decision-making processes. New partnerships are needed to reverse this situation with different partners or others that can complement the current ones. This is especially critical in the container segment but can also be applied to other sectors such as car terminals and some bulk terminals.

Faced with increased competition and the trend towards increasingly similar offers, any port wishing to be chosen by customers, **must present a value proposition that is clearly differentiated and more efficient than the competition and must therefore constantly innovate ahead of the rest.** It must be the first to innovate and apply.

Port offerings are all becoming the same because they are all moving towards digitalisation, automation and environmental sustainability. This needs to be done faster, with constant innovation to avoid becoming an easily interchangeable product. Diversifying means not depending too much on one single line of business. As large ports simultaneously shift in the same direction, it is essential to establish partnerships to optimise increasingly scarce public resources in certain projects (environmental, technological, operational) and to avoid additional costs for customers that can compromise their competitiveness by having to use different systems to do similar things in two ports.

It is therefore vital to learn to combine competition between port offers with cooperation where possible, which can be expressed as *co-opetition*. This should help to avoid duplicating efforts and prevent the creation of oversupply and overcapacity. In this connection, traffic and services should be distributed according to the characteristics and aptitudes of each one, with cooperation to create tools such as digitalisation and the environment. In certain areas, cooperation is possible in the management and growth of traffic between competing ports, as has been shown in the area of cruises and intermodal terminals.

Cooperation can also be extended along an entire seaboard. For example, promoting the north-western Mediterranean seaboard as an access route to the Central European market as opposed to the Atlantic; or cooperation among all European Mediterranean ports to improve EU and national (Member State) legislation and operations applicable to maritime services with third countries in the Maghreb. Cooperation at national, regional and global levels is essential in areas like the environment and security.

02.02 TRENDS

TRENDS IN ENVIRONMENT AND ENERGY

This group of trends derives mainly from the **fight against climate change**, which in the medium term will lead to a fundamental transformation of some of the main European economic sectors that generate maritime cargo, in particular hydrocarbons, the automotive industry, others related to mobility and, subsequently, the chemical process industry. By contrast, other sectors such as electric mobility and renewable energies enjoy favourable prospects.

The energy transition in Europe is leading us to an economy based on a **more sustainable energy mix**, renewable energy sources, the expansion of electrification to new sectors and a gradual decline of the oil-related industry.

TRENDS IN SOCIETY AND CONSUMPTION

These trends in Europe point to a lower demand for goods as a result of the **servitisation of the economy** (consumption of more virtual and fewer physical goods), miniaturisation, demographic stagnation, new work and leisure models for future generations, a greater awareness of the negative impact of human activity on the sustainability of the planet and the search for local products, especially agri-food.

The nautical, leisure and storage/logistics real estate sectors (the latter as a result of the growth of e-commerce) enjoy favourable prospects.

MACROECONOMIC AND GEOPOLITICAL TRENDS

In the coming years we are expecting to see a **stagnation of Western economies** and their foreign trade as a result of de-industrialisation, the ageing and stagnation of the population, difficulties in leading the transition towards a sustainable economy and challenges in progressing towards European construction. All of this against an uncertain geopolitical context, which will consolidate **the Far East as a global economic and political centre.**

Europe will have to try to take advantage of **the expected increase in trade with markets with high demographic potential, such as Africa, Southeast Asia and the Indian subcontinent**, which currently enjoy privileged relations with the great dominant power of international trade, China.

The latitude of international trade will drop as a result of increasing South-South relations, which could lead Europe to be a more peripheral region.

LOGISTICS CHAIN TRENDS

New technologies and electronic platforms (Blockchain, IoT, etc.) and the digitalisation of logistics chains are pushing down transport and port costs and may favour a slight increase in European maritime trade. E-commerce will become predominant.

The emergence of new production models, from **3D printing** to robotisation, will reduce international trade in finished products while possibly fostering the relocation of certain productive sectors. In a context of greater environmental awareness, there will be an increase in the **circularity of supply chains.**

Ports will see a notable **increase in the autonomous transport of goods** (trucks, boats, trains, etc.) and will have to adapt their infrastructures for autonomous driving.

TRENDS IN THE MARITIME AND PORT SECTOR

The various trends analysed under this heading will not significantly impact the volume of European port traffic, although they will alter the competitive landscape among different ports. Those who move away from the "commoditisation" of the infrastructure as a result of the convergence between the various port offers due to the **generalisation of automation and digitalisation**, leading the implementation of innovative and flexible services, will better protect their market shares. The systemic overcapacity in the Mediterranean, on display since the 2008 crisis, has been exacerbated by the COVID-19 crisis, which will lead to increased competition between ports, alliances, port terminals and intermodal terminals. This competition and the growing concentration of operators and verticalisation will alter the competitive landscape.

The sector will need to move towards more sustainable operating models based on electrifying docks and the use of cleaner fuels to help cut greenhouse gas (GHG) emissions.

Finally, people living near ports will continue to exert increasing pressure on port activity, demanding a reduction in negative externalities and enhanced positive impacts.

TRENDS CAUSED BY COVID-19

The COVID-19 crisis will act as an accelerator of many of the trends identified previously. On the one hand, there will be faster growth of e-commerce and the digitalisation of supply chains. On the other hand, sectors that were already facing significant challenges, such as hydrocarbons and the automotive industry, can accelerate their transformation. The pandemic will give new impetus to the development of personal electric mobility and renewable energies. The leisure and passenger transport sectors (ferries and cruises), which are greatly affected, will take two or three years to recover their pre-crisis activity levels, as long as the health situation does not worsen again in 2021.
In the medium and long term (2030–2040), however, no changes are expected in the positive evolution of the sector in recent years. The rapid penetration of telework due to COVID-19 will help change the daily mobility of people and reduce car use and hydrocarbon consumption, which are to significant traffic segments at European level, and will change certain consumption habits.

The following table sets out the main trends in the various areas that affect the future evolution of the port and assesses their potential impact on Barcelona's port and planning activity in 2025 and 2040.

Trends		Impact	
		2025	2040
Environment and energy	Climate change	High	High
	More sustainable energy mix	Low	High
	Increased electric mobility	Low	High
	Increased production of chemicals with renewable energies	Low	Moderate
Society and consumption	Servitisation of the economy	Low	High
	Local products	?	?
	Post-work society	?	?
	Increased tourism	?	High
Macroeconomics and geopolitics	Slow growth/stagnation of Western economies	High	High
	Consolidation of the Far East as a global economic and political centre	High	High
	Strong growth in emerging markets: Africa/Southeast Asia/Indian subcontinent	High	High
	Growth of nationalism, populism and protectionism	Moderate	?
	Urbanisation and world population growth (exceptions: Europe, Japan and China)	High	High
	Growth of the Blue Economy	High	High
Logistics chain	Digitalisation of supply chains	High	High
	Growth of e-commerce	High	High
	Increased circularity of supply chains	Low	Moderate
	Manufacture using 3D printers	Low	High
	Increase in the autonomous transport of goods	Low	High
Maritime and port sector	Moderate increase in ship size	High	Moderate
	Concentration of operators and shipping companies	High	High
	New transport routes	Low	High
	Terminal automation	Moderate	Moderate
	Digitalisation of processes and operations	High	High
	Containerisation	Low	Low
	More sustainable ship fuel mix	Low	High
	Increased awareness by stakeholders and public of port activity effects	High	High
	More competition between ports, alliances and port & intermodal terminals	High	High
COVID-19	Traffic contraction and margin reduction	High	Low

Impact on port planning and activity

● (purple)	● (orange)	● (green)	?
High	Moderate	Low	Unknown

The potential impact of this group of trends on the port sector and on the Port of Barcelona in 2025 is summarised in the following table.

Activity	Segment	Relevance	Volume 2019	Forecast	Risk
Cargo traffic	Import / Export		1.9 MTEU	→	Moderate
	Transshipment		1.4 MTEU	↘	High
	Vehicles		780 kU	↘	High
	Ro-Ro		410 kUTI	↗	Low
	Agricultural Bulk		2.0 Mt	↗	Low
	Ore		2.0 Mt	↗	Low
	Liquid		16.1 Mt	→	Moderate
Passengers	Passengers		Cruise ships: 3.1 M pax Ferry: 1.6 M pax	→	Moderate
Logistics real estate	Logistics		910,000 m² warehouses & 9,000 jobs (ZAL)	↗	Low
Leisure and sailing	Leisure and sailing		1.075 billion turnover & > 10,000 jobs	↗	Low
New activities	3D, urban distribution, power generation, IT services			→	Moderate
Other	Industry		150,000 m² & 190 jobs	→	Moderate
	Port and other services		293,000 m²	↗	Low

02.03 SWOT ANALYSIS

The SWOT presents the strengths and weaknesses of the Port of Barcelona (internal analysis) and the threats and opportunities (external analysis). The lines of action identified and developed in the Action Plan must correct existing weaknesses, minimise threats, boost strengths and seize opportunities.

	Internal origin	External origin
	WEAKNESSES	**THREATS**
Weak points	W1 Limited operational capacity of some port facilities	T1 Difficult and uncertain post-COVID-19 recovery
	W2 Lack of management autonomy of the APB	T2 Frequent global disruptions with a strong impact on port activity
	W3 Service offer not well adapted to the enlarged hinterland	T3 Lack of logistics land in the first and second metropolitan belt
	W4 Difficulty in attracting and retaining talent	T4 Uncertain development of critical traffic demand
	W5 Gradual loss of decision-making centres of key maritime operators	T5 Difficulties increasing port rail volumes in containers and cars
		T6 Increased competition
		T7 Increased complexity of port-city relations
		T8 Alternative routes and means of transport
Strong points	S1 Diversification of port activity	O1 Strong and diversified demand
	S2 High standards of competitiveness and service in certain strategic traffic segments	O2 Barcelona's logistics ecosystem
	S3 Technological and innovative potential	O3 Sustainability as a critical factor for competitiveness
	S4 Port Network	O4 Expected growth in global foreign trade (Asia and Africa)
	S5 International positioning of the Port of Barcelona	O5 A logistics infrastructures hub unique in the Mediterranean
		O6 Attraction of the city of Barcelona
		O7 Improved railway infrastructure
	STRENGTHS	**OPPORTUNITIES**

02.04 CONCLUSIONS OF THE STRATEGIC ANALYSIS

The strategic analysis defines a very different scenario to the one we have experienced in recent years. We are facing an unprecedented challenge at the Port of Barcelona: market developments are leading us to a stage in which some of the traffic segments that have driven the growth of port activity in recent years (containers, bulk petroleum liquids, domestic new vehicles) have stagnated and, in some cases, are even endangered. While the maritime traffic linked to these products will continue to grow overall, this will occur mainly in other latitudes and it is not clear whether they will continue to increase in the north-western Mediterranean. This situation is in contrast with an increase in port supply, which is even higher than we have experienced so far.

If we accept that the growth we have enjoyed in previous decades will not be repeated in the near future, we need to roll out a strategy that is both: defensive, to protect at-risk traffic segments; and aggressive, to benefit from growth in segments (mass distribution, Motorways of the Sea, passengers, dry food bulk and potash, etc.) which are more promising despite the uncertainties generated by COVID-19. The success of the dual strategy depends on the provision of new infrastructures and efficient services that contribute to the competitiveness of port customers.

The defensive strategy will involve a significant economic and commercial effort.

First, services, and especially the existing infrastructures, will need to be adapted to the needs of the new market, characterised by the concentration of operations (both at business level through alliances between shipping companies, and at the physical level, with increasingly large megavessels with greater operational demands, such as draught and productivity), overcoming the limitations and obsolescence of certain port facilities, as shown by the SWOT analysis.

New infrastructures will need to be built and others moved to more suitable new locations. This need is especially urgent in the containers, cruises and liquid bulk areas.

Examples of this investment effort can be found in the new liquid bulk moorings planned at Wharf 34, which aim to compensate for the current obsolescence of alignment 32; the construction of the future new terminal on Catalunya wharf and the new terminals planned for cruises. In all three cases, the new infrastructure is crucial, not for generating additional capacity, but to solve very significant operational problems, which even endanger the safety of certain operations and substantially reduce the negative externalities (especially environmental) of port activity.

Secondly, commercial efforts must be stepped up to maintain the Port of Barcelona's position in the markets in which it has thrived thus far, especially the north-east Iberian Peninsula. In this connection, we must retain the current large operators, attract logistics activity to our area and seek new traffic niches beyond our comfort hinterland. It is also essential to establish the appropriate discounts.

As will be seen in the Action Plan of the Strategic Plan, these are defensive measures aimed at increasing the competitiveness of our services, minimising the impact of economic and demographic stagnation in our surrounding area and ensuring the efficient operation of our services.

For the more promising traffic segments (such as certain dry bulks, mass distribution, Motorways of the Sea, passengers, etc.) this growth will need to be supported by appropriate spaces and operations. The new location for potash traffic or the future enlargement of the area dedicated to ferries and short-distance transport are one example of this.

The same applies to advanced logistics activity (ZAL) and the nautical cluster, two growing sectors that need to be provided the appropriate facilities and services to maintain the leadership that Barcelona enjoys in the Mediterranean. Both of these areas guarantee the necessary diversification of port activity, which is essential for generating quality employment and resilience to crises such as COVID-19.

As will be seen later in the Action Plan, the analysis made also shows that these defensive and aggressive market-oriented strategies must be accompanied by a series of cross-cutting lines of action focused on sustainability and digitalisation of operations.

FIRSTLY,

to promote sustainability as a driver of port development, in its three aspects: economic, environmental and social. This trend, which is the most global of all those identified, affects not only port traffic but all human activity. On the one hand, the port must promote the creation of added value to its surrounding area and support for the competitiveness of our hinterland, whilst on the other hand support the energy transition, decarbonisation, the reduction of pollutant emissions and the circular economy, helping to create quality jobs, equality, non-discrimination and the development of talent in innovation.

SECONDLY,

to promote the diversification of our activity, one of our main strengths and opportunities, as the principal means to cope with the growing number of disruptions that will occur and the uncertainty of the future, of which COVID-19 is just one example. This diversification involves a commitment to maintaining and enhancing the diversity of traffic and revenue that characterises our port, but also entering new business models that have so far remained on the sidelines of port activity, such as energy production and management, innovation or the development of logistics activity, even beyond the port services area. And to foster the logistics activities area, the nautical cluster and, in general, the entire Port Vell ecosystem.

In this connection, the traffic segments on which Barcelona must focus, in accordance with the analysis carried out and with the logistical ecosystem of our environment, are, in this order:

- Imports and exports of general cargo
- Intermodal traffic
- Passengers
- Imports and exports of liquid and dry bulks
- Transshipment
- Other cargo

THIRDLY,

the need for greater port-city interaction, by developing value-added activities to strengthen the relationship between Barcelona and the sea and the shift, over time, of more industrial activity further southwards, better equipping the northern part of the port for uses more compatible with the metropolis.

AND FOURTHLY,

to promote the digitalisation of all port activity to provide a better and more personalised service to port customers and the entire logistics chain in general and to differentiate our offer from the competition.


Trans
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03

THE STRATEGIC PROPOSAL

03.01 MISSION

The mission of the Port of Barcelona, its raison d'être, has remained almost unchanged in the three strategic plans that have governed the Port's action in recent decades (1998–2020).

"To contribute to the competitiveness of customers by providing efficient services responding to their needs for maritime transport, land transport and logistics services"

The Fourth Strategic Plan, while maintaining its essence, includes two substantial changes:

– It incorporates sustainability in its three aspects (environmental, social and economic) into the very heart of the mission. It is no longer simply one attribute among its principles of action.

– It defines that the ultimate aim of the port is to create well-being for the community of people that make it up and that holds it, by performing the classic and modern functions of a logistics port or hub.

The new mission of the Port is:

TO GENERATE PROSPERITY IN OUR COMMUNITY, INCREASING THE COMPETITIVENESS OF OUR CUSTOMERS BY PROVIDING EFFICIENT AND SUSTAINABLE LOGISTICS AND TRANSPORT SERVICES.

The mission of the Port of Barcelona, which applies to the commercial, logistics and external port, is complemented by the specific mission of the Port Vell, which emerged from the overall mission adapting it to the particularities of the area closest to and integrated into the city of Barcelona in the northern end of the port.

"The Port Vell's mission is to lay the foundations for bringing the port closer to the city by proposing projects that combine with the involvement of economic and social agents, citizens and institutions to consolidate a friendly, sustainable and cohesive area".

03.02 VISION

Our vision establishes what we want to become in the future, staying true to our mission and prioritising between different alternatives. It is an aspirational target in the medium and long term and not a partial, quantitative or short-term goal.

This Strategic Plan goes beyond the vision of the Third Strategic Plan, which focused essentially on expanding the Port's market, to define a new vision aimed at providing the logistical-port ecosystem with a series of complementary and innovative attributes.

SMART LOGISTICS HUB

The SMARTest logistics hub in the MED

The vision involves consolidating the Port as a hub, a function that goes beyond the classic role of a port oriented exclusively to the sea, which must grow and consolidate itself as a multidisciplinary space where all means of transport converge regardless of the origin and destination of the goods. This involves being a port as well as a railway hub and mainland and European land transport node for all types of goods and a connection point between the sea and the airport for goods and people. The logistics hub function distinguishes it from transshipment ports and also from gateway ports for which goods simply pass from or to a remote location, to which high value-added logistics processes (container cargo breaking, picking, packaging, postponement) are then applied. In our case, these processes take place within the port itself (ZAL) or in the Barcelona logistics ecosystem, to be later distributed to final consumers.

This logistics hub will be characterised by five attributes that define the SMART concept. These are, in order of importance: Sustainable (in its three aspects), Multimodal (hub of all types of transport that must also include autonomous, intra-European trains, the rail motorway, drones and personal micro-distribution), Agile (flexible and fast), Resilient (ability to overcome disruptions and adapt to sudden changes and then quickly return to normal and efficient operation) and Transparent (towards customers and society).

S	M	A	R	T
Sustainable	Multimodal	Agile	Resilient	Transparent

This long-term vision is applicable to the commercial port, logistics port and outer port and requires an adaptation to the Port Vell area, which translates as follows:

"Being a port-city that develops in a sustainable way, which is culturally attractive, that permeates the maritime character of the city of Barcelona, a focal point for knowledge and talent in the nautical and maritime sector, a benchmark in innovation and clearly inclusive with all citizens and operators."

03.03 THE STRATEGIC POSITIONING

The General Strategic Objective

The Strategic Objective defines the main goal that the Port wants to achieve by the end of the period of validity of the Fourth Strategic Plan, in 2025. The milestone must be consistent with its long-term vision, to be a SMART Logistics hub, and it must also be quantifiable, measurable and allow for annual or biannual monitoring.

The Fourth Strategic Plan opts for a three-dimensional Strategic Objective, which responds to the three pillars of sustainability, which is the first attribute of the logistics hub of Barcelona: economic, environmental and social. It is an inseparable three-part whole, therefore achieving one of the parts without the other two cannot be considered a success. All three parts must be achieved simultaneously. It cannot grow economically without reducing the environmental footprint of port activity or without consolidating quality employment.

The Port's Strategic Objective is in line with the United Nations Sustainable Development Goals (SDGs). The SDGs focus on the same three components of sustainable development that underscore this strategic plan and the action plan for the next five years.

Achieving the strategic goal is a significant challenge in view of the stagnation of European foreign trade; the difficulty of enlarging the hinterland of the port in containers, finished vehicles and short sea shipping trucks; digitalisation and automation processes; and the critical situation in which many segments of activity will find themselves in the wake of the COVID-19 crisis.

THE GOAL CAN BE SUMMARISED IN THE FIGURES 70 / 50 / 40

Economic sustainability	Environmental sustainability	Social sustainability
€70 billion is foreign trade value	**50%** electrified container and ro-ro wharves	**40,000** people working at the Port
Foreign trade and cabotage (excluding transshipment) that is transported through the Port	Provisional network and consolidated OPS pilot connections or with electrification projects underway	Employees who work there physically, on a daily or regular basis
The increase in the value of foreign trade managed in the Port is a significant (although not definitive) indicator of the success of the Logistics-Port Community of Barcelona in terms of provision of efficient, competitive and high value-added logistics and transport services. *At the end of the first quarter of each year, the value of the foreign trade carried by the Port (excluding transshipment) is calculated on the basis of data from Customs and the Port Authority itself.*	Progress in electrifying the terminals to allow ships to connect to the electrical grid during while berthed at the Port is the main measure, according to the indications of all organisations and experts, for reducing the impact of port activity on climate change and pollution. *Electrical infrastructure works will be monitored annually. Additionally, once it is possible to connect ships electrically, even with a temporary installation, the number of annual connections will be monitored.*	The recovery and slight increase in pre-COVID-19 employment is vital despite the intense processes of digitalisation and teleworking. Quality employment on port land is the main benefit the Port brings to the community that hosts it and compensates for its negative externalities and the physical and mental barrier involved in the fact that it lies in a privileged location for citizens. *An annual ad hoc study will be performed, following the methodology used for the 2019 study, to obtain the number of workers on port land, using Barcelona Port Authority's own sources of information (passes and permits) and personalised interviews.*

What the Port of Barcelona must avoid if it wishes to achieve this goal

↓

Aiming to measure its success solely by the traditional parameters of port activity (tonnes and boxes), which are not representative indicators of value and prosperity creation.

↓

Aiming to grow its traffic regardless rather than doing this in strategic and high value-added traffic segments that generate prosperity and skilled jobs in its surrounding area (see conclusions of the strategic analysis). Traffic growth is still needed in some segments to provide the necessary connectivity and sufficient volumes to generate economies of scale that reduce the cost of services without compromising sustainability, agility and resilience.

↓

Aiming to concentrate its efforts on one single activity instead of trying to increase its diversification and host new logistical and nautical activities that go beyond the traditional loading and unloading activity.

↓

Aiming to be only a maritime hub or only a transport hub.

↓

Aiming to grow with new infrastructure by adding capacity to the existing loading and unloading infrastructure, except in high-value market niches or those with good growth prospects. The new infrastructure planned in liquid bulks, containers, cars and cruises is oriented towards improving the efficiency and environmental sustainability of operations.

↓

Isolating itself from the city of Barcelona when it should further enhance its permeability and integration into the metropolitan urban fabric.

BARCELONA AS A VALUE

Barcelona is a recognised international brand in itself and is one of the most desirable cities in Europe for attracting international investments, according to publications such as the *Financial Times* FDI and the *Savills Report* “European Port Logistics: Where next to invest?”, which ranked it as the second most attractive port location to invest in Europe after Rotterdam in its February 2020 report.

Barcelona is a conurbation of about five million inhabitants within a radius of approximately fifty kilometres around the Port. It is the sixth or seventh largest metropolitan area in Europe and is therefore the Mediterranean coastal city with the largest immediate consumer market, apart from Istanbul and Alexandria, in the Eastern Mediterranean.

Its image has recently been eroded by political and economic crises, although it continues to enjoy a positive assessment among European and international business and social leaders. This is because Barcelona’s value proposition is an excellent group of attributes that do not depend on short-term political and economic situations. However, these factors can be substantially eroded by prolonged periods of economic and political instability.

Barcelona is recognised internationally as a medium-sized city suitable for business, an entrepreneurial city with a multicultural and well-trained labour market, technologically advanced, well-connected and very liveable. These are the main factors that distinguish it from some of its main competitors.

Barcelona is a unique logistics hub in the Mediterranean and southern Europe thanks to four complementary attributes that combine to make up a unique logistics offer in the region.

- **Industrial and mass distribution specialisation** in consolidated and emerging sectors (pharmaceuticals, chemicals, mobility, agri-food, e-commerce, mass distribution, fashion and automotive).

- **A diversified national and international logistics ecosystem** that provides a wide range of specialised high-value services to these economic and industrial sectors.

- **A concentration of infrastructures with high international connectivity** (port, airport and railway network in Iberian and standard gauge).

- **A regional marketing and distribution network** able to reach more than 200 million consumers in a dozen European and African countries in 24/48 hours, by train, boat, plane and truck.

THE PORT AS A VALUE

From a port-logistical point of view, the port's value proposition vis-à-vis customers and competition is specified in the following decalogue:

01 **Transport hub** (not only maritime). The Port is also witnessing an increase in rail and land traffic unconnected to the maritime world, which increases its role as a peninsular and intra-European rail hub. The Port also plays a key role as a communications node between the maritime and air sectors for goods and passengers. Its function as a peninsular and intra-European rail traffic hub for maritime and inland traffic will be strengthened with the new infrastructure planned in the riverbed and the progressive growth of intra-European rail traffic and with China as part of the Belt and Road Initiative (BRI).

02 **Logistics hub** providing high value-added logistics services to the hinterland and emerging sectors in Europe as a result of the transition to a sustainable and innovative economy. An integrated platform linking logistics supply and demand. No other port environment in the Mediterranean has a logistical offer of value-added services specialised by sectors, such as the automotive, fashion, chemical, pharmaceutical and agri-food sectors. In Barcelona's case, a significant part of these services are provided inside the port itself within the logistics activities area (ZAL).

03 **High diversification of port activity,** allowing better resistance to sectoral disruptions and systemic crises. Intense activity in all the main freight and passenger traffic segments, leading nautical cluster in Europe and prime logistics area in the Mediterranean

04 **A robust, dynamic and diversified hinterland** (north-east of the Iberian Peninsula that includes mainly Catalonia, Aragon, La Rioja, Navarre, Castille-Leon) for containers, cars, liquid and dry bulk, semi-trailers and passengers. This hinterland provides a stable volume of traffic that guarantees certain economies of scale and the financial sustainability of the concessions and Barcelona Port Authority.

05 **Possibility to lead the energy transition** of the logistics sector in Spain thanks to the reduced impact of the current externalities of port activity, the powerful port energy cluster and the presence of a regasification plant.

06 **Technologically advanced port** with modern port facilities and well-ordered territory with a clear segmentation of activities and traffic.

07 **Logistics-Port Community accustomed to adapting** to the changing requirements of demand and the economic evolution of the surrounding area.

08 **Productive technical-nautical services** (stowage, storage, mooring, piloting, towing).

09 **Capacity to serve a wide market** covering Spain, France, Portugal and Andorra with containers; Spain, France and Germany with cars; Spain, North Africa, Italy and Eastern Europe with trucks; cruise ship home port and hydrocarbons hub. Consolidated networked port and competitive, frequent and reliable intermodal connections.

10 **Barcelona as a consolidated base for world-class business groups or European market segments, such as ro-ro, nautical, cruising and leisure and hospitality.**

The principles of action

Diversification of port activity. Greater efforts are needed to acquire more port land for new activities compatible with the port's core business focused on logistics and sailing. The port's advanced diversification sets it apart in the Mediterranean and is an important factor of resilience in times of crisis and frequent disruptions.

Differentiation of supply through innovation. The loading and unloading, storage and transport services offered by ports are gradually levelling out, making ports easily interchangeable. The further we enter the territory, the easier it becomes to change the routing of goods. It is therefore necessary to differentiate the services offered by the port by increasing its competitive edge by permanently seeking to innovate. We should not be afraid of the trial and error method when it comes to start-ups, digital services and pilot tests in technological, environmental and logistics matters.

Since the offer of port freight traffic management services for the various segments is tending to level out in the medium term, any differentiation often becomes a temporary attribute. In the medium term, this edge is lost when the same innovations are adopted by competing ports. All terminals are tending towards the same standards of automation, robotisation, digitalisation, efficient data management and intermodality. Differentiation therefore means leading the way in adopting and implementing innovations, especially in technology and digitalisation.

However, in the medium term, differentiation is more lasting in the field of human capital.

A people-centred approach to innovation is required, and not just in technology.

The distinctive value of the ongoing technological processes that will soon be implemented will come mainly from the people managing and leading them. In this area, most academic and business studies highlight the greater capacity for innovation and adaptation to changes (and lack of resistance or opposition to them) of highly trained, multicultural gender-balanced teams with a significant presence of young people.

Customer orientation. This has been, is, and will continue to be one of the differentiating elements of the port and is the main factor permeating the mission and vision. Customers are understood in a broad sense: shipowners and maritime agents, logistics operators (3 and 4PL, freight forwarders, carriers, etc.) and shippers (exporters and importers) along with the community around us, essentially the citizens of Barcelona.

Collaboration. Considerable spirit of collaboration with all public and private entities with which the port is obliged to interact, especially with the two cities on whose land it lies, Barcelona and El Prat de Llobregat. It is vital to deepen the cooperation with the organisations lying near the port and especially with the Consortium of the Free Zone, Mercabarna and the Airport of Barcelona. We need to make the most of the synergies of these three entities to generate wealth and employment. Collaboration with other ports, both nearby (Tarragona first and foremost) and far away, and with logistics operators located outside the port precinct, comprising one of the main added values of Barcelona with respect to other port competences. Without forgetting training centres and research bodies.

Flexibility and adaptability to a market in constant transformation undergoing recurring disruptions. Being very attentive to the changes that occur and reacting quickly.

Autonomy of management. Barcelona Port Authority must take on the management of aspects that are key to its future competitiveness and direct the collaboration between the various players involved in these sectors. The management of energy, telecommunications and intermodality networks stands out above the rest, and as cross-cutting aspects to all of them and, to others, the promotion of innovation and training.

03.04 STRATEGIC AXES: THE SUSTAINABLE PORT

The main driver of the development of the Port for the next five years is sustainability, understood in its three dimensions: **economic, social and environmental**. This driver gives rise to three major strategic axes. Four strategic objectives have been defined for each one in addition to around fifty operational objectives and reference projects.

STRATEGIC AXES	STRATEGIC OBJECTIVES
Environmental sustainability: energy transition The Port must be a benchmark in Barcelona, the Mediterranean and the Iberian Peninsula in the energy transition. It must base its strategy in this area on decarbonising port activity by electrifying wharves, fostering the use of alternative clean fuels, increased energy efficiency and management and production of renewable energies.	– Develop a new energy model – Decarbonise maritime-port activity – Reduce pollution – Increase intermodality
Economic sustainability: competitiveness The Port must continue to create wealth for its surroundings while diversifying its activity, and in the area of the commercial port by providing services and infrastructures that can contribute to the competitiveness of its customers' supply chains to facilitate production activities, transport and consumption. That is why it is essential to increase the differentiation of the port's offer, constantly innovating and leading implementation. In an environment of increasingly similar offers, differentiation often lies in the rapid and cutting-edge implementation of innovations.	– Diversify the port business – Differentiate the offer of services – Attract logistics activity – Develop the necessary infrastructures
Social sustainability: human capital The Port must put people at the forefront, setting social cohesion as an essential objective of its strategy by generating high-quality diversified employment. It must orient its strategy towards the interests of two main groups: port workers and the citizens of the two host cities, Barcelona and El Prat del Llobregat.	– Foster training, employment, entrepreneurship and talent attraction – Promote equal opportunities – Integrate the Port into the urban and metropolitan environment – Ensure the health, safety and security of people and facilities

04

ACTION PLAN

01 Environmental sustainability: energy transition

02 Economic sustainability: competitiveness

03 Social sustainability: human capital

Set out below is the Action Plan of the Port of Barcelona Fourth Strategic Plan 2021–2025. To improve the structuring and subsequent monitoring of the Plan, the strategic and operational objectives have incorporated an acronym. The acronym is formed by the initials of Strategic Sustainability Objective (SSO), the initials of the pillar of sustainability to which it corresponds (EN = Environment / E = Economic / S = Social), followed by two figures: the first corresponds to the number of the strategic objective within each axis and the second to the numbering of the operational objective within each strategic objective.

Each operational objective has been assigned an additional categorisation that indicates its degree of priority (from low to very high), the difficulty of implementation (from very simple to maximum difficulty) and a time factor (short, medium and long term, depending on whether it is expected to be completed before 2025, 2030 or 2040).

ENVIRONMENTAL SUSTAINABILITY: ENERGY TRANSITION

Strategic objective			
SSOEN1	**Develop a new energy model** Lay the foundations for an in-depth transformation that will pivot on the electrification of the wharves, the progressive development of clean fuels, the generation of renewable energy within the Port and the establishment of a smart electricity grid.		
Operational objectives			**Reference project 2025**
SSOEN1.1	Master Plan for the Energy Transition of the Port of Barcelona	**Very high priority** Medium difficulty Short Term	Approval of the Master Plan for the Energy Transition of the Port of Barcelona during 2022
SSOEN1.2	Creation of an entity to manage the Port's energy network	**Very high priority** Medium difficulty Short term	Creation of an entity with its own legal personality to manage the Port's energy projects
SSOEN1.3	Renewable energy generation on port land	**Very high priority** Medium difficulty Long term	Creation of the renewable energy island for self-consumption on the Fishermen's wharf

Strategic objective			
SSOEN2	**Decarbonise maritime-port activity** Launch innovative initiatives to achieve a substantial reduction in GHG emissions from port activity. The most important action in this area is the electrification of the wharves.		
Operational objectives			**Reference project 2025**
SSOEN2.1	Electrification of wharves (OPS)	**Very high priority** Maximum difficulty Long term	Completed construction of the Cerdà-Port electrical substation and pilot calls for connection to the electrical network of container and ro-ro vessels consolidated and integrated as phase 0 in the Port's electrification project
SSOEN2.2	Promote the use of more sustainable fuels	**Very high priority** Maximum difficulty Long term	Carrying out at least one pilot test for the supply of a clean = zero carbon fuel
SSOEN2.3	Foster use of electrical vehicles and equipment inside the Port area	**Very high priority** Maximum difficulty Medium term	Launch of the nautical bus service to Nova Bocana and the maritime ferry between Espanya wharf and the Fishermen's wharf
SSOEN2.4	Promote efficiency and energy savings of APB buildings and Port concessions located in the Port area	High priority Medium difficulty Medium term	Approval of an efficiency and energy-saving protocol in the concessions and Port facilities
SSOEN2.5	Foster the circular economy in the Port area	High priority Medium difficulty Long term	Conceptualisation of the project to use the cold produced by the gasifier for conservation and freezing uses in cold logistics warehouses

Strategic objective			
SSOEN3	**Reduce pollution** Substantially reduce the pollutants generated by port activity, in particular emissions of NOX, PM2.5, PM10 and SOX.		
Operational objectives			**Reference project 2025**
SSOEN3.1	Increase calls of LNG-powered ships	High priority Medium difficulty Short Term	Permanent presence of an LNG supply barge in the Port
SSOEN3.2	Provide incentives for calls by the most sustainable vessels	High priority Low difficulty Short Term	Consolidation of an aggressive policy of rebates and discounts by the APB to reward port calls of non-fossil fuel powered ships
SSOEN3.3	Foster the sustainable mobility of all Port companies	High priority Low difficulty Short Term	Promoting the environmental vehicle quality assurance label issued by the Generalitat to all companies in the Logistics-Port Community
SSOEN3.4	Improve the quality of Port waters	High priority Low difficulty Short Term	Implementation of the ROM 5.1 tool on coastal water quality in port environments

Strategic objective			
SSOEN4	**Increase intermodality** Develop the necessary railway infrastructure and services to increase volumes of Port rail traffic with new continental, short-range, international and agri-food traffic. Promote motorways of the sea with Italy, the Maghreb and the Eastern Mediterranean.		
Operational objectives			**Reference project 2025**
SSOEN4.1	Complete digitalisation of rail mobility of containerised freight	High priority Medium difficulty Short Term	OCR in operation at a Port container terminal and an indoor intermodal terminal
SSOEN4.2	Launch a regular nearby intermodal rail shuttle	**Very high priority** Medium difficulty Short Term	Frequent container rail shuttle operating with a terminal in the Vallès or Penedès districts
SSOEN4.3	Develop regular rail services for agri-food dry bulks	High priority Medium difficulty Short Term	Regular rail service running several times a day for agri-food bulks with Aragon and/or Catalonia
SSOEN4.4	Build the East terminal, to replace the Morrot terminal, and the rail motorway terminal on the old Llobregat riverbed	**Very high priority** Maximum difficulty Medium term	Construction projects approved for the East and rail motorway terminals
SSOEN4.5	Start construction works of the new road and rail accesses in the southern area of the Port	**Very high priority** Maximum difficulty Short Term	Starting new rail and road accesses construction work
SSOEN4.6	Works to operate trains up to 750 metres long in the Barcelona-Zaragoza corridor	**Very high priority** Medium difficulty Short Term	Performing works in the ten planned sections
SSOEN4.7	Equip the main inland terminals with new facilities and services	High priority Medium difficulty Short Term	TMZ enlargement completed
SSOEN4.8	Foster motorways of the sea	**Very high priority** Medium difficulty Medium term	Consolidating a daily service aimed at the ro-ro transport of goods with Morocco

ECONOMIC SUSTAINABILITY: COMPETITIVENESS

Strategic objective			
SSOE1	**Diversify the Port business** Continue to further diversify port activity, which has yielded excellent results in terms of sustainability of the port business and generation of diverse and quality employment, incorporating new logistics and nautical activity and emerging sectors on port land.		
Operational objectives			**Reference project 2025**
SSOE1.1	Develop advanced logistics in Port territory	**Very high priority** Medium difficulty Medium term	Drafting the Development Plan of the Port Centric Logistics of Barcelona
SSOE1.2	Electrify the Port and generate renewable energy in Port territory	This objective is developed further in the chapter on environmental sustainability	
SSOE1.3	New knowledge, innovation and leisure services in the Port Vell	This objective is developed further in the chapter on social sustainability	
SSOE1.4	Promote the implementation of new automotive activities	High priority Medium difficulty Short Term	New concession for the automotive sector on Príncep d'Espanya wharf focused on international, intermodal, electric and shared mobility traffic
SSOE1.5	Develop the Port as a maritime, European and peninsular railway hub	High priority Medium difficulty Medium term	Increasing continental railway traffic that generates synergies with railway-port traffic

Strategic objective			
SSOE2	**Differentiate the offer of services** Constant innovation in all areas of logistics and port activity and leading implementation to avoid the "commoditisation" of port offers and set the logistics-port offer in Barcelona apart from the competition.		
Operational objectives			**Reference project 2025**
SSOE2.1	Automate processes and intensive use of artificial intelligence	High priority Medium difficulty Medium term	AI-based prototype for the management and provision of mobility services for people and passengers
SSOE2.2	Enhance the transparency of processes, data and information for customers and society	High priority Medium difficulty Short Term	New, more scalable, technological platform for Portic allowing safe development of the current critical services it hosts as well as new ones planned as a result of the digitalisation processes
SSOE2.3	Provide roads and water sheet with 5G wireless communications	High priority Medium difficulty Short Term	Roll-out of the 5G network throughout the port
SSOE2.4	Organise accesses and mobility	High priority Medium difficulty Medium term	First prototype of TWINPORT available
SSOE2.5	APB Telecommunications Plan	High priority Medium difficulty Short Term	Deploying the APB Telecommunications Plan

SSOE2.6	Make progress in organising and running rail activity	**Very high priority** Maximum difficulty Short Term	Implementing the Centralised Traffic Control (CTC)
SSOE2.7	Create a public-private entity to promote intermodal solutions	High priority Medium difficulty Short Term	Setting up the public-private entity Port Intermodal Solutions to promote short-range and international intermodal services
SSOE2.8	Foster autonomous goods transport	Medium priority Medium difficulty Long term	First totally autonomous circulation of a goods truck within the port area
SSOE2.9	Improve the competitiveness of Port / technical-nautical services	Medium priority Medium difficulty Short Term	Developing basin 35 for port/technical-nautical services

Strategic objective			
SSOE3	**Attract logistics activity** Launch value proposals differentiated by market segment according to the main production areas to attract logistics activity, leveraging the conditions of Barcelona to act as a multi-country distribution platform. Activate logistics land in the first metropolitan belt.		
Operational objectives			**Reference project 2025**
SSOE3.1	Define competitive and differential logistics offers	**Very high priority** Medium difficulty Short Term	Creating a permanent structure dedicated exclusively to attracting logistics and distribution projects led by the Port of Barcelona
SSOE3.2	Promote Barcelona internationally as a multi-country platform for emerging sectors	**Very high priority** Medium difficulty Short Term	Value propositions developed from five emerging sectors
SSOE3.3	Activate logistics land	**Very high priority** Maximum difficulty Short Term	Creating a new logistics park at Josep Tarradellas - Barcelona - El Prat airport, covering more than 100 hectares
SSOE3.4	Orient logistics land bordering on the Port towards maritime traffic	**Very high priority** Medium difficulty Short Term	Promoting the transformation of logistics assets bordering the Port into spaces designed for maritime and non-continental traffic

Strategic objective			
SSOE4	**Develop the necessary infrastructures** In accordance with the conclusions of the strategic analysis, eight essential infrastructure actions are still to be accomplished to be able to operate and guarantee the necessary conditions of safety, efficiency and sustainability. These actions involve the Energy wharf, container terminals, Port dredging, the old Llobregat riverbed and the Adossat wharf.		
Operational objectives			**Reference project 2025**
SSOE4.1	New Morrot - City Port	**Very high priority** Maximum difficulty Medium term	Drafting the Nou Morrot project
SSOE4.2	Enlarge and modernise the Adossat wharf	High priority Medium difficulty Medium term	Construction the wharf for a future ro--pax terminal on Adossat
SSOE4.3	Improve access to the Adossat wharf	**Very high priority** Medium difficulty Medium term	Drafting the construction project for doubling lanes on the Adossat bridge
SSOE4.4	Refurbish the Energy wharf	**Very high priority** Medium difficult Short Term	Construction three new moorings (34C, 34D and 34E)
SSOE4.5	Expand Prat Nord wharf	High priority Medium difficulty Medium term	Enlarging the wharf of alignment 36A on the north side
SSOE4.6	Concentrate container traffic in the enlargement area. Build Catalunya wharf	**Very high priority** Maximum difficulty Medium term	Designing the Prat dock - wharf 38 and complete automation of container operations
SSOE4.7	Modernise the facilities on Contradic wharf	High priority Medium difficulty Short Term	Permanent installations on Contradic wharf for loading trains with agri-food dry bulks
SSOE4.8	Dredge the bottom of the waters of new Port infrastructures	**Very high priority** Medium difficulty Short Term	Dredging the main channel of the South entrance mouth and the East seawall

Strategic objective			
SSOS1	**Foster training, employment, entrepreneurship and talent attraction** Promote the employability of people in our immediate surroundings, facilitate the creation of new companies through entrepreneurship and the development of an innovation ecosystem in the logistics and transport field to help attract talent and thus offset automation and digitalisation processes that involve a net destruction of jobs.		
Operational objectives			**Reference project 2025**
SSOS1.1	Create jobs in the Port sector by promoting the Blue Economy	**Very high priority** Medium difficulty Medium term	Bringing employment in the Port Vell area back up to pre-COVID-19 levels
SSOS1.2	Promote the development of quality sectoral training	**Very high priority** Medium difficulty Medium term	Creating the integrated logistics-port training centre as part of the knowledge, innovation and training hub at the Port of Barcelona
SSOS1.3	Promote R&D+I in all logistics-Port activity, generating a leading innovative ecosystem	**Very high priority** Maximum difficulty Medium term	Consolidating the holding of the Smart Ports congress in Barcelona as a leading event on the continent
SSOS1.4	Attract talent and generate knowledge	**Very high priority** Medium difficulty Medium term	New integrated innovation, knowledge and training centre on logistics, the Blue Economy and sailing with proprietary facilities in the vicinity of the New entrance mouth (Nova Bocana area)
SSOS1.5	Foster international cooperation and public-private partnerships	High priority Medium difficulty Medium term	Maintaining the Port's leadership in the WPCAP initiative (World Ports Climate Action Plan)

Strategic objective			
SSOS2	**Promote equal opportunities** Promote and lead gender equality and ensure the socio-occupational integration of people with disabilities and those at risk of social exclusion.		
Operational objectives			**Reference project 2025**
SSOS2.1	Actively promote gender equality within the Port	**Very high priority** Medium difficulty Medium term	Increasing the presence of women in the governing bodies of port associations
SSOS2.2	Ensure the socio-occupational integration of people with disabilities and those at risk of social exclusion	High priority Medium difficulty Medium term	Increasing the staff of the Cares Foundation, dedicated to projects developed with the Logistics-Port Community, by 50%
SSOS2.3	Provide truthful and transparent information on Port activity	High priority Low difficulty Short Term	Creating a Port Operating System: Port data and information services platform based on OpenAPIs (open and standardised application programming interfaces)

Strategic objective			
SSOS3	**Integrate the Port into the urban and metropolitan environment** Roll out actions to inform the public of the Port's knowledge and transparency and better integrate port facilities into the urban fabric.		
Operational objectives			**Reference project 2025**
SSOS3.1	Adapt the spaces of the Port Vell, and others, to the urban fabric and encourage Port Vell Management to rethink the governance model in this area	High priority Medium difficulty Short Term	Complete the refurbishment of Espanya wharf taking advantage of the demolition of the cinemas
SSOS3.2	Improve Port permeability and mobility with the metropolitan environment	High priority Medium difficulty Medium term	Generate more than 30 ha of green areas to connect the Baix Llobregat Agricultural Park to Montjuïc Park through green corridors
SSOS3.3	Promote Port culture and Port identity and foster knowledge of the Port among the populace	High priority Medium difficulty Short Term	Finish construction the Port Centre and open the Interpretation Centre

Strategic objective			
SSOS4	**Ensure the health, safety and security of people and facilities** The Port is a critical infrastructure for society and it is essential that it operate normally to ensure basic social rights. It is vital to guarantee the safety of its facilities and the health of its workers and the community that hosts it by rolling out actions and projects leveraging the new technological means available.		
Operational objectives			**Reference project 2025**
SSOS4.1	Improve industrial safety	**Very high priority** Medium difficulty Short Term	Closing the Port of Barcelona's ring of public hydrants using an underwater connection of the branches of the Energy and Adossat wharves and guarantee the regulatory flows throughout the network
SSOS4.2	Improve Port security	High priority Medium difficulty Short Term	New facilities and Control Centre for the Port Police
SSOS4.3	Enhance cybersecurity	**Very high priority** Medium difficulty Medium term	Launching the new Technical Security Office (TSO)
SSOS4.4	Promote the health, well-being and safety of the Port's workforce	**Very high priority** Medium difficulty Long term	Helping to set up areas for attention to and reception of crews in the new passenger terminals of the Port


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PORT VISION 2040

01 Scenarios

02 Strategic objectives 2040

03 Timeline

04 Maps of the evolution of uses of the Port of Barcelona

05.01 SCENARIOS

Four major scenarios, based on the trends currently known and with a significant potential long-term impact on the logistics-port sector in Barcelona, **can be envisaged as to what the Port of Barcelona could look like in 2040.** These scenarios have been represented in colours to make them easier to identify:

SCENARIOS 2040	WHAT CAN THE PORT OF BARCELONA BE?
Blue	– A leading logistics hub in Europe
Green	– A highly diversified port with multiple uses
Orange	– A commercial port focused on a powerful regional market
Red	– A decadent port in a hyper-competitive environment

The actual scenario achieved will not be one single option proposed here but a mixture of some or all of them. The weight of each one in the future is uncertain. Which scenario will be achieved in the future depends more on external conditions (the development of the global economy and European and Spanish demographics, the extent of digitalisation in society, the energy transition, etc.), than on any actions that the Port of Barcelona can perform. However, the policies and decisions taken by the Logistics-Port Community of Barcelona continue to have a high impact on modulating trends, and it is vital to make the right decisions that can bring us closer to desirable future scenarios.

It is obvious that we need to plan and work to help build a port that is closest to the blue (growth in logistics activity) and green (activity grows mainly with other activities) scenarios, compatible with the port's long-term vision identified in the Strategic Plan summarised as "SMART Logistics hub" and discard any actions and projects that may bring us closer to the red and, to a lesser extent, orange scenarios.

BLUE scenario: leading logistics hub in Europe

THE PORT IN BLUE

Barcelona has positioned itself as a SMART Euroregional hub in the Western Mediterranean. This position as a point of entry into Europe means that logistics activity has grown in our surrounding area. The logistics area has multiplied, as have value-added cargo services. The port's main activity is still goods management. However, new freight logistics services have been developed at the port and Barcelona has become a regional example of port centric logistics. Barcelona has become a regional benchmark in logistics innovation and, thanks to a leading logistics-port and technological ecosystem, is a leader in the implementation of new services and processes that make the port one of the most advanced in Europe in terms of service. The Port of Barcelona is the usual site for pilot tests for technological, environmental and operational innovations in the logistics sector.

The value of foreign trade passing through the port annually has grown by 50% compared to 2019 figures. The Port employs about 45,000 people, 22% more than in 2019. This is a remarkable increase considering the automation and digitalisation of many functions. The increase in employment is mainly the result of attracting new logistics activity within the port (logistics, pre-marketing logistics) and the consolidation and growth of the innovation hub that occupies several facilities in the old port area. The commercial port, now clearly a logistics port, employs people of many nationalities and an increasing number of Asian and African global customers and operators with key decision-making centres in Barcelona.

The permeability of the port and the city has intensified and the relationship between the two is very fluid. The port area itself is home to most of the infrastructure and services of electric mobility, while the ZAL has established its role as a major urban distribution node of the metropolitan conurbation.

WHAT THE LOGISTICS-PORT COMMUNITY OF BARCELONA HAS DONE TO GET THIS FAR

Promoting innovation as a decisive factor to develop differential value-added logistics services, increasing operational efficiency and cutting costs.

Focusing on service: an effective and efficient port.

Leading digitalisation in the Mediterranean. Expressing the use and management of data generated by logistics-port activity to predict operations and improve flows of goods through the port.

Making Barcelona’s port activity almost carbon neutral.

Achieving greater autonomy for large ports of general interest thanks to a reform of Spanish port legislation.

Developing value offers from the logistics sector to the new growing commercial segments (telecommunications, electric mobility, agri-food, e-commerce, etc).

Leading projects and pilot tests in various areas of logistics: autonomous transport, new marine fuels, new land transport, 5G warehouses, commercial partnerships, etc.

Creating strong business, corporate and financial partnerships with global operators and customers able to condition the routing of goods flows and investment decisions.

Breaking down trade, intermodal, regulatory, Customs and tax barriers that stood in the way of marketing the Port of Barcelona to European third countries and simplifying and streamlining trade with the Maghreb countries.

Promoting gender equality and multiculturalism in the port environment, factors that contribute decisively to turning organisations into innovators and leaders.

Supporting the industrial sector of the north-east Iberian Peninsula by intensifying intermodal, commercial and corporate relations.

Fostering and increase in logistics land in the Barcelona metropolitan area, Catalonia, Aragon and the Eastern Pyrenees.

Promoting the strategy for attracting new African and European traffic. Betting on new domestic terminals and, very especially, connections and terminals in southern Europe and substantially increasing commercial presence in Africa and Asia. Plus Latin America.

Significantly increasing intermodal transport, especially rail connections with Europe and motorways of the sea with the Maghreb, Turkey and Egypt, and building the necessary infrastructure.

Adapting perfectly to the needs of the industrial sector of its hinterland through a range of services tailored to each business segment, especially in terms of exports.

Moving activity to the south, grouping container activity south of the port to facilitate the development of intermodal services, generate synergies between container operators and free up space for new logistics and Port Centric Logistics.

Decentralising logistics activity to connected centres that respond to the Port 2 concept.

GREEN scenario: a highly diversified port with multiple uses

THE PORT OF BARCELONA IN GREEN

The Port has led the energy transition in the city of Barcelona and is a key benchmark port in terms of sustainability in Europe and the Mediterranean. Relations between the city and the port are absolutely fluid, for example, in terms of people and goods mobility. The city of Barcelona has bolstered its prestige as a business city with a high quality of life and has established itself as one of the most important innovative hubs in Europe.

The Port of Barcelona is no longer just a seaport. It is a logistical and nautical knowledge hub that has expanded its activity outside the port. Its strategy of diversifying and differentiating activity has been successful and the Port has definitively consolidated itself as the port with the greatest diversity of uses within its precinct and with a forward-looking offer in most segments, which stands apart in environmental sustainability terms.

The port area is home to a wide variety of logistics services, starting with loading and unloading goods (and passengers) and ending with ‘last mile’ distribution to end customers. Between these two, all kinds of value-added activities are carried out in the port. The value of foreign trade passing through the port has grown compared to 2019 and is 20% higher than twenty years earlier.

In the more and more commercially efficient and automated port, advanced logistics and goods distribution coexist in harmony with innovation hubs, a powerful nautical cluster, spaces dedicated to renewable energy generation and state-of-the-art productive activities around the circular economy, 3D printing and new models of assembly and adaptation of products to local markets. The port area employs 50,000 people, mainly as a result of the new activities captured by the innovative ecosystem of the port of Barcelona.

WHAT THE LOGISTICS-PORT COMMUNITY OF BARCELONA HAS DONE TO GET THIS FAR

Planning new port uses in advance and in collaboration with local, regional and national administrations.

Establishing partnerships with leading private organisations in innovation and agility in various sectors.

Distinguishing itself nationally and internationally as a technologically advanced port and a leader in the application of innovation.

Actively promoting the search for and acquisition of talent, the creation of new technology-based companies and entrepreneurship to create new business lines making it possible to diversify port activity.

Using the financial capacity of the APB to drive new port businesses.

Creating autonomous and nimble port structures to manage and promote key aspects such as energy, innovation, attracting investment and social integration projects.

Actively promoting power generation within the port area and fostering the energy transition by leading the development and supply of energy in Barcelona and the Mediterranean.

Decentralising the port, freeing up space for new activities and avoiding thousands of truck journeys into the port to pick up and deliver goods which can be deposited and collected at Port 2, distributed throughout the territory.

Promoting value-added activities in addition to basic port services.

Attracting industrial logistics activity linked to 3D printing and the circular economy.

ORANGE scenario: commercial port focused on a powerful regional market

THE PORT OF BARCELONA IN ORANGE

The Port of Barcelona is a port focused on a nearby hinterland that includes the entire north-east of the Iberian Peninsula, where it offers the most competitive logistics-port services for containers, as well as for finished vehicles, food bulks and ro-ro. This area, which basically includes Aragon, Navarre, La Rioja, Castille-Leon and Catalonia, continues to be the principal generator of Spanish maritime foreign trade. The value of foreign trade passing through the port annually remains at figures similar to those of 2019. The Port has managed to decentralise part of its activity.

The Port employs about 30,000 people, almost 20% less than in 2019. Many tasks have been automated and robotised and another part of the jobs are in the decentralised port. The highest proportion of people working in the port are in the Port Vell area, since the warehouses in the logistics activities area have also been gradually automated and the port hosts no new activities related to high value-added logistics processes.

The Port has the same distribution of spaces as it did in 2020 and none of the three major areas (commercial port, old port and logistics port) has increased its activity or area. Thanks to automation and more efficient operations, some unused areas of the port could be freed up.

WHAT THE LOGISTICS-PORT COMMUNITY OF BARCELONA HAS DONE TO GET THIS FAR

Developing logistics services for specific market segments that adapt to customer needs and act as a barrier to entry for other competitors in the hinterland dominated by Barcelona.

Solidifying Barcelona's intermodal offer with the north-east of the Iberian Peninsula and even boosting its competitiveness using autonomous transport and building longer trains.

Failing to break down barriers to commercial, infrastructural and administrative access to third markets, especially France.

Correctly digitalising logistics and port processes at the same pace as other leading ports in the region.

Improving efficiency and operations, making it unnecessary to build new infrastructures or increase the capacity of existing ones to accommodate and manage new freight traffic.

Working together effectively with the nearest ports to avoid cannibalisation between port offers and duplication of unnecessary infrastructure, especially intermodal terminals and containers.

Increasing the competitiveness of the ZAL by containing prices and building energy self-sufficient and 100% renewable warehouses.

Completing the Barcelona nautical cluster by incorporating a significant offer of training and innovation associated with the sector, located within the port itself.

Opening up and smoothing the transition between port and city to allow a positive coexistence between both areas.

Allowing the city to make use of spaces no longer used as a result of improved operations.

Attracting new traffic, which has partially replaced others in decline.

RED scenario: a decadent port in a hyper-competitive environment

THE PORT OF BARCELONA IN RED

The Port is suffering severely from the reduction in Spanish maritime foreign trade and the associated demand for maritime transport and logistics. However, by diversifying its activity, it manages not to collapse completely. The commercial side shrinks due to lack of activity and port spaces freed up by fewer goods are colonised by facilities related to leisure and tourism. The Port has also given up some areas to the city to perform community services and recreation areas. The value of foreign trade passing through the port has dropped ostensibly and is 30% lower than in 2019.

The customers of the commercial port are concentrated exclusively in Catalonia, Aragon and the other Autonomous Communities of the north-east of the Iberian Peninsula. Despite everything, the existence of a sizeable industrial environment, although smaller than in 2019, and of a key population centre in the metropolitan area guarantee a certain amount of commercial goods activity since these areas still maintain significant import / export activity.

Other Spanish ports, and third-country ports, provide efficient services to the hinterland from the port and take some of our market share, especially as we move away from the coastline.

The Port employs just over 25,000 people, the vast majority in the Port Vell area. Digitalisation and automation have led to a drastic reduction in jobs in the logistics-port loading and unloading operations, with no clear qualitative improvement in job offers. Barcelona does not stand out for its innovation activities and is just one more port within the digitalisation process.

The Logistics-Port Community has shrunk, a contraction that has especially affected small and medium-sized enterprises. Margins and profitability have fallen across the logistics sector.

Port concessions in the commercial port often change hands between hedge funds or go bankrupt or into administration in the face of widespread falling margins due to shrinking demand.

WHAT THE LOGISTICS-PORT COMMUNITY OF BARCELONA HAS DONE TO GET THIS FAR

↓

Not breaking down the commercial, infrastructural and administrative barriers that prevented Barcelona from positioning its logistics-port beyond the Pyrenees.

↓

Not attracting most of the key players in logistics and international maritime transport to Barcelona, and the interests, investments and concessions that many of them have there are secondary in their business portfolio and often dispensable and interchangeable in bargaining processes.

↓

Not positioning Barcelona as a key part of the BRI. Absence of the key Asian and African maritime operators.

↓

Failing to make Barcelona a bridge between Asia and Latin America, or Africa. Most short sea shipping services for the transport of goods with North Africa remain unused.

↓

Not betting decisively on innovation and leadership in this area in the Mediterranean.

↓

Not actively participating in the energy transition, allowing other ports to take the lead in supplying new fuels and managing volumes of goods associated with this new sector.

↓

Failing to decarbonise port activity, with most ships calling at the port still using fossil fuels and many of them not connecting to the electricity grid while at berth.

↓

Failing to decentralise port activity or to realise the planned development of Port 2-style intermodal terminals connected by night rail shuttles. The La Llagosta terminal has not yet been built and the Granollers terminal continues to operate under par.

↓

Failing to create attractive value offers for new growing market segments such as collective and personal electric mobility, telecommunications, renewable energy and e-commerce in general.

↓

Failing to compensate for the fall in historical traffic segments (bulk petroleum liquids, export cars, etc.) with new traffic.

↓

Failing to forge alliances and bonds with other local and regional administrations that aim to move logistics activity outside of the metropolitan area for other public uses.

↓

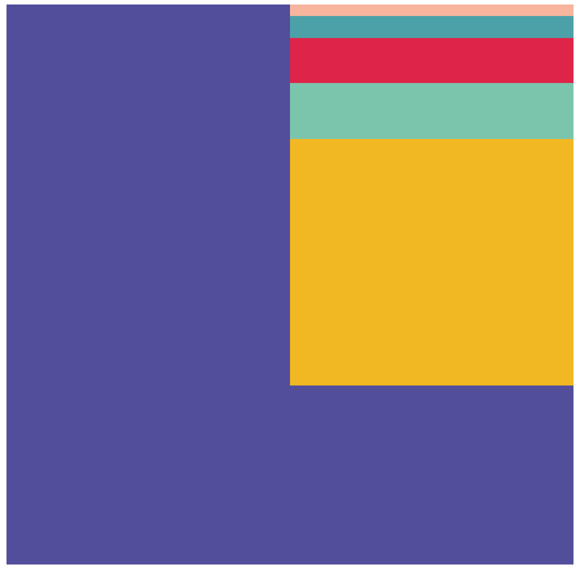
Failure to activate new logistics land in the first and second metropolitan belts. Meanwhile, the logistics areas of other areas of Spain and southern Europe have grown substantially.

↓

Being ineffective in the port’s communication campaigns - the public consider the port to be an antiquated and unattractive space which therefore fails to attract talent or motivate the new generations to work there.

Distribution of the spaces of the Port of Barcelona 2040

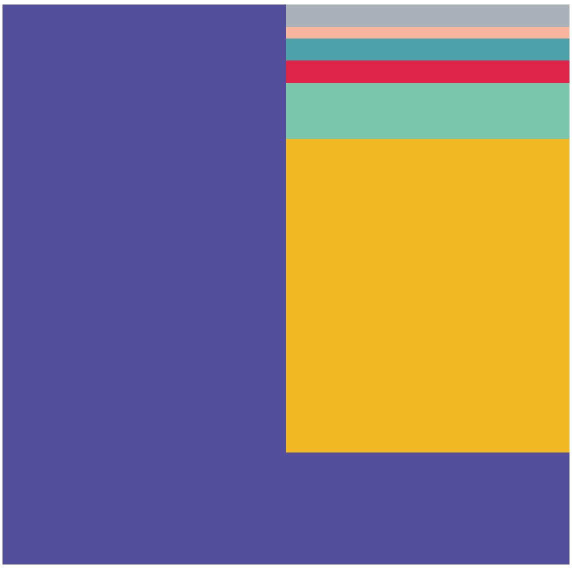
Present situation



Present situation	
New activities (logistics)	0%
Cruise ships	1%
Industry	2%
Port services & others	4%
Leisure/sailing	5%
Logistics	22%
Loading/unloading	66%

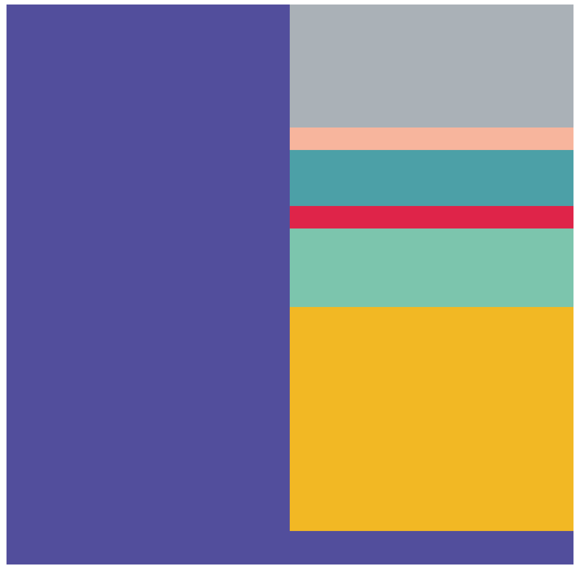
	2021	2040			
	Present situation	Blue scenario	Green scenario	Organge scenario	Red scenario
Unused areas	0%	0%	0%	9%	21%
New activities (logistics)	0%	2%	11%	6%	10%
Cruise ships	1%	1%	2%	4%	2%
Industry	2%	2%	5%	2%	2%
Port services & others	4%	2%	2%	2%	4%
Leisure/sailing	5%	5%	7%	7%	6%
Logistics	22%	28%	20%	21%	15%
Loading/unloading	66%	60 %	53 %	49%	40%

Blue scenario



Port 2040	
New activities (logistics)	2%
Cruise ships	1%
Industry	2%
Port services & others	2%
Leisure/sailing	5%
Logistics	28%
Loading/unloading	60%

Green scenario



Port 2040	
New activities (logistics)	11%
Cruise ships	2%
Industry	5%
Port services & others	2%
Leisure/sailing	7%
Logistics	20%
Loading/unloading	53%

Orange scenario

Port 2040	
Unused areas	9%
New activities (logistics)	6%
Cruise ships	4%
Industry	2%
Port services & others	2%
Leisure/sailing	7%
Logistics	21%
Loading/unloading	49%

Red scenario

Port 2040	
Unused areas	21%
New activities (logistics)	10%
Cruise ships	2%
Industry	2%
Port services & others	4%
Leisure/sailing	6%
Logistics	15%
Loading/unloading	40%

Conclusions of the scenario analysis

Turning Barcelona into the SMARTest Logistics hub in the Mediterranean, in other words the most Sustainable, Multimodal, Agile, Resilient and Transparent Logistics hub in the Mediterranean, may seem like too daring a challenge for some and too simple for others. Some would say that there are few ports in the region as large and diverse as Barcelona and that, therefore it is a relatively easy challenge to take on. As we have seen, however, port offers are tending to level out and the intense processes of digitalisation, automation and robotisation of all types of activity cancel out differences in agility, flexibility, transparency and costs. Although Barcelona, together with some Italian ports, channels a higher volume of foreign trade in value than the rest of the Mediterranean ports, the clearly higher volumes of goods managed by other ports allow them to enjoy greater economies of scale and therefore to increase their downward pressure on port costs.

However, none of these Mediterranean ports has the competitive advantages in terms of logistics management enjoyed by Barcelona: a conurbation of five million inhabitants, with a port and an airport with very high international connectivity close by and adjacent logistics areas, totalling almost four hundred hectares. None of them has a network of small, large, national and international logistics operators specialising in high value industrial and distribution segments.

Based on these competitive advantages, we must therefore choose the actions that bring us closer to the desired scenarios (green and blue) and move us away from others, especially the red one. We must of course be aware that the Port as a whole can have only a slight impact on the future orientation of what happens there and that global and regional macro-trends have a much greater impact on it. As we have seen in the Fourth Strategic Plan 2021–2025, the European foreign trade sector is at a turning point that will also help to shape a new European logistics system.

There are a number of common elements that are essential to achieving the desired scenarios, whatever the evolution of the main trends.

Differentiating the port offer through innovation and digitalisation. Being the first, the most daring and the most powerful in the implementation of innovations to increase the agility, flexibility, resilience, transparency and reduction of the cost of logistics services. Becoming a pilot port of new technologies and innovation.

Diversifying activity to better withstand global and sectorial crises. Making proper use of the available spaces that will help contain European maritime traffic and make operations more efficient. Diversification can be aimed exclusively at the logistics sector (advanced storage/logistics real estate, pre-marketing activities, postponement and urban distribution) or expand its scope with new activities which, although not purely logistical, are compatible and generate synergies with the sector. These include innovation and knowledge hubs, power generation, the circular economy and 3D printing.

Partnerships with powerful global operators. In all segments, the market is increasingly dominated by large multinational operators who often ally with each other to make decisions about investments and routing of goods. It is important to find the right partners for each of these sectors and consolidate the investment and market positioning of these global operators in the port.

Prioritise highly profitable projects. The planned containment of the income generated by maritime freight traffic obliges the Logistics-Port Community of Barcelona and the administrations involved to select from among the new activities and those generating most income, when this is compatible with the port's core business.

Leading the decarbonisation of transport and logistics. The energy transition is already a reality, at least in Europe, and will intensify in the coming years. Barcelona's logistics hub must play an active role in this transformation for environmental, commercial, marketing and common sense reasons. Being a pioneer in this sector will be considered a differentiating element of incalculable value by society and by our customers.

Fostering new local partnerships. Intensifying cooperation with the "holders" of the other competitive advantages of Barcelona. Airport, logistics operators present in Barcelona and logistics park managers.

Focusing on the customer of the goods. Intensifying the relationship with shipowners, logistics operators and shippers to remain constantly up to date with their needs and aspirations. This will make it possible to prepare valuable logistics offers for emerging segments, for example.

Creating autonomous and more dynamic management structures of the critical elements of the port's competitiveness: Innovation, knowledge management, energy, multimodality and attracting investment. Barcelona Port Authority must lead the development of these activities since the private sector cannot do this, due to lack of sufficient size or primordial interest, but it will be difficult to do so with the current overly rigid public structure. We will need to create specific structures to promote such activities, without this generating overlap with existing organisations or agencies detached from the day to day running of the port.

Further developing mechanisms for the safety, security and monitoring of people, commodities, facilities and the environment. We must move as far as possible towards a 100% secure port, taking advantage, above all, of the digital media available, especially strengthening cybersecurity.

Taking advantage of potential synergies with the city in various areas, such as electric mobility, digital technologies, tourism and urban distribution. Barcelona must aspire to be a model that can be replicated in terms of distribution of goods, personal mobility, etc. Collaboration with the city is essential.

Further developing the competitiveness of logistics and port services in the hinterland of the north-east Iberian Peninsula, especially in terms of intermodality, autonomous transport, inland terminals and administrative procedures. Whatever the scenario, it will remain the port's main market for containers, cars and motorways of the sea. The competitiveness of the Port of Barcelona's services for Catalan companies and those of Aragon, Navarre, La Rioja, Castille-Leon (and also the south of France) must always be the main concern of the Logistics-Port Community of Barcelona.

Promoting the development of maritime and logistics services aimed at the African market, Southeast Asia and the Indian subcontinent. We need to increase commercial presence, maritime services and collaboration projects there. At the same time, we need to take advantage of Barcelona's ability to act as a bridge between these markets and Latin America.

Promoting the activation of logistics land and outreach concerning the importance of the sector for job creation. Barcelona's competitive advantages are useless if there is no available land where new operators, customers and industries can set up.

Completing the key pending infrastructure. This especially concerns rail infrastructures and transferring commercial container activities towards the south to become a more sustainable port more fully integrated into the city.

Decentralising the port. Expanding the port's activity outside its natural borders, in matters such as Port 2, storage/logistics real estate, mobility and inland terminals.

Implementing these actions would turn the Port of Barcelona into a space with the following main attributes:

Regional logistics platform	Multi-country SMART logistics distribution hub - the logistics capital of the Mediterranean. Main logistics service centre in southern Europe for e-commerce, electric mobility, mass distribution, automotive, electronics, fashion, etc.
European and peninsular intermodal hub	Principal land transport node for goods, especially rail and autonomous transport, for both maritime and continental traffic.
Clean alternative fuel hub	Generation, storage and supply of renewable energy using the "green" hydrogen vector. Barcelona and its port are one of the European capitals of the production and supply of "green" hydrogen.
Additive manufacturing hub applied to logistics chains	3D printer industry centre with high value-added for the passage of goods. Barcelona is becoming part of the production chain of consumer goods by providing the final "customisation" of products.
Circular economy hub	An eco-factory that manages energy and waste efficiently, giving goods and passengers passing through the port a zero carbon footprint or even one with a positive balance, thus contributing to decarbonise logistics chains.
Autonomous intermodal hub	A fully connected infrastructure for the autonomous freight and passenger vehicle. In some areas it is even segregated from conventional traffic to ensure efficiency and safety.
Metropolitan Urban Goods Distribution Centre associated with the ZAL	A metropolitan hub for urban goods distribution with sustainable, conventional and autonomous vehicles.
Innovation hub and training in robotics and automation	A hub of innovation and training in robotics to program, control and maintain digital (RPAs) and physical automata (autonomous vehicles, machinery and other robots).
Blue Economy Technology District	The Port Vell has positioned itself as a new technological district linked to the blue economy through the concentration of high-level training centres, hubs of incubation and acceleration of start-ups and attraction of companies and talent to bring innovation and value to all port, maritime and logistics activity in general.
Joint management of ports located on the same seaboard	The two most important ports on the Catalan seaboard (Barcelona and Tarragona) have developed a joint and collaborative strategy to improve the sustainable development (economic, environmental and social) of their surrounding area.
Decentralised port	Sustainable autonomous transport and trains to transport goods to the Port 2, close to industry and consumption centres. These trains are complementary to the frequent, numerous and high-capacity rail services.
More integrated and extensive city-port	City-port space has increased by 30% compared to 2020. As a result, the port is no longer a physical barrier to mobility on Barcelona's seafront and has become a new metropolitan centre for economic and leisure activity.
100% Gender equality	Full 50/50 gender equality, both in managerial positions and in total employment at the port.

After analysing the possible scenarios of the Port for the year 2040, we have defined a roadmap that illustrates on the one hand the international trends in the left margin and, on the other, the various milestones and events that will be seen in the Port of Barcelona during the period 2021 – 2040, on the right.

20

Context trends

1 End of the COVID crisis

2 Stagnation of European import-export trade

3 Exponential growth of 3D printing

4 African foreign trade grows at double digits annually

5 Proliferation of autonomous trucks in ports

21

2021 — Creation of the innovation, knowledge and logistics training entity of Barcelona

2021 — Creation of the Port Intermodal Solutions entity

2022

2022 — 5G network at the Port

2022 — Pilot tests of On Shore Power Supply (container ships and ro-ro)

2022 — Creation of the Port's energy entity (generation, storage, supply)

2022 — Approval of the Port Energy Transition Master Plan

2023

2023 — New Príncep d'Espanya automotive concession (intermodal, electric, international and shared mobility)

2023 — Anchoring an additional global Asian operator in Barcelona

2024

2024 — Boosting the investment and market positioning of the two major container operators

2024 — Pilot project for shipping with carbon neutral fuels

2024 — First 3D printing industry in the Port

2024 — Availability of new large logistics plots in the metropolitan area

2025 — Completion of the dredging work to accommodate ships up to 20m in draught

2025 — New berths for large liquid bulk carriers and suitable for alternative fuels

2025 — Port Centric Logistics in operation in various locations of the Port

2025 — First pilot test with a fully autonomous truck travelling in the Port

2025 — Opening of a Knowledge & training hub (own building) on Nova Bocana

2025 — Opening of Port 2 (Granollers, Penedès), rail shuttle connection and truck platooning service

2026 — Adossat wharf enlargement (Cruise ship terminal and bridge) completed

2026 — DUM hub in the Port in full operation

2027 — Electric mobility hub in the former Morrot

2027 — SSS services double with North Africa and the eastern Mediterranean

2027 — Permanent On Shore Power Supply connection for container and ro-ro vessels

2028 — Port real time Digital Twin

2028 — Port spaces are freed up and adapted to develop new energy businesses, 3D industry and circular and knowledge economy

2025

2026

2027

2028

2029

20

6 E-commerce accounts for 30% of purchases

7 Generalisation of automated terminals (containers, rail, etc.)

8 The entire logistics chain is managed digitally (e-booking)

9 New routes (Arctic, Cape of Good Hope, BRI) gain momentum

10 Energy cost of stay in the Port becomes very relevant

11 Maximum use of fossil fuels in Europe

12 Real-time logistics chain control

13 Entry into force of a CO_2 tax to regulate transport

14 100% traceability of goods

15 Feasibility of alternative fuels for shipping

16 Maritime and terrestrial operations controlled with Digital Twins

Context trends

17 Consolidation of 3D Printing

18 80% of consumption is digital thanks to e-commerce

19 Recurrent disruptive climatic episodes

20 Production of consumer goods with 3D printers on site and on demand

21 Ports are becoming a commodity due to automation, digitalisation and artificial intelligence

22 The consolidation of Africa in international trade balances the east-west and north-south directions

30

2031

2032

2033

2034

2035

2030 — New intermodal channel terminal and rail motorway terminal

2030 — Automation project for the Port's second container terminal

2030 — First remote piloting of a calling ship

2030 — Reduction emissions by 50%

2031 — Various 3D printing industries settle in the Port and perform postponement of products passing through the Port

2032 — First stop of a Carbon Neutral ship (electric, H_2)

2033 — The Port becomes the main metropolitan electric mobility hub

2033 — Most of the Port's terminals produce renewable energy

2034 — 70% of the trucks travelling within the Port are autonomous

2034 — 100% On Shore Power Supply for container, cruise and ro-pax ships

2035 — 80% of maritime and terrestrial operations are managed via a real-time port Digital Twin

23 India becomes the most populous country in the world

24 The African cities of Lagos and Kinshasa become the most populous cities in the world

25 Global shipping is clean (zero-emissions)

26 Transporting goods with drones

27 Transporting goods with hyperloop or similar

28 Africa becomes Europe’s second largest trading partner after China

29 Autonomous ships

2036

2037

2038

2039

2040

2036 — 20% of goods passing through the Port do not touch the sea

2037 — 25% of ships arriving at the Port are autonomous

2038 — All vehicles travelling within the Port are zero-emission

2039 — 10% of the routes that stop at the Port go through the Arctic and the Cape of Good Hope

2040 — Connection to Port 2 via hyperloop or similar

2040 — Transporting goods with drones

2040 — Adaptation of infrastructures due to rise in sea level

2040 — The Port is energy self-sufficient

It should be noted that the milestones and objectives selected are those that lead the Port to the Green (Highly Diversified Port with Multiple Uses) and Blue (Leading Logistics Hub in Europe) scenarios described above, which are strategically the most desirable for ensuring the long-term social, economic and environmental sustainability of port activity.

05.04 MAPS OF THE EVOLUTION OF USES OF THE PORT OF BARCELONA

Energy transition

- Renewable energy production
- Short Sea Shipping
- Rail terminal
- Electrical substation
- Onshore Power Supply
- The Port is energy self-sufficient

Logistics and industry

- Additive manufacturing (3D printing)
- Port Centric Logistics
- DUM Urban Goods Distribution
- Electric mobility
- New activities

New modes of transport

- Rail motorway terminal
- Drones
- Autonomous trucks in the Port
- Autonomous vessels in the Port

Infrastructure works

- Ongoing infrastructure works
- Completed infrastructure works
- Consolidated actions

Knowledge and innovation

- Knowledge & training hub
- Blue Economy technology district

Digitalisation

- Operations with Digital Twin
- Communications network 5G

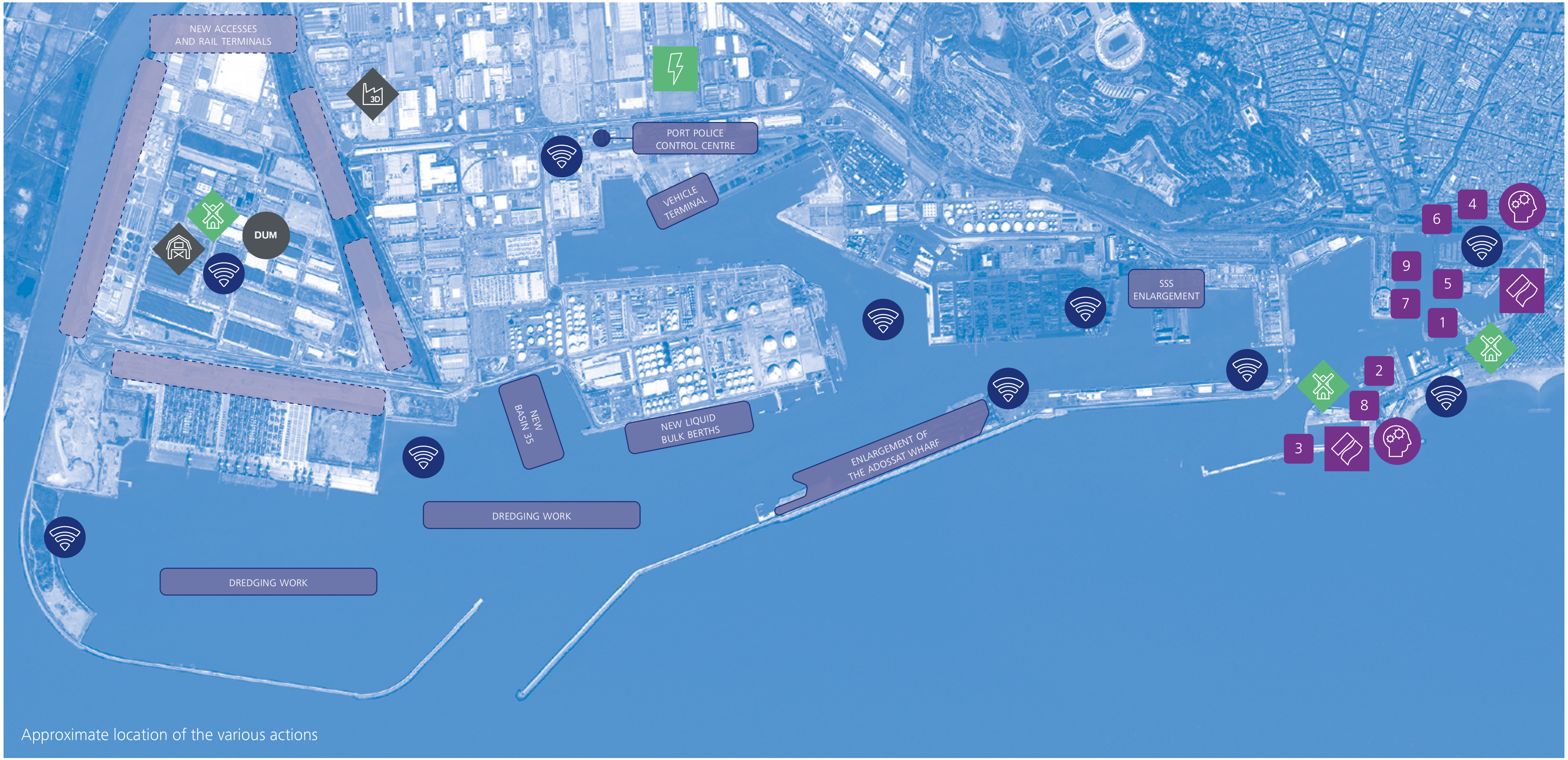
Port Vell 2021 – 2025

1. Fishermen's wharf
2. Sheds on Oriental wharf
3. Urban development of the new Rambla Marina Vela
4. Balcony on passeig de Colón
5. Refurbishing the Espanya wharf
6. Port Center
7. Nautical bus
8. Innovation, knowledge and training node
9. National basin

2025

Pilot tests 2021 – 2025

— Onshore Power Supply (container ships and ro-ro) and Smart Grids
— Shipping using clean fuels (H_2, methanol, electric)
— First autonomous truck in the Port
— Renewable energy generation and self-sufficiency
— Pilot 3D printing tests in the Port



Approximate location of the various actions

2030

Pilot tests 2026 – 2030

— Onshore Power Supply (cruise ships)
— Remote piloting of a ship calling at the Port
— Autonomous vessels in the Port
— Regular traffic of autonomous trucks
— Urban Goods Distribution (DUM)
— Supply of collective and personal electrical mobility

Approximate location of the various actions

Port de Barcelona

Port of Barcelona Fourth Strategic Plan 2021 – 2025

Port vision 2040