

Strategy Notebook 234-B

State Ports and National Defence

Instituto Español de Estudios Estratégicos

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MINISTERIO DE DEFENSA



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Letter from the Chairperson of State Ports

Gustavo Santana Hernández

We are living in a highly globalised socio-economic context that offers opportunities for prosperity and well-being across the globe, but which also brings with it a wide range of threats of all kinds. So far this century, global output has grown by 30 % and trade in goods has doubled. At the same time, however, we have experienced a major economic and financial recession, a severe pandemic, a proliferation of natural disasters and a gradual escalation of conflicts in almost every conceivable form. The mutual interdependence we all share as a result of globalisation leads to the spread of development, whilst at the same time increasing and diversifying uncertainty.

Ports are key hubs in this process of globalisation. Being intrinsically linked to the sea, they account for 90 % of global trade in goods and are essential for the necessary movement of people within certain sub-regional areas and across all island regions. In short, without ports, the socio-economy as we know it today would not exist. Therefore, bearing in mind the strategic importance of these infrastructures—whose true strength lies in their ability to operate as an integrated port system to safeguard our security and well-being—it is necessary to adopt this systemic, interconnected, coordinated and complementary approach in

order to ensure the competitiveness, resilience and territorial cohesion demanded by economic and social globalisation.

In light of this, safeguarding the port system has become essential, particularly given the current geopolitical landscape, which is fraught with risks. Let us recall that the tragic attacks of 11 September 2001 on the Twin Towers in New York were the catalyst for the adoption, within the IMO (International Maritime Organisation), of the code known as the ISPS Code ('International Ship and Port Facility Security Code'). That initial step at a global level was followed in Europe by measures to protect ports as a whole (in Spain, Royal Decree 1617/2007) and the designation of some of them as critical infrastructure (Act 8/2011 and Royal Decree 704/2011). As a result of this regulatory process, Spain now has a national framework for maritime and port security in the civil sector, supported in a coordinated manner by the Ministry of the Interior through the law enforcement agencies and by the Ministry of Transport and Sustainable Mobility through the maritime and port authorities.

Protection has thus become a cornerstone of the strategy for the development and operation of ports, spearheaded by the Ministry of Transport and Sustainable Mobility. Specifically, it forms part of the 'Safe, Connected and Sustainable' strategy, is included in the Maritime Strategy 2025–2050, and is incorporated into the current *Strategic Framework for the port system of general interest* as one of its sixteen strategic priorities, specifically the one entitled 'Safe and Secure Ports'.

Nevertheless, in this complex and interconnected world, the severity and diversity of threats have escalated in recent years to the point of creating new vulnerabilities in ports. The 2024 *National Maritime Security Strategy* identified hybrid threats as a key risk; these combine potential direct attacks with other, more diffuse threats operating in a grey area, including cyberattacks, disinformation campaigns, terrorism, radicalisation, illicit trafficking and acts of deliberate marine pollution, amongst others. These are threats which, given their scale and potential impact on national sovereignty, fall within the remit of the Armed Forces and could seriously affect ports.

Added to this is the escalation of the armed conflict in the European Union's neighbourhood. The risk of further escalation is leading to a strengthening of Europe's military strategy for defence purposes, in coordination with NATO, and necessitating an urgent

overhaul of transport infrastructure to support military mobility. The successive versions of the European Commission's military mobility plans from 2018 and 2022, together with the work of the European Parliament and the Council, led to the incorporation of civil-military duality into the Trans-European Transport Network (Regulation 2024/1679). This duality requires ports to ensure not only the safe movement of passengers and goods, but also the rapid and unimpeded movement of personnel, supplies and military equipment for deterrence operations and exercises in peacetime, as well as for large-scale deployment in the event of armed conflict.

Consequently, as well as being key hubs for socio-economic development, ports of general interest also become strategic assets of the highest order for national sovereignty.

There is therefore a clear need to strengthen civil-military coordination in the port sector. It is essential to establish a framework for mutual cooperation, leading to actions by the Armed Forces in the areas of early detection, warning, deterrence and defence of ports, alongside measures by port authorities to adapt their own infrastructure, facilities, services and information systems.

This booklet brings together, from a variety of perspectives, a comprehensive collection of proposals, all aimed at strengthening cooperation between ports of general interest and the Armed Forces, in a context as complex and uncertain as the current one.

I would like to take this opportunity to thank all the authors of the chapters for the clarity and depth of their contributions, and, more generally, the senior officers and defence personnel attached to CESEDEN and the Spanish Institute for Strategic Studies, for this excellent initiative aimed at aligning the objectives of defence and ports of general interest, with a view to enhancing national security.

Preliminary Chapter

The importance of the port system of general interest for national defence

Álvaro Rodríguez Dapena

1 Importance of ports from a socio-economic perspective

With the arrival of the Victoria ship in the port of Seville on September 8, 1522, globalization began. After a painful journey of 37,753 nautical miles for three years and fourteen days, that ship commanded by Juan Sebastián Elcano came with 381 sacks of very valuable cloves from 'La Especiería' ('the Spices Land') weighting approximately 27 tons. Today, almost 13 billion tons of various goods are moved around the world every year, which represents more than 90 % of intercontinental trade.

And it is not only trade, logistics and transport that have developed on a global scale since then. Today, almost everything is globalized: capital, media, science, technology, art, and also, unfortunately, disease, biodiversity loss, climate change, and conflict, in any of its manifestations. As a result of all this, Humanity is more intertwined than ever. We depend on each other, for better and for worse. Through global physical and digital networks, opportunities to eradicate poverty and disease and spread sustainable development and well-being are multiplied, but these same networks also have a myriad of far-reaching threats.

Seaports are essential nodes in this huge and dense multilayer global mesh. They have been and continue to be channels open to all kinds of flows of goods, people, cultures, and also to that new unit of value that is data. They are essential to supply populations with essential resources and to ensure that companies import and export their products. They are also suitable for the transport of people between territories more or less close to each other linked by the sea.

Their power of influence can be extraordinary, as they combine two purposes that intertwine until they become sides of the same coin; on the one hand, they seek to attract prosperity and quality of life for all the citizens of their more or less immediate environment (umland); on the other, they try to radiate as much as possible in two ways: towards the interior of the continental territory (hinterland) and beyond seas and oceans (foreland), with an irrepressible vocation for openness.

With 8,000 km of coastline stretched across a large part of the Iberian Peninsula, the Balearic Islands, the Canary Islands, Ceuta, Melilla and the rest of the sovereign places, facing the Mediterranean and the Atlantic, Spain has been, is and will be a maritime nation.

And as such, the historical trajectory of its ports has been decisive. After a long process of liberalisation, at the middle of the nineteenth century those ports that stood out for their size and socio-economic relevance were classified as being of 'general interest'. Today a total of 46 ports hold this status, managed by 28 Port Authorities, which, together with the public body Puertos del Estado, constitute the port system of general interest. In accordance with the Spanish Constitution and the port legal framework in force since 1992, the ports integrated into this system are state-owned, while the rest are managed entirely by the Autonomous Communities.

The port sector represents 1 % of the national GDP and generates more than eighty thousand direct jobs. But the dependence of the Spanish economy on this sector is much greater. Specifically, as it serves 80 % of its imports and between 50 % and 60 % of exports, it is estimated that at least 15 % of its GDP depends directly on ports, with this dependence being extreme in the territories outside the peninsula.

For all these reasons, ports of general interest are strategic assets of the Spanish nation from a socio-economic point of view.

2 Importance of ports from a military perspective

It is intrinsic to the essence of the port to serve as a base from which to radiate influence or dominance by sea, and with which to defend the national territory itself. Underlying this are motivations that can be framed in the economic-civil and, at the same time, in the political-military. Thus, from its origins, port development was not only aimed at enabling infrastructures for the shelter of merchant ships and the transfer of cargo and passengers, but also at equipping itself with bastions with the artillery of the moment to defend naval fleets and military arsenals. Over the centuries, both civil and military functions have coexisted in ports, until civil ports of a commercial, fishing or nautical-sporting nature were segregated from those of a military nature, the latter being configured as naval bases. The relevance of the latter for defence is obvious, but so are commercial ports. In fact, with the current projection of domination by sea promoted by the great powers and the needs of defence of the national territory itself, a necessary confluence between the civil and the military is once again confirmed in the ports.

From a point of view of territorial defence, this confluence between the civilian and the military regained prominence at the European level since a European Commission communication issued in 2017 on military mobility in Europe. The 2018 action plan to improve this type of mobility in Europe, revised in 2022, established a first axis relating to the use of multimodal corridors and logistics centres, of which seaports are major strategic nodes. This axis called for a joint civil-military use of transport modes and nodes, which was endorsed in the so-called *Strategic Compass for Security and Defence* agreed in 2022 by the Council of the EU, and finally included in Regulation 2024/1679 on the revision of the Trans-European Transport Network (TEN-T). Article 48 of this Regulation urged States to 'take into account the weight, size or scale of the military transport of troops and materials' when building or improving infrastructure under the TEN-T. This gives rise to the dual civil-military concept to ensure the safe mobility of passengers and goods, as well as the rapid and unhindered movement of military personnel, material and equipment for deployments and operational exercises. The recent White Paper for European Defence echoed this by calling for improved military mobility to face 'severe scenarios', especially at external borders, in which seaports are protagonists.

In the marine-military field, in addition to commercial ports, each country has naval bases in its own sovereign territories. Thus, Spain has those of Ferrol, Cádiz-Rota, Las Palmas, Cartagena and Mahón, as well as a good number of naval commands, dependencies and schools. Some countries also have naval bases in their overseas territories or in those without clear or shared sovereignty. Examples of this are the French naval bases in the outermost regions of the Pacific and Caribbean, or the Chilean, Argentine, Russian and American bases on the Antarctic continent, where Spain has two summer bases. And there are a few countries, with great military power, that deploy naval bases outside their respective borders. The United States stands out in this group with more than 120 naval bases spread over 51 countries, especially in Europe, the Indo-Pacific and the Middle East, where it maintains its Fifth Fleet. The extraterritorial bases of France (Dakar, Djibouti), China (Cambodia, Djibouti), Russia (Tartus in Syria) and the United Kingdom (Bahrain, Gibraltar, etc.) are also worth mentioning. All this, in accordance with a strategy of projection of influence or dominance of these countries from a military perspective.

But in addition to this type of permanent naval presence abroad, there are strategies of 'soft' extraterritorial projection or dominance based on the control of terminals or ports by economic means. This type of control can be carried out through shipping companies, using subsidiaries in charge of operating port terminals. They will do so by taking advantage of the open or liberal regime that governs the sea, where even in waters of territorial sovereignty the innocent right of passage prevails, 'as long as the passage is rapid, uninterrupted and is not detrimental to the peace, order or security of the coastal State' (UNCLOS). It will also be promoted by the ports themselves if they are privatised or adjust to an open regime for the provision of services, as they are subject to a 'landlord' type management model, as is the case in Spain and in many other countries.

On the global board of container transport, it is the European and Asian shipping companies that dominate, today strongly concentrated and integrated into a small number of newly reconfigured alliances, and in the process of moving from a 'port-to-port' maritime control to a much more powerful 'door-to-door' logistics one. In addition to carrying out their commercial activity on a large scale, some of these shipping companies can serve as instruments to spread influence or dominance of a country, espe-

cially if they show some kind of state control over their strategy or capital. Thus, within the framework of the so-called BRI ('*Belt and Road Initiative*') China relies on its shipping company 'Cosco' to control ports such as Piraeus and thus extend its influence. This external projection of China through 'strategic strengths' is very clear in Africa, where its companies act as promoters or operators in more than 70 ports, and in Latin America, where it participates in more than thirty ports, including Chancay in Peru.

The projection of international influence or dominance over extra-border ports is also carried out through financial companies or investment funds, some of them sovereign, and industrial or logistics companies, under the control of the country concerned, including 'pure' terminal operators, also globalized. A representative case of this was the purchase in 2006 of 'P&O Ports' by 'Dubai Ports World'. The backlash against the United States Congress, which saw its terminals controlled by a new Middle Eastern company, forced it to sell its port terminal contracts in that country.

The tension to gain control over port terminals can be exacerbated if they are located next to straits and channels ('choke points'). An example of this is the recent pressure from the United States on the Panamanian terminals operated by the Hong Kong company Hutchison, with the Chinese reaction against it. Another situation of great interest for Spain is that of the Strait of Gibraltar, with a logistics cluster of 'hub' terminals in the ports of Algeciras, Tanger Med and soon Nador Ouest, operated by subsidiaries of shipping companies, consortium on Moroccan soil with the state-owned Marsa Maroc. In this Strait, a situation of competition between some of these terminals is intermingled with a more collaborative one around the growing flow of road traffic of goods between both coasts. And all this together with the unique status of the Rock of Gibraltar after the recent UK/EU/Spain agreements.

The freedom with which capital moves around the world favours another form of projection of influence over port terminals, consisting of directly acquiring port companies or taking control of them, even if only partially. The entry of foreign direct investment into ports is receiving preferential attention from a defensive point of view by European and Spanish institutions. There is even a European counteroffensive with proactive initiatives such as the 'Europe Global Gateway strategy', which seeks to radiate European influence, through green maritime corridors projects such as the port of Algeciras with Panama.

As a result of what we have seen, from a national defence point of view, the importance of commercial ports in Spain is based on two basic aspects:

- To serve as nodes for rapid and unhindered military mobility, providing passage and logistical support to troops and troops in situations of operational exercises or conflict, and providing scale and logistical support to naval units deployed outside their bases in essentially military, maritime police, naval diplomacy or intervention missions in disaster or catastrophe scenarios. The importance of these ports will depend on their geostrategic position from a military point of view, both land and naval, and their ability to handle massive deployments of equipment and troops in the event of conflict.
- To be essential for the country from a socio-economic point of view, and, therefore, not only to be protected in terms of its criticality, but also to be defended in terms of military interest. This military interest stems from the need to contribute to dealing with threats, in many cases of a hybrid nature, that require joint collaboration between the civilian and military spheres. Ports that are particularly relevant from a military point of view are those that are essential for the supply of goods for the population and for the mobility of passengers in particularly sensitive areas due to their insularity, isolation or outermost nature (1st generation), those that ensure the entry of basic resources for adjacent energy-industrial conglomerates (2nd generation), those that fulfil a 'hub' and logistics function on a global scale (3rd generation) and those that have intelligent and synchronous broad-spectrum digital platforms (4th generation).

In short, in addition to naval bases and their military land and air support, intrinsically linked to national security objectives, the importance of commercial ports from a defence point of view stems from their status as nodes of economic and logistical sovereignty and instruments at the service of national strategic interests.

3 What can Ministry of Defence do for the state-owned ports?

The Defence strategy in favour of commercial ports is based, first of all, on the recognition of a series of risks or vulnerabilities in the field of security that affect them directly or indirectly. This

safety concerns both that aimed at limiting the effects of natural hazards, accidents and damage, on the environment and the socio-economic sphere ('safety') and, above all, at protecting the maritime environment from threats and intentional illegal acts ('security') in times of conflict.

In the case of maritime security, it should be remembered that, following the attacks on the Twin Towers in New York in 2001, the International Maritime Organization (IMO) incorporated the 'ISPS' code (ISPS, ' International Ship and Port Facility Security ') into the Safety of Life at Sea (SOLAS) Convention in 2004, which was extended shortly afterwards in Europe to the security of ports as a whole (in Spain, RD 1617/2007). Since then, there has been a European structure (MARSEC) for the supervision of the ISPS and port security plans and another at the national level whose highest authority is currently the General Secretariat for Air and Maritime Transport of the Ministry of Transport and Sustainable Mobility. In addition, in 2008 a regulatory framework for the protection of critical infrastructures also emerged in Europe (in Spain, Law 8/2011 and RD 704/2011), among which a certain collection of ports of general interest is distinguished. The civil maritime and port administrations and the Ministry of the Interior actively participate in this national scheme for maritime-port security.

However, the magnitude and diversification of threats in the port area has escalated to the point of seriously affecting any nation, including Spain. In addition to possible direct attacks against national interests in the maritime field, there is a proliferation of hybrid strategies that combine direct attacks with a certain degree of sophistication with cyberattacks, disinformation campaigns, espionage and inherences from abroad, terrorism, violent radicalization, sabotage, crime, trade with illicit trafficking and provoked episodes of pollution, all of which can be unleashed in a certain maritime-port area of great relevance or criticality. These hybrid strategies are characterized by being located in a gray area below the threshold of a direct armed conflict, without identifiable attackers, moldable and blurred in a blurred space, but embedded in a context of conflict involving the Armed Forces.

To deal with all this, the National Defence is expected to link up and contribute to the application of a series of preventive and response measures, in coordination with the national maritime-port protection scheme that has been developed so far. The following measures stand out, among others:

- The provision of early detection and prevention systems through the acquisition of extensive and systematic knowledge of the maritime environment. The aim is to generate intelligence by achieving a system of linked data fusion centres, which integrate military-style data with those of civilian origin provided by administrations and operators, ensuring their interoperability so that they can be processed with artificial intelligence. In the maritime field, it is of interest to rely on the Navy's Maritime Action Operations and Surveillance Centre (COVAM), which can be linked to other networks (NATO's NSC, etc.).
- Deployment of early warnings and reconnaissance and intelligence actions based on reinforced presence in specific operations in different spaces and situations. This entails not only a local presence through national maritime security operations, but also in other waters in collaboration with third countries, whether they are close to the Western Mediterranean (NATO's Operation 'Sea Guardian'), or remote such as the Indian Ocean (the EU's Operation ATALANTA) or the Gulf of Guinea (CMP or EU Coordinated Maritime Presences).
- Consolidation of a system of 'credible deterrence', based on presence and surveillance with permanent operations, under unified commands and coordinated with the governing and management bodies of ports of general interest. These permanent operations involve the defence of such ports in all senses: 'on and from land' and 'on and from sea'.
- Extension of the local control of maritime security exercised by the Naval Commands, in order to continue contributing from these military bodies, in coordination with the local maritime and port administrations, to reinforce maritime security as local maritime intelligence centres, to be focal points for the Naval System of Cooperation and Guidance to Maritime Traffic, to represent the Navy to society and catalyse maritime innovation.
- Targeting of an ad hoc defence device in the ports, through specific plans of those classified as of 'military interest', for their role in sustaining and reinforcing military capabilities deployed in the territory, for serving as a link to territories outside the peninsula, for providing essential services for the supply of resources and basic necessities, and for being prepared to evacuate the population if necessary. The plans must contain

a risk map adapted to each port, from which a series of joint measures are derived with the aim of achieving optimal performance of the operational deployments that are necessary and thus strengthening the resilience of ports when it comes to withstanding and recovering from possible adverse scenarios.

- All of the above cannot be carried out without effective cooperation with third countries on a global scale, nor without due internal coordination with all the civil administrations involved.

4 What can the state-owned ports do for national defence?

In line with the 2030 Safe, Sustainable and Connected Mobility Strategy, promoted by the Ministry of Transport and Sustainable Mobility and the recent Maritime Strategy 2025-2050, the Strategic Framework of the port system of general interest, approved in October 2022, advocates a revitalisation of the role of Port Authorities as leaders of the global offer of the port or ports under their responsibility. It is about provoking a profound change in the performance that the public sector should have on ports.

In accordance with the 'land lord' model that governs Spain, the Port Authorities grant spaces and give licences or authorisations to private companies for the provision of port and commercial services at risk and risk. As a result of this model, Spanish ports accommodate large and plural port communities, made up of operating companies, each specialized in the provision of its own services. These port communities also include public entities with competences in various port matters, such as the Port Authority itself, the Harbour Master's Office, Customs and border inspection services, State Security Forces and Corps and also the Armed Forces themselves.

Within this public-private framework, the Port Authorities have been exercising functions as administrator of the port spaces under their responsibility, planner and promoter of the development of basic infrastructures open to general use, provider of general services and regulator of port services and activities. But, if necessary, such functions become insufficient in contexts as complex and changing as the current one. It is necessary to transcend a traditional administrative exercise of control, to adopt a public position focused on leadership and entrepreneurship over the port as a whole.

This implies for the Port Authority to meet new objectives such as optimising the enhancement of land and basic infrastructures, promoting the highest possible quality/cost ratio of the comprehensive port offer, marking strategic development, boosting the port's business, providing training, being a digital facilitator, stimulating innovation and offering technical and commercial support and assistance inside and outside the port. The aim is to jointly achieve the best possible economic positioning of the port in the transport, logistics and trade networks. But it is also a matter of extending an exercise of co-responsibility towards goals derived from a more than necessary preservation of the general interest. The approach ultimately consists of working in each port under the format of a public-private partnership, reconciling the legitimate particular interests of each company with the general interest.

Among the goals that the Port Authorities must set for the sake of the general interest are not only the economic ones but also those framed in the environmental and social dimensions of the ports. Among them, it is necessary to highlight here the preservation of security seen from a comprehensive point of view, both that of an industrial nature and protection against illicit or antisocial acts, and, in particular, against that which partially or totally threatens national sovereignty.

With this new organizational scheme, it is possible to better address security seen as a priority. In fact, the Strategic Framework itself in force distinguishes between its sixteen strategic lines, a specific line aimed at achieving 'safe and protected ports' in Spain.

In practice, this consideration of safety and security as a priority, insofar as it is both important and urgent, no longer responds only to a specific interest of the public sector. Little by little, it is going from being an imposed obligation to being a factor in the competitiveness of the port, which means that the private agents of the port community themselves share the interest of the public sector in a safe and protected port. They will do so to the extent that their current and potential customers demand it. And the reality is that it is already happening. In the same way that the use of connected, cheap, efficient, reliable, flexible, green and smart ports is demanded from the transport, logistics and trade markets, interest in safe ports is also growing, although it is only due to the consequent reduction in the coverage and risk premiums that customers of these same ports take out with insur-

ers. Therefore, even from a commercial point of view, safety has become a key factor of competitiveness in ports.

Only from this type of reconciliation between the public and the private is it feasible in practice to achieve a predisposition on the part of the ports towards improving security, seen from all angles, including that of national defence.

The axes of joint action in ports in favour of national defence can be identified according to the three levels that make up the port offer:

- Plan of the infrastructures. The objective is to ensure sufficient capacity to meet both land and naval military mobility, especially in the face of massive deployments. In Spanish ports there are usually no draft problems for military ships, although some specific action may be required to enable spaces or reinforce docks and facilities for loading and unloading operations both by lifting ('lo-lo', 'lift on-lift off') and by rolling ('ro-ro', 'roll no-roll off'). What is crucial in this area is to resolve the current bottlenecks suffered by land connections with transport corridors, even for current commercial mobility, especially with regard to rail mode (connection lines, technical and intermodal terminals, etc.). To this end, the actions to be undertaken must be specified, in line with those already underway and in coordination with the appropriate military authorities. Once they have been specified, the Port Authorities must have them programmed in their respective Investment Plans and the origins for their financing have been resolved.
- Plan of the provision of services. The objective here is to meet the potential mobility and logistics needs of warships (berthing allocation, fuel supply, repair, waste management, etc.), military crews and personnel (embarkation, disembarkation, and care) and military equipment (storage, supply, ammunition) with efficiency criteria. From an operational point of view, it will be necessary to adapt the means used for the provision of port services.
- Info-structure plan. For decades now, nationwide digitalisation systems such as the administrative formalities associated with ship calls ('DUEPORT', 'Single Calling Document') have been made available to Defence for integration into the corresponding data fusion centres. However, ports with the highest degree of maturity of their digital platforms ('PCS', 'Port Community Systems') must take advantage of the opportunity to incorpo-

rate Defence as an active user. These digital platforms have an evolutionary pattern that goes from the administrative flow to data and from data to knowledge, through the use of artificial intelligence. In this area, closer collaboration on cybersecurity is needed.

In the case of ports with special 'military interest', all these actions are likely to be specified in specific comprehensive security plans, to be drawn up by mutual agreement between civilian and military bodies. In order to ensure due coherence or compatibility between plans, the Port Authorities may complete the scope and contents of those integrated in their own planning (strategic plans, infrastructure master plans and business plans) and port security plans (ISPS, security plans, operator security plans and specific security plans), for which collaboration between the Ministries of Transport and Sustainable Mobility, Defence and Interior becomes essential.

All these types of actions to be undertaken in the different ports of general interest, aimed at promoting national defence, must be articulated not only through the corresponding Port Authority, as the leader of its own offer and complicit with an elementary principle of the general interest such as national defence, but also from the port system as a whole, under the control, coordination and technical support of Puertos del Estado.

Without undermining the management autonomy of each Port Authority and without losing sight of the competition regime between ports that governs Spain, the Strategic Framework for 2022 advocates the consolidation of a concerted working space within the port system. It is a space of mutual understanding in which, based on consensus, the due commitments are acquired, at least with regard to the general interest. This space includes actions undertaken by a certain group of Port Authorities with common resources or objectives or by the entire system, under the coordination, cooperation and collaboration schemes contemplated in the legal framework that regulates the General State Administration. In fact, the contribution of ports of general interest to national defence is not only supported by the actions just described to be carried out by the Port Authorities, but will also be effective if they are articulated through a national port action unit based in Puertos del Estado, which, in accordance with the guidelines of the Ministry of Transport and Sustainable Mobility, follow these guidelines:

- The sharing by consensus with the Port Authorities of a strategy to contribute to National Defence. This strategy involves shared work when it comes to incorporating the needs of comprehensive security into the planning, regulatory and management instruments of ports of general interest.
- A stable and centralised coordination structure, through Puertos del Estado, between the port system and the civil and military bodies of the Ministries of Transport and Sustainable Mobility, the Interior and Defence, as well as the European institutions competent in the matter. This structure may be formalized through protocols and joint actions with a sense of permanence over time.

The foregoing does not imply equal treatment by each Port Authority. Each port has its own context and characteristics that make it unique when it comes to assessing multiple and far-reaching risks and acting accordingly. Particularly unique, for example, are those located in extra-peninsular territories due to their insularity, isolation or ultra-peripherality. It is also owned by those located next to a 'choke point' such as the Strait of Gibraltar, with a complex maritime access such as the Guadalquivir, with adjacent energy-industrial conglomerates, or with great global connectivity. But only from a unified framework of action in which effective coordination is ensured both within the port system of general interest and between the civil and military spheres, is it possible to successfully face the challenges currently posed by national defence with regard to the port area.

5 Contents of the workbook

In a geopolitical context as complex and uncertain as the current one, where hybrid threats proliferate, this booklet brings together various opinions expressed by experts with a long professional career in the civil and military fields, on the various ways to improve cooperation between Spanish ports of general interest and national defence commands.

The notebook begins with a vision on a global scale to highlight the strategic nature of ports, not only from an economic-commercial perspective, but also as support for the projection of the naval force in the world. With the contribution of Mr. Francisco Esteban Lefler, President of PIANC, the relevance of ports as providers of global connectivity and, at the same time, as nodes of growing

geopolitical influence and generators of power, is highlighted. It describes how, under 'landlord' type models, frequent in the port world, a process of concentration of terminal operators and shipping companies is taking place, behind which the main powers are fighting to take control, given their logistical relevance. An example of this is that of the BRI ('Belt and Road Initiative'), promoted by China that leads it to control, through a reference shipping company, the port of Piraeus. From a maritime-military point of view, ports can function as permanent naval bases, as stopover points for naval units deployed outside their bases, and as naval force attractors to preserve their own critical or strategic character in logistics networks. To meet the needs of the naval force, ports fulfil logistical functions relating to ships, crews and military personnel, and also military equipment itself, in line with the EU Action Plan for Military Mobility, supported by the EU-wide PESCO project aimed at the same purpose, USA, Canada and Norway. To this end, in the absence of major problems, the chapter is oriented to how to adapt, if necessary, certain infrastructures, such as docks and facilities for 'lo-lo' or 'ro-ro' operations and especially land accesses, as well as the port and commercial services themselves with the direct involvement of the entire port community. In line with this, in such a changing world where uncertainty is 'the new tariff that hits world trade' (UNCTAD, 2025), a necessary commitment to innovation and digitalisation is emphasized, as well as to the adoption of the standards of associations such as PIANC.

It then goes on to address the needs of adapting port governance to the new challenges of comprehensive security and protection against unconventional risks, in the current uncertain context. In this chapter, Professor Dr. Nicoletta González Cancelas highlights the recognition since 2008 of ports as critical infrastructures, a condition that today is reinforced as a result of the current physical, operational and digital vulnerabilities to complex threats, to the point of involving not only civilian but also military authorities. It warns about the lack of a stable structure of coordination between port agencies and the civilian and military authorities responsible for security, especially to deal with hybrid threats. To overcome this shortcoming, the author recommends two actions. The first of these would consist of rely on criteria of strategic anticipation and functional integration to incorporate security into the planning, regulatory and management instruments of the Port Authorities, aligning the interests of private operators and citizens. In this sense, the use of indicators that evaluate not

only the efficiency but also the resilience and responsiveness of ports is advocated. For its part, the second is based on a criterion of co-responsibility to raise the design of shared governance through a stable architecture of inter-institutional coordination with key actors in defence and civil protection. Both actions would require appropriate training, innovation and alignment with European policy on military mobility. It would also mean a differentiated state policy, for certain ports such as Ceuta and Melilla, whose special isolation requires a specific strategy of a singular border enclave.

In the next chapter, Captain Federico Ruiz Pedreira emphasises ports as clients of the Navy maritime security focusing their protection 'in and from the sea'. Given their strategic nature, ports are key elements for the Navy from the point of view of maritime security. They are so insofar as they demand preventive and response measures to deal with the various risks that directly affect them, as set out in the National Maritime Strategy on security (security), among which those associated with hybrid strategies in grey areas stand out. These risks are greater when ports accommodate strategic facilities or are essential to the economy. Awareness of these risks dates back to the 1980s with the first maritime attacks and, above all, to 2001, with the attack on the Twin Towers in New York on 9/11. Today the risks are multiplying with the Russian aggression against Ukraine, the conflict in the Middle East and the trade war unleashed by the United States. In this complex context, the Navy plays an essential role. This role is exercised from a regulatory layer, another of knowledge of the maritime environment, agglutinating data fusion centers such as the well-known COVAM of the Navy, and a series of physical layers aimed at early detection or deterrence, with a presence in maritime spaces. This chapter points out examples of presence and control operations in various maritime areas of the world (Indian Ocean, Gulf of Guinea, Western Mediterranean), and especially in nearby waters.

The previous chapter is completed with the vision of defence 'on and from Land' provided by the Lieutenant General of the Army, Mr. Ramón Armada Vázquez, focused on the ports located in the extra-peninsular territories of Spanish sovereignty. The clear condition of these ports as essential infrastructures for the socio-economic development of these territories, together with their role as international logistics nodes, makes it necessary to protect them not only from a civil point of view, but also from

a military point of view; especially in the face of the proliferation of all kinds of risks, many of them grouped together in the form of hybrid threats, as recognized by the National Security Strategy. To this end, this chapter recommends that both deterrence and defence be strengthened with the public administration responsible for port security, in charge of the current operational command structure of the Armed Forces. Deterrence entails the deployment of permanent presence and surveillance operations, while defence involves a global plan from which specific plans are drawn for those ports classified as being of 'military interest', which include their defence 'on' and 'from' land, in close coordination with the competent Administrations, and in particular with the port system. This would include the integration of Defence into the relevant port security management bodies. It concludes by stressing that, in a scenario of hybrid threats such as the current one, the collaboration of all is key to the deterrence, protection and defence of extra-peninsular ports 'on' and 'from' land and their integration with the rest of the maritime, air, space and cyberspace fields.

A chapter in this publication is dedicated to the Naval Commands. Captain Tomás García-Figueras recalls the important legal reform put into force in 1992 by which the Maritime Administration of Ports and Coasts went from military bodies (specifically, the Navy) to civilian bodies (DGMM, Maritime Captaincies and SASEMAR). This restructuring, although necessary for European integration, generated coordination gaps that the new maritime security paradigm needs to be overcome. The chapter contextualises Spain's privileged maritime position and the transnational nature of maritime security, especially in the face of hybrid threats that blur the traditional distinction between the civilian and the military. The strategic role of the Navy's Naval Commands as essential civic-military nodes for the comprehensive maritime security of Spain is analysed, and the current tasks of the 24 Commands, which currently depend on the Admiral for Maritime Action, are detailed: from the contribution to the action of the State at sea and the management of knowledge of the maritime environment, to specific functions such as the allied NCAGS system, the protection of underwater archaeological heritage, or the authorization of underwater activities. Its strategic role in maritime sovereignty, military mobility, naval presence and as operational liaison centers in emergencies stands out. After a comparative analysis with models from the United Kingdom, France and Italy, the author proposes a renewed vision: to turn the Commanderies

into true strategic nodes of civil-military integration, without reversing the separation of competences of 1992, but through institutional complementarity. The proposal is aligned with the principles of the current National Maritime Security Strategy and with the 'Armada 2050' vision, contributing to Spain having a port security system that is up to the challenges of the 21st century.

In a specific chapter developed by Professor Dr. Alberto Camarero Orive, the vulnerabilities of choke points are described. Among them, the Straits of Hormuz, Malacca, Bab el-Mandeb, Gibraltar, Bosphorus-Dardanelles, some with a long history of conflict behind them, as well as the Suez and Panama canals. Its relevance is critical at the economic, energy, military and geopolitical levels. In particular, at the economic level, its partial or total closure would almost immediately generate a global crisis. Suffice it to recall to this effect the grounding of the 'EverGiven' in Suez in 2021. In terms of energy, the Straits of Hormuz, Bab el-Mandeb and the Suez Canal stand out for their criticality, to the point of causing the presence in Bahrain of the Fifth Fleet of the United States, a country that is also very aware of the Panama Canal. On the other hand, at the military level, they are spaces where fleets can be contained or blocked, where it is possible to exercise naval control from nearby bases, and where it is also possible to launch actions against access or denial of area with mines, coastal missiles or submarines. The Houthi attacks in the Red Sea are good proof of this. Finally, at the geopolitical level, the control of choke points has become vital for powers such as the United States in its defence of freedom of navigation, China in its strategy of extending its network of ports and bases, Russia in its process of militarising the Arctic route and the Black Sea and the EU in its move towards strategic autonomy in maritime security. In reference to Spain, apart from also being affected by what happens in Suez or Hormuz, the Strait of Gibraltar is highlighted as critical as it is an obligatory passage for the great transoceanic routes and serves as a base for NATO and EU naval operations in the Mediterranean and the Atlantic. In view of this, a series of proposals are launched to strengthen port security.

Precisely as a 'choke point' of special criticality, the Strait of Gibraltar, together with its surrounding region and the port of Algeciras Bay, is the focus of attention of the chapter written by the president of the Port Authority of the Bay of Algeciras, Mr. Gerardo Landaluce Calleja. It highlights Gibraltar as the second largest crossing in the world with 130,000 ships a year, only sur-

passed by the English Channel. The port of Bahía de Algeciras is a first-class benchmark in this Strait of Gibraltar by offering 'deviation 0' from the East-West 'round the world' axis and being a bridge with North Africa. This makes it the first economic pole in the region, the most efficient in the EU and the one with the highest traffic and maritime connectivity among the European ports of the Mediterranean. However, this chapter warns about two threats. The first stems from the power of shipping companies, in the course of a strong horizontal and vertical integration, which limits the capacity of Port Authorities to project and manage. Situations such as Piraeus or others caused by foreign direct investment, are leading the EU to defensive actions of control and counteroffensives of irradiation of influence through the 'Europe Global Gateway' strategy, promoting green maritime corridors such as the Panama-Algeciras one. The second threat stems from the extension of the emission rights system (ETS) to the maritime sphere, as it infers carbon and investment leakage, undesired effects, which would be overcome with the replacement of the maritime ETS with the IMO's 'Net Zero Framework'. In view of this, the relevance of the ports and, especially that of the Bay of Algeciras, from an economic, energy and security preservation point of view both in the civil and military spheres is highlighted. This relevance deserves, according to the author, a specific State policy for the area of Gibraltar and its port, with a series of measures that are pointed out in this chapter.

Chapter One

An international perspective on the importance of ports for national defence

Francisco Esteban Leffler

Abstract

More than 80 % of global trade in goods is transported by sea (UNCTAD, 2025), which justifies an analysis of its strategic importance.

This article analyses the international role of ports from a strategic perspective, both in commercial terms and in terms of their potential as supporting infrastructure for the projection of military power by major powers and international alliances.

The report examines the role of investment, technology and international technological cooperation. The analysis examines key aspects of the current situation, such as the Belt and Road Initiative (BRI), which is the most significant initiative in the history of maritime trade and has clear implications for the geopolitics of investment.

It is concluded that maritime transport is a sector characterised by uncertainty and volatility, in which changes in the strategic landscape unfold at a rapid pace.

Key words

Ports, Maritime trade, Strategic location, Investment, International cooperation.

1 International shipping

1.1 Main global maritime trade routes

International maritime transport is placed in its geographical context using very recent data, including that published by UNCTAD (2024). Its forecast for growth in maritime trade for 2024 was 2%, and 3.5% for containerised cargo. This growth is driven by rising demand for dry bulk and liquid oil and gas, as well as for containerised goods (UNCTAD, 2024). Table 1 summarises the container traffic data forecast by UNCTAD for 2024[1].

RUTAS PRINCIPALES ESTE-OESTE

		TEU (millones)		
RUTA	SENTIDO	Sentido	Ruta	TOTAL
Trans-Pacífica	E: Este de Asia - Norteamérica	21,7	28,6	59,5
	O: Norteamérica - Este de Asia	6,9		
Asia-Europa	E: Norte de Europa y Mediterráneo - Este de Asia	6,9	23,0	
	O: Este de Asia - Norte de Europa y Mediterráneo	16,1		
Trans-Atlántica	E : Norteamérica a Norte de Europa y Mediterráneo	2,6	7,9	
	O: Norte de Europa y Mediterráneo a Norteamérica	5,3		

OTRAS RUTAS (NO PRINCIPALES)

	TEU (millones)	
RUTA	Ruta	TOTAL
Este - Oeste (no principales)	23,3	107,3
Norte - Sur	14,6	
Sur-Sur	22,9	
Intrarregional	46,5	

Table 1. Container traffic forecast for the various routes (UNCTAD, 2024)

It is clear that traffic to and from East Asia predominates. The figure for intra-regional traffic includes feeder traffic, which distributes containers from long-haul routes regionally after they have been transhipped at hub ports.

[1] TEU stands for Twenty-foot Equivalent Unit; in other words, it refers to a container equivalent to 20 feet (6 m).

As for container traffic in 2024[2], the busiest port was Shanghai (51.5 MTEU[3]). The first port outside the Far East was Dubai (15.5 MTEU), coming in eighth place. The top European port (11th place) was Rotterdam (13.8 MTEU); the top African port (17th place) was Tanger Med (10.2 MTEU); and the top Spanish port, in 43rd place, was Algeciras (4.7 MTEU).

1.2 Connectivity

1.2.1 Maritime connectivity

Maritime connectivity in container shipping is measured using the port connectivity index defined by UNCTAD (LCSI, Liner Shipping Connectivity Index). This global index measures the quality of ports' connections (and applies to countries as well) to global container transport networks. It does not correspond to the volume of traffic. Greater connectivity means lower costs, improved turnaround times and greater reliability.

In the second half of 2024 (UNCTAD, 2024), Asian countries dominated the top ten rankings for maritime connectivity, led by China, followed by the Republic of Korea and Singapore, with Malaysia, Japan and Vietnam also featuring in the top ten. The United States came fourth. The European countries with the best maritime connectivity were Spain, the United Kingdom and the Netherlands.

Table 2[4] lists the fifteen ports with the highest connectivity index in the second half of 2025.

A clear majority of the top fifteen ports are in East and South-East Asia, with only two European ports featuring in the list. There are seven ports in the People's Republic of China. In line with the data on container routes in Table 1, the centre of gravity of port traffic lies in East Asia, which is a key factor in analysing the geopolitical impact of ports.

[2] See *The Top 50 Container Ports in 202*4: https://www.worldshipping.org/top-50-container-ports

[3] Millions of TEUs

[4] Compiled using data from the UN Trade and Development Data Hub, accessed on 18 August 2025. See: https://unctadstat.unctad.org/datacentre/dataviewer/US.LSCI

1.2.2 Land connectivity

Land connectivity depends on access to inland transport networks, whether by water (rivers and canals), land (roads and railways) or air.

Inland transport facilitates maritime connections with sources of raw and agricultural materials, with industries (both those receiving goods and those shipping their products), and with other cargo handling and generation centres.

15 primeros puertos
2º trimestre de 2025
Indice: referido al valor 100, valor medio del índice en el 1er trimestre de 2023

Puesto	País	Puerto	Indice
1	China	Ningbo	202.833
2	Singapur	Singapur	182.247
3	República de Corea	Busan	165.888
4	China	Qingdao	136.362
5	Malasia	Port Klang	111.114
6	China	Nansha	106.776
7	China	Hong-Kong	101.299
8	Países Bajos	Róterdam	96.012
9	Bélgica	Amberes-Brujas	90.647
10	China	Xiamen	90.373
11	Taiwán	Kaoshiung	85.209
12	China	Yantian	80.944
13	China	Xingang	76.186
14	Japón	Yokohama	73.479
15	Tailandia	Laem Chabang	72.106

Table 2. Maritime Connectivity Index

Land-based connectivity is essential for international trade in landlocked countries, which have to import and export raw materials and manufactured goods via the ports of neighbouring countries.

1.3 Competitiveness

As a key hub in the logistics system, the port faces competition from other ports vying for the same traffic. Competitiveness is

assessed in terms of economic performance, efficiency, safety and sustainability.

The factors that determine a port's competitiveness are:

- Location: physical environment, accessibility and characteristics of the hinterland or catchment area.
- Physical and digital infrastructure.
- Maritime and land transport links.
- Governance, transparency, and capital and investment structure.
- Efficiency in procedures, including customs procedures.
- Types of cargo, terminals and equipment.
- Operating costs and operational efficiency.
- Quality and variety of services for ships, cargo and passengers.
- Human resources: training and specialisation.
- Innovative capacity.
- Sustainability.

2 The port as a hub in the logistics system and as a naval base

2.1 Key characteristics of commercial ports

2.1.1 Port terminals

A port's terminals determine its transport capacity and, consequently, its role in the local, regional, national or global economy.

The most important types of terminals in ports (PIANC, 2014) are:

- Containers.
- Roll-on/roll-off of RoPax.
- Multi-purpose general cargo vessel.
- Solid bulk goods: steel, mining and agricultural.
- Liquid bulk cargo: hydrocarbons, liquefied gases, new green fuels or chemicals.
- Cruises.
- Others: offshore support (oil platforms, offshore wind farms, etc.), livestock, tugs and pilot boats, military vessels, fishing facilities, and marinas and recreational boating facilities.

The presence of several such terminals, with the appropriate specifications, may facilitate the full or partial military use of port facilities.

2.1.2 Cooperation and rivalry

Ports, as connected hubs, are, by their very nature, centres of cooperation. As hubs for trade and logistics, particularly in terms of access to strategic raw materials or the potential for monopolising them, they are key geopolitical assets from both a military and an economic perspective.

The strengthening of their role as centres of international competition and rivalry entails the sporadic, or even permanent or semi-permanent, presence of naval and military forces to support logistical strategies. Interest in the strategic control of ports also stems from their role in supply chains, which are intended to be protected or controlled.

Hence the interest in the ways in which nations and various transport operators establish cooperation mechanisms, reach global—or area-specific—logistical agreements, or come into conflict. Unlike a purely territorial conception of geopolitics, the focus is on the transport of goods via a specific logistics network, viewed from a political and economic perspective (Ampleman, 2021).

2.1.3 The geostrategic role of ports

There is a close historical link between maritime trade and naval and military power. Areas of economic importance located in zones of geopolitical tension, such as Taiwan, are also focal points for naval strategies. Ports, as key hubs in international trade networks (Noorali, Flint and Ahmadi, 2022), have a greater influence than the oceans themselves.

Since the 1980s, governments and companies in the logistics sector have invested heavily in improving the economic productivity of ports, recognising that their role goes beyond purely economic considerations and is key to exerting influence on the international stage. In the current climate of instability, volatility and constant geopolitical change, ports have become increasingly important from a geostrategic perspective.

Transport corridors with a global impact use ports as hubs. Therefore, from a geostrategic perspective, land transport modes

cannot be considered in isolation from maritime transport. Control of ports in strategic locations is a key component of States' geopolitical activities.

Port powers have the capacity to exert a decisive influence on the balance of regional and global power. Port power is essential in determining the geostrategic situation at any given time.

Eight key factors can be identified for assessing a nation's port power (Noorali, Flint and Ahmadi, 2022):

- Total volume of trade passing through national ports.
- National association of port operators.
- Investment in ports in third countries.
- The global nature of port cities.
- Establishment and maintenance of maritime transport networks.
- The geopolitical treatment of ports.
- Port support for the naval force.
- The access they provide to the major landmasses (Eurasia, the Americas and, more recently, Africa).

2.2 Naval bases and the military use of commercial ports

2.2.1 Deployment of military naval units away from their bases

There are situations that require military naval vessels to be temporarily stationed away from their bases, whether or not accompanied by ground or even air forces, making it necessary to rely on existing ports. Four types of challenges have characterised maritime security (Bueger and Edmunds, 2024): the conflict between competing visions of how the ocean should be governed; States' dominion and control over the sea; economic use and its limits (including trade and marine resources); and issues relating to legality, justice and representation at sea.

A series of events has shaped international cooperation on maritime safety. Historically, it began with the fight against maritime terrorism, continued with the fight against piracy off the coast of Somalia, and has since evolved into a global approach based on the recognition of the need for integrated solutions to maritime security and the need to build capacity to promote international understanding. Added to this today are geopolitical competition

and the emergence of a global mindset focused on the challenges of climate change and the fight against biodiversity loss.

International naval operations that may require the temporary deployment or use of commercial ports are classified as follows:

- Essentially military: control of the seas to protect friendly shipping; denial of access to the sea, thereby restricting the enemy's freedom of movement; and the projection of power, including the deployment of forces onto land.
- Maritime police operations, such as safeguarding the safety of navigation, including that of shipping lanes and straits (choke-points), against piracy; enforcing maritime law; combating 'blue crime'; and protecting the marine environment. In many countries, these functions are shared or fall directly within the remit of the coastguards particularly where these organisations have ocean-going vessels.
- Naval diplomacy: deterrence and the assertion of national interests or alliances, demonstrating a naval presence, port calls, etc.
- Response to disasters and emergencies response.

2.2.2 Naval bases and deployment in commercial ports

Naval bases are equipped with all the necessary facilities for the ships and units permanently stationed there, in line with medium- and long-term planning criteria.

Port of call refers to ports that ships call at during their voyage, as distinct from their usual home ports. The minimum requirements for a port of call are that it must have sufficient draught and provide safe berthing. In the case of a temporary deployment, these basic characteristics are supplemented by specific requirements inherent to the mission and the support it requires (United States Department of State, 2017). Meeting these requirements involves assessing the existing infrastructure and, in some cases, making modifications to enable the necessary support operations to be carried out. The deployment may include the use, specifically for operational or support purposes, of airfields and ground unit bases.

The key functions include refuelling, resupply and rearming, embarkation and disembarkation of personnel, personnel support, repairs and other specialist tasks.

Other potential requirements include communications, access and parking for land vehicles; connections to civil or military airports; storage areas; waste management facilities; lighting; support buildings; fire safety measures; and health and safety facilities.

Security requirements can vary greatly depending on the mission and the environment, and may necessitate a specific permanent deployment involving both ground and air forces. These can range from basic land-based perimeter security and access control to defence against attacks from land, sea or air, with the implications inherent in each of these threats. In the current context, explicit consideration must be given to the inclusion of detection and defence systems against aerial drones (UAVs) and maritime drones, both surface-based (USVs, Unmanned Surface Vehicles) and underwater ones (UROVs, Underwater Remotely Operated Vehicles).

2.2.3 Adaptation of commercial ports for use by the Navy

A major permanent naval base provides support, on a different scale and using different auxiliary resources, for operations which, from a purely port-related perspective, are comparable to those carried out at commercial ports.

As far as draught is concerned, there are rarely any problems accessing civilian ports, as the draught of warships rarely exceeds eight metres.

Supply containers can be delivered to conventional terminals, and loading and unloading via bow or stern ramps can be carried out using existing Ro-Ro ramps, provided their capacity to handle heavy vehicles has been verified or they have been reinforced or modified to meet military requirements.

The key areas where differences may arise are:

- Ro-Ro (Roll-on/Roll-off) loading and unloading via side ramps. Adaptation works may be required (structural reinforcements, ramp recesses, boarding platforms at a different level to that of the quay, etc.) depending on the geometry of the quay, the ship and the tidal range.
- Lo-Lo (Lift on – Lift off) loading and unloading, which, as they involve heavy loads, require large mobile cranes or crawler cranes. Loads may exceed the design capacity of the quays,

which may require the reinforcement of existing structures or restrict heavy-duty operations to specific quays.

– Items typically used in naval operations, such as floating or foam fenders, or 'camels' (spacers used on mooring lines for vessels with hull structures extending beyond the waterline, typically large submarines), can be supplied by support vessels.

The level of support required in port depends on the naval, land and air forces deployed, the nature of the mission and its expected duration. Effective support requires prior research and technical analysis of the port; its governance and terminal ownership; its infrastructure, capacity and services; its maritime and land access routes; the port services available (including towing, pilotage and fuel supply); and the capacity of its hinterland to provide the necessary supplies.

These criteria are in addition to purely military considerations, such as the suitability of the site for the mission, maritime accessibility, the difficulty of blockading the port, and the feasibility of equipping the port with defences against naval, air and land threats.

To this the need for diplomatic agreements with the host country must be added and, depending on the port governance model, also with terminal operators, port service providers, shipping companies operating in the port and, where applicable, operators of land and air transport links.

2.2.4 Military mobility in the European Union (EU)

The EU has adopted the Action Plan on Military Mobility 2.0 (2022–2026), which aims to ensure the rapid and seamless movement of military personnel, equipment and assets, on a large scale and at short notice, both within and outside the EU. This plan is supported by the EU's PESCO (Permanent Structured Cooperation) Project on Military Mobility, as well as by the US, Canada and Norway.

This action plan calls for a well-connected multimodal network that can be mobilised at short notice and is equipped with infrastructure that is safe and resilient to extreme weather events.

In this context, ports are logistics hubs that link land transport networks with sea and river routes, and are of great importance in Europe.

The viability of the plan requires the strategic establishment of interconnected transport networks capable of supporting operations involving the movement of troops fully equipped with heavy equipment, and capable of remaining operational following attacks. This requires a robust design, as well as built-in resilience, which is further enhanced by the option of using alternative routes.

In this system, ports, through their maritime or river transport links, help to boost the system's capacity and reduce congestion on land transport routes (roads and railways). Ports must be equipped with quays and loading areas capable of safely carrying out military operations, as well as with defences against air, naval, land and unconventional attacks.

2.2.5 State-owned ports of interest for defence

The implementation of a mobility model such as the one envisaged in the action plan requires careful and rigorous planning. This includes governance mechanisms, given that many terminals are owned by foreign concessionaires under standard governance models (including the Spanish model), as well as mechanisms for assessing and adapting the infrastructure.

In the specific case of Spanish ports, the criteria that should guide the selection those of defence interest include:

- Connectivity with the land transport networks included in the mobility plan and with the European TEN-T network (Trans-European Transport Networks).
- Proximity to and connectivity with land and air force bases, shipyards, logistics centres and industrial facilities that could be mobilised for military use.
- Location outside urban centres, due to the vulnerability of the civilian population and the greater efficiency of transport links.
- Potential for use as alternative deployment bases, particularly in the case of naval bases vulnerable to naval or air blockades.

These criteria apply not only to Spanish ports, but also to any potential international deployments.

3 The strategic economic dimension of ports

3.1 The economic impact of commercial ports

The logistics network is structured around three main levels: raw materials and component supply, manufacturing, and distribution. Maritime transport links these three stages. Ports are the hubs, and links are the maritime and land routes to the hinterland or the port's catchment area (Rodrigue, 2020).

Some goods are transported directly from port to port, as is often the case with bulk cargo and general cargo. The situation is different for containers, which are transported between hub ports via ocean routes, where they are transferred to feeder routes that connect them to ports of origin and destination using smaller vessels. These activities enable ports to be classified as hubs and entry/exit gateways. Many ports handle both types of traffic. There are ports where the role of a hub is clearly predominant, such as Busan in the Republic of Korea.

This system establishes three types of functional interdependence with the other nodes (Noteboom, Pallis and Rodrigue, 2022):

- Chain networks, in which data flow sequentially from node to node;
- Hierarchical networks, such as the hub-and-spoke system commonly used in container transport.
- Transactional networks, in which ports act as nodes within a system of commercial relationships, within which they may either complement or compete with one another.

The links between nodes, represented by maritime and land transport connections, determine the strength of the system, as they form the basis of the logistics network's efficiency. Connectivity is also the system's main vulnerability, as disruptions are also transmitted through it. Seemingly minor disruptions can have disproportionate effects as they ripple through the logistics network. The absence of a single component in a complex product, such as a semiconductor, can halt production and distribution and overwhelm the network's storage capacity, leaving no way to dispose of the remaining components.

One example of a major disruption caused by a single incident is the grounding of the container ship Ever Given in the Suez Canal on 23 March 2021, whilst en route from the port of Tanjung

Pelepas (Malaysia) to Rotterdam, which blocked the Suez Canal for six days. This incident resulted in goods worth approximately ten billion dollars being held up or delayed on a daily basis (UNCTAD, 2024). Another example of a regrettably topical issue is cyberattacks.

During the COVID-19 pandemic, connectivity played a dual role: the logistics system suffered the severe disruptions that were to be expected; yet, at the same time, the system itself was able to establish alternative routes and redeploy resources from one part of the logistics network to another, thereby significantly limiting the damage through improvised governance mechanisms.

The extent to which disruptions spread depends on the nature of the port: in transhipment ports (hubs), they spread via maritime links to other ports, whereas in entry/exit ports (gateways), they primarily affect their hinterland.

The geostrategic impact of ports depends largely on their influence on the economy. The role of ports in the geopolitical context is a relatively recent focus of port studies, in which it is still not widely addressed.

Beyond their role in projecting naval and military power, the potential of ports as geopolitical assets (Merk, 2017) is evident in terms of safeguarding trade, industrial development and energy security.

With regard to trade, consideration must be given to securing access to strategic raw materials and components of the logistics value chain, the capacity to export domestically produced goods and manufactured products, and the ability to effectively block competitors. The very location of ports can give them a geostrategic significance, as is the case with those situated near key access points.

The following types of strategic ports can be identified (Merk, 2017): those serving as gateways to resource-rich areas or areas with a high concentration of consumers; transhipment ports located along major maritime routes, close to chokepoints; and ports that enable the opening of alternative routes or corridors

3.2 International strategic approach to commercial ports

The mechanism for economic intervention lies in investment—either in the construction and operation of new ports, or in the

upgrading of existing ports, with some investment directed towards less ambitious projects. The possibilities will depend on the ports' governance models, the structure of the financing, and the political agreements between the investing country and the recipient country.

Investments usually foster geopolitical ties of loyalty, based on their economic impact. The link between investment and its impact depends, to a large extent, on the economic and business structures of the investing and host nations; in particular, on the extent of State involvement in the companies concerned. The investment is in itself a demonstration of 'soft power'.

Ports are gateways to foreign economies. One of the primary effects of the investment is the strengthening of the investing nation's port industry: engineering, design and construction, dredging, port equipment and operations, as well as other directly related sectors: free zones, infrastructure and transport services in the hinterland (railways, roads, pipelines, waterways, etc.).

Other investments in ports that are already relatively significant will inevitably be limited in scope, depending on the port governance model. These models depend on the relative roles of the public and private sectors. There are five main models (Noteboom, Pallis and Rodrigue, 2022):

- Public port: the port authority owns the infrastructure and provides all services, with the exception of a few minor ones.
- Tool port: the private sector manages the handling of cargo loading and unloading operations, although the equipment is owned, in whole or in part, by the port authority.
- Landlord port: a model previously recommended by, amongst others, the World Bank, under which the infrastructure (particularly the terminals) is handed over to private operators, usually through concession agreements, whilst the port authority retains ownership of the land and the water area. Most ports adhere to this model, which has numerous variations. However, the World Bank itself, in the third edition (2025) of its Port Reform Toolkit, has already called into question the landlord model, citing its excessive rigidity in dealing with current volatility.
- Corporatised ports: almost entirely privatised, although ownership and, in some cases, the majority shareholding remain in public hands.

– Private service ports: the model involves the complete privatisation of the port for a fixed period. The port authority, which operates under a concession, oversees virtually all of the port's operations, whilst the public sector retains regulatory oversight. This is the case with ports in the United Kingdom and Australia.

There are also cases where ports have been privatised through concessions granted to foreign companies, such as the port of Piraeus in Greece[5]. The Piraeus Port Authority (PPA) is subject to a concession agreement running until 2052, awarded to COSCO Shipping (Hong Kong), which increased its stake to 67% in 2021, whilst the remainder of the capital remains in the hands of the Greek State through the HRASFD (Hellenic Republic Asset Development Fund).

The landlord model has led to the emergence of global terminal operators, particularly in the case of container terminals. The major operators (PSA, HPG, DP World and APM Terminals) operate in some twenty to thirty countries. The lack of financial resources in developing countries has encouraged these companies to expand by investing in facilities outside their borders, thereby promoting development.

Most global terminal operators are privately owned, although some of them, particularly in the People's Republic of China, are State-owned and therefore tend to align their objectives with those of the State. There are also locally owned ones. Some public port authorities have also begun to invest in foreign ports, such as Rotterdam and Antwerp-Bruges.

In this context, it is necessary to consider the organisations specifically dedicated to cooperation through financing, many of which are multilateral, such as the Asian Infrastructure Development Bank (with 109 members) or the Inter-American Development Bank (IDB, with 26 borrowing members), as well as national development aid organisations such as JICA (Japan International Cooperation Agency).

The provision of port services or the supply of operational equipment is another form of involvement in foreign ports. These services may be grouped together with technical or infrastructure works.

[5] Visit the Port of Piraeus website: https://hradf.com/en/piraeus-port-authority-s-a-ppa/, accessed on 8 August 2025.

The complexity of the port sector sometimes makes it difficult to interpret the purpose and nature of investments and equity acquisitions, particularly in terms of their geo-economic implications and the formation of geopolitical ties.

This variety of actors, models and relationships defines the complex geo-economic environment of ports. Each type of involvement in a foreign port provides strategic control tools, the effectiveness of which increases as the number of areas in which one is involved grows.

3.3 Shipping alliances

Shipping alliances reflect their ability to adapt to the changing circumstances of container shipping, which is currently the most prevalent form of transport, as it is the most technologically advanced and has revolutionised logistics. Alongside mergers and acquisitions, alliances form part of the key tools available to shipping companies for adapting to market fluctuations and pressures, particularly with regard to price control.

The partnership system was strengthened following the 2008 economic crisis, which had a significant impact on the sector, and proved its worth during the disruption caused by the COVID-19 pandemic. During the pandemic, shipping companies performed well, albeit at the cost of a significant rise in container freight rates.

The changing nature of these alliances reflects the rapidly evolving market and the shipping companies' ability to adapt. By way of example, the main changes expected in 2025 can be summarised as follows: the end of the 2M Alliance between MSC and Maersk; Maersk forms the Gemini Cooperation with Hapag-Lloyd, which, in turn, withdraws from THE Alliance. It has been rebranded as the Premier Alliance, bringing HMM on board alongside ONE and Yang Ming. The Ocean Alliance, on the other hand, is set to continue until 2032, comprising COSCO, CMA CGM, OOCL and Evergreen, whilst MSC will continue on its own.

The logistics sector is also seeing a trend towards vertical integration, with terminal operators and logistics providers—not just maritime ones—joining forces, enabling shipping companies to offer door-to-door services.

3.4 Key points: the steps

Maritime routes are, essentially, corridors several miles wide that connect economic regions and enable the challenges posed by gaps in land transport to be overcome (Noteboom, Pallis and Rodrigue, 2022). Routes are determined by chokepoints, which are usually of a strategic nature, sometimes being natural straits and at other times artificial interoceanic canals (Suez and Panama).

The other factors that determine maritime routes include the shortest distance (using great circles), climatic conditions, coastal topography and political barriers to navigation. Passages often have capacity constraints, which increases their strategic value, along with the significant impact in the event of a closure, blockage or any other disruption to traffic.

The usual shipping routes are concentrated in a limited part of the ocean, where the geostrategic aspect linked to physical geography is to be found.

3.5 The Navy as a pillar of trade policy

The geo-economic importance of commercial ports highlights the role of the military navies in supporting commercial or political port strategies. Naval operations can take various forms, ranging from carrying out visits (one-off or regular) to establishing permanent naval and military bases.

The reasons justifying the use of naval forces include: the emergence of geopolitical tensions in areas close to ports, their location in disputed territories, or threats to maritime security, such as piracy, terrorism and other forms of 'blue crime'. Another reason is to take pre-emptive action, to hinder the expansion of rivals on the geopolitical stage and, conversely, to provide allies and partners with access to their own naval facilities in areas of tension. The volatility of the current geopolitical landscape makes it difficult to analyse scenarios, even in the short and medium term. The most important factor at present is probably the rivalry between the United States and the People's Republic of China, as well as Russia's role in the Arctic.

One example of the use of naval power is the base opened by China in Djibouti in 2017, near the Bab-el-Mandeb Strait, which, whilst presented as a logistical support base, is the People's

Republic of China's first naval base abroad. It is located very close to the port of Doralee, which is operated by Chinese companies, highlighting its link to trade protection. The proximity to the US military base at Camp Lemonnier is a source of tension in the area.

The link between commercial expansion and naval and military expansion is more direct in the case of regimes with greater State intervention in the economy, as this allows for greater alignment of the various actors with national objectives.

4 The role of technology

4.1 Cutting-edge technological: capabilities

Port technology is evolving rapidly in terms of design, construction and port operations. Digitalisation and automation play a key role. Productivity and competitiveness require constant adaptation, as well as the integration of sustainability and adaptation to climate change and extreme natural events, which are becoming increasingly intense and frequent.

Technology proves highly competitive when comprehensive and coherent packages are offered for the development of efficient port terminals, combining engineering, construction, equipment and operational capabilities; this is all the more so if attractive financing models are included, such as soft loans or preferential financial arrangements, in exchange for access to strategic raw materials.

A direct consequence of this type of operation is the creation of commercial maritime networks, which lead to preferential political relations and, ultimately, to shared security interests.

4.2 Digitalisation and cybersecurity

Digitalisation plays a key role in international maritime and multimodal trade. The streamlining of customs and logistics procedures relies on tools such as the digital single window for all ship-related procedures, whilst the tracking of container transport is now frequently based on blockchain technology.

The maritime and land-based connectivity of ports extends into the digital world. Digital connectivity is vulnerable, presenting a potential point of attack on the system, whether to gain access to infor-

mation or to cause disruption. Cyberattacks on ports and shipping companies around the world are rife, and significant resources are now being allocated to cybersecurity as a strategic priority.

Digitalisation also plays a key role in technical surveying processes; in construction engineering and management; and in port operations.

4.3 International technological cooperation: the PIANC model (The World Association for Waterborne Transport Infrastructure)

Technological capability is a key factor in enabling the construction and operation of ports beyond a country's own borders, and is complemented by investment capacity. Cutting-edge technology is a priority for nations seeking international leadership in the port sector.

Technological capabilities must be recognised by the technology community as safe, viable and cutting-edge in order to be valued on the international stage.

It is very difficult to achieve recognised positions of international leadership without pafigurarticipating in organisations for technological cooperation. This enables organisations to showcase their own technological achievements; to draw on the experience and knowledge of others; and to accelerate technological progress, thereby contributing valuable knowledge and recommendations to society.

In the port sector, this role is fulfilled by PIANC, which comprises 44 national organisations across five continents and has members in 79 countries. It has 520 corporate members and around 1,600 individual members. PIANC carries out its work through four technical commissions and the working groups they oversee. These committees and working groups bring together leading international experts and produce technical reports that reflect the current state of knowledge. They form the basis for legislation in many countries and provide decision-making tools for managers in both the private and public sectors.

PIANC addresses the need for international cooperation from a purely technical standpoint, free from political bias and with strict neutrality. This even makes it possible to bring together experts from nations that are rivals in the geopolitical arena to work on joint projects.

5 Global economic initiative: the New Silk Road (The Belt and the Road)

5.1 General information

The People's Republic of China's New Silk Road is the most prominent example of building relationships through investment agreements in transport infrastructure in third countries. The initiative forms a network of economic and political alliances that underpins China's cooperative leadership in a new geopolitical order. It differs markedly from the exercise of conventional 'hard' strategic naval power, such as that exercised in conflict zones.

The Belt and Road Initiative (BRI), or New Silk Road, represents the evolution of China's outward-looking policy, which began in 1999. It is a geo-economic project which also serves as an effective political tool in the construction of a new international order based on cooperative economic relations. This is partly due to overcapacity in China's construction industry, a glut of capital, and connectivity barriers that limited China's access to export markets and natural resources (Tudoroiu, 2024). Given its scale, this is the largest economic and strategic development initiative in history.

China's leadership has been promoting a number of new multilateral financial institutions, in addition to those that already exist, in which China has also been playing an increasingly significant role. Among these, the Asian Infrastructure Investment Bank (AIIB) stands out, as it participates in the *BRI* alongside purely Chinese financial institutions.

The initiative was announced in 2013 and began to take shape within two years. It comprises two components: the Silk Road Economic Belt and the 21st Century Maritime Silk Road, which together form the Belt and Road Initiative (BRI). The original initiative comprises six corridors, three of which are maritime: the China–Indochina Peninsula corridor, the China–Pakistan corridor and the Bangladesh–China–India–Myanmar corridor. The initiative quickly grew into a global project, spreading to parts of Europe (including within the European Union) and the Americas, including the Caribbean. It is estimated that between 146 and 150 countries will be involved in the initiative in one way or another by May 2025[6].

[6] See the Green Finance and Development Centre website, accessed on 20 August 2025: https://greenfdc.org/countries-of-the-belt-and-road-initiative-bri/

This is not a uniform initiative; despite the multilateral rhetoric underpinning it, it is based on specific bilateral agreements between governments that do not always involve geostrategic integration, but rather mere investments by Chinese companies, such as COSCO's investment in the port of Piraeus in Greece. The primary focus remains connectivity, underpinned by the construction and operation of infrastructure projects. The initiative covers ports and airports, land transport systems (roads, railways and pipelines) and communications systems. The result is an increase in exports through the opening up of markets and access to raw materials and agricultural products, underpinned by tariff reduction agreements and the promotion of investment in development hubs.

Improved connectivity fosters economic interdependence whilst bolstering China's leadership and influence within the initiative. Ports form the backbone of the maritime transport system, serving as the entry points for Chinese exports and the exit points for raw materials and agricultural products from importing countries.

The COVID-19 pandemic affected the financial resources available to fund the initiative, as well as the recipient countries' ability to service their loans.

From a geostrategic perspective, one outcome of the initiative is an increase in the People's Republic of China's security, influence and status; the expansion of its strategic hinterland; and the stabilisation of its periphery.

The establishment of naval bases such as the one in Djibouti and the potential dual use of ports built or modernised under the initiative provide a foundation for safeguarding maritime traffic between China and its partners.

The transport corridors financed and built by China also have a clear impact on regional power balances, as is the case in Africa.

In addition to the backing of China's leadership and economic power, the ruling elites in the participating countries also stand to gain, as they derive electoral legitimacy from these major projects, as do the Chinese companies involved in the initiative. Among the losers are those affected by changes in the regional landscape and local businesses that have been replaced by Chinese firms.

5.2 Special cases

5.2.1 Sri Lanka and tensions with India

The developments in Sri Lanka are a result of the bilateral nature of the BRI initiative, which involves direct negotiations with the government. In Sri Lanka, changes in government have led to periods of stagnation and revival of the BRI. This focuses on developments at the port of Colombo and the acquisition of the port of Hambantota for 99 years, which could be used for military purposes despite Sri Lanka's denials.

The change of government in Sri Lanka has shifted the balance of its strategic alignment between India and China. China's growing presence in the Indian Ocean prompted a reaction from India, which sided with the United States on this issue. Sri Lanka is caught between the spheres of influence of China and the United States. China helped Sri Lanka fight the Tamil rebels, who were backed by India.

India's opposition to China's expansion in the region was largely driven by the China-Pakistan Economic Corridor, which runs through parts of Kashmir controlled by Pakistan but claimed by India. However, situations can change very quickly. In early September 2025, India openly aligned itself with China and Russia. This is a result of the high tariffs imposed by the US on India for continuing to purchase Russian oil.

India, which is undergoing rapid economic development, currently faces a shortage of port facilities capable of supporting this growth, and has therefore launched an ambitious investment programme in maritime transport.

5.2.2 Central and South America

The agreements established by China in Central and South America are very significant, even though they do not involve full control over national port infrastructure and focus on the operation of terminals.

Take the case of Nicaragua, with its ocean-crossing canal (still in the planning stage despite the media hype) and the establishment of a direct route between the port of Tianjin (China) and the port of Corinto in Nicaragua.

On 3 February 2025[7], Panama announced its withdrawal from the BRI initiative, in which it had been participating since 2017, following pressure from the United States. One key factor is the presence of the Hong Kong-based operator Hutchison Ports at the ports at either end of the canal (Balboa and Colón). The Panamanian government is today challenging the legality of the concession, which it intends to terminate, and has referred the matter to the Supreme Court of Panama. This process involves the pending attempt by a consortium led by the US fund BlackRock to acquire the concession for these terminals. Pressure from the Chinese government on Hutchison Ports has halted the sale, a situation that remains unchanged as of August 2025. This is yet another example of the United States' belated response to the BRI initiative in a strategic location, given that 72.2% of the volume of maritime traffic through the canal originates from the United States and 22.5% from China (UNCTAD, 2024).

In October 2025, the Panamanian Government began talks with container terminal operators with a view to developing two new container ports on either side of the canal; this may be linked to the deadlock in negotiations at the existing terminals.

In Peru, the most significant project under the BRI initiative is the port of Chancay (Narrea, 2022). It is China's largest port investment in Latin America, carried out by COSCO Shipping Ports at a cost of USD 3 billion, and constitutes a major container hub on the Pacific coast.

6 Other relevant geographical areas

6.1 The Arctic

Global warming may make it possible to establish routes across northern Russia and North America. That is probably not the key factor, as these routes—which are necessarily seasonal—are only relatively suitable for regular traffic such as container shipments. China's announcement that it would establish a container route during the Arctic summer—which has already resulted in a number of voyages with significant time and cost savings—is unlikely to lead to permanent routes.

[7] See Bownbstein's page: https://www.bhfs.com/insight/panama-leaves-china-s-belt-and-road-initiative/, accessed on 20 August 2025.

The Arctic's fundamental value lies in the underwater resources it contains. To date, the main investments have come from Russia, with support from China (Çomak, Şeker and Ultan, 2022), which has already made its Arctic interests official. Also, the geostrategic interests of the US are clear, as demonstrated by its recent interest in Canada and Greenland, as well as that of the EU and even the Baltic States. This situation makes it a potential source of conflict.

6.2 The Suez Canal, Africa and the Mediterranean

As a result of the actions of the Houthi rebels in the Bab-el-Mandeb Strait and other geostrategic tensions in the region, traffic through the Suez Canal has fallen by nearly 50 % (UNCTAD, 2024). Container traffic, which prioritises reliability over speed, was largely diverted via the Cape of Good Hope.

The area around the Suez Canal has been under strain since the rise in piracy off the coast of Somalia, which has been effectively fought by Operation Atalanta. The effects of the tensions in the Suez Canal can be summarised as follows:

- A negative economic impact on Egypt's finances, due to the loss of canal revenue and the adverse effect on the hub ports located near both ends of the canal, which extends to other ports in the eastern Mediterranean.
- An increase in traffic at African ports, particularly in South Africa (where congestion has been reported) and, to a lesser extent, in Angola and Mozambique.
- An increase in hub traffic at ports in the western Mediterranean, including those in Spain and Morocco.

It is also worth noting a significant resurgence in piracy and other 'blue crime' activities in the Gulf of Guinea.

Since the opening of the Suez Canal in 1869, the Mediterranean has been a key transit point for maritime traffic, with oil and container shipping being the most significant today. Three continents border the Mediterranean, each with different geopolitical contexts and varying levels of development, and in some cases marked by high levels of internal tension.

Between July and October 2025, the canal's revenue rose by 14.2 % as shipping traffic increased due to reduced tensions in the Red Sea and the ceasefire in Gaza. Some shipping com-

panies have resumed sailing through the canal, whilst others are considering doing so depending on improvements in stability in the area (MaritimeLink, 2025).

The southern shore, which has been shaped by the Arab Spring in some countries, has undergone significant changes. Morocco has highly competitive ports and an ambitious port development plan. Other countries, such as Libya, are focusing on port development as a way out of their current situation.

6.3 The Americas: traffic between the west coast and the east coast

The west coast is the natural link between the continent and Asia, particularly China, Japan and Korea. The east coast borders Europe, Africa and the Indian Ocean.

The Panama Canal has played a very significant role in intercoastal shipping since it opened in 1914. The opening of the third set of locks provided capacity for larger vessels. A potential fourth set of locks should allow larger vessels to pass through.

The droughts of 2023–2024 have necessitated temporary restrictions on maritime traffic through the Panama Canal, diverting some of it to the Strait of Magellan. The number of journeys recorded in May 2024 represented a 24.3% decrease compared with the same month in 2022.

Studies are currently being carried out to identify additional water sources for Gatún Lake, which supplies the locks.

At the continental level, initiatives for land-based 'dry canals'—typically rail-based, such as the expansion of the existing one in Panama—are under consideration, along with other initiatives in Mexico, Nicaragua and the US. In this context, consideration should be given to upgrading the ports of Vancouver and Prince Rupert on Canada's Pacific coast, together with a rail link to the Great Lakes.

7 Conclusions

The strategic importance of ports as hubs for international transport, linked by maritime routes, and as bases for the projection of naval and military power has been analysed.

The basic features of the most significant initiative in the history of maritime transport and international trade—namely, the Belt and Road Initiative promoted by China—have been outlined, along with some of its international implications.

The role of technology and the complexity of the maritime transport situation from a geopolitical perspective have been briefly touched upon; this situation is characterised by high variability and volatility, suggesting that very different scenarios may arise in the medium term, making predictions difficult. The shifting situation is giving rise to alliances and rivalries between powers which, in light of recent history, can be difficult to comprehend.

The headline of a post by the United Nations Conference on Trade and Development (UNCTAD) on LinkedIn[8], dated 5 September 2025, is highly significant: 'Uncertainty is the new tariff hitting global trade"'

A review of the current situation leads to the conclusion that the rapid evolution of maritime transport and port dynamics constitutes a key area of study for understanding their geostrategic impact.

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Chapter Two

Port governance. A key element for national defence

Nicoletta González-Cancelas

Abstract

This chapter argues that there is an urgent need to rethink port governance beyond its traditional logistical and commercial focus, positioning it as a strategic tool at the service of national security. In a context characterised by hybrid threats, geopolitical instability and technological interdependence, effective port management means protecting the public interest, ensuring the resilience of the State and safeguarding public safety.

It is emphasised that ports, as a critical infrastructure, have structural vulnerabilities that can no longer be treated as minor issues. The central theme of the chapter revolves around a new model of governance based on three pillars: functional integration, strategic foresight and institutional co-responsibility.

One of the most notable shortcomings is the lack of standardised strategic indicators that would enable an assessment not only of efficiency, but also of the port system's preparedness, resilience and responsiveness in the face of critical situations.

It also highlights the need to address the dual (civil-military) nature of much port infrastructure, promoting joint planning with

the Armed Forces and Security Agencies as an institutional duty, rather than a voluntary exception.

The chapter also focuses on Ceuta and Melilla, two enclaves of high geostrategic sensitivity that require a distinct approach to governance, sustained investment and security protocols tailored to their unique territorial characteristics.

In short, the paper advocates a vision of port governance that combines institutional leadership, a culture of defence and a focus on the common good as the pillars underpinning the country's sovereignty, cohesion and security.

Key words

Governance, National security, Critical infrastructure, Integration, Resilience.

1 Introduction

The link between ports and national defence is nothing new. Throughout history, ports have been much more than mere logistics or commercial hubs; they have served as strategic strongholds, gateways to and from the country, and vital hubs to safeguard territorial sovereignty. Today, against a backdrop of geopolitical uncertainty, hybrid threats and a growing reliance on global supply chains, this strategic dimension is becoming even more apparent.

This chapter addresses the issue of port governance from a perspective that goes beyond purely economic or logistical considerations (Bagchi and Paik, 2001). Current conditions call for something more: a structural approach that incorporates security, resilience and the ability to respond to complex and evolving risks (Mohsendokht *et al.*, 2025).

This is not about militarising port management, but about recognising that ports, as a critical national infrastructure, must be prepared to safeguard their essential functions. This involves reviewing regulatory frameworks, rethinking institutional relationships and proposing coordination mechanisms that bring together civilian and military actors at an operational level, rather than merely a ceremonial one.

The text is divided into six sections, which do not seek to establish a definitive model, but rather to critically explore the limits and potential of port governance from a strategic perspective. Firstly, the adequacy of the traditional model in the face of current challenges is called into question; subsequently, the status of ports as critical yet vulnerable infrastructures is examined. Thirdly, the paper outlines elements that could guide a form of governance better suited to the 21st century, without imposing a definitive framework. The fourth section focuses on Ceuta and Melilla, not as peripheral cases, but as cities whose unique circumstances require priority attention. Fifthly, the report sets out practical proposals and open questions that could guide a more in-depth debate on institutional reform. Finally, some conclusions are offered; these are not intended to bring the discussion to a close, but rather to encourage informed dialogue and the collective development of solutions.

Ultimately, this chapter does not aim to provide a definitive or conclusive answer, but rather to offer a critical and well-reasoned

basis from which to rethink the role of ports in an increasingly unstable, interdependent and vulnerable world. The report examines how the status of critical infrastructure calls for new forms of protection and coordination, and identifies structural weaknesses in the current security governance framework. A number of issues remain unresolved, including how to effectively integrate this aspect without compromising the port system's civilian, open and economically development-oriented nature; these are discussed further on in the text. The aim is clear: to contribute to a collective and diverse discussion on how to adapt port governance to the strategic challenges of today, without losing sight of the people whom this system is ultimately meant to serve and protect.

2 Limitations of the traditional model of port governance

2.1 Regulatory and institutional developments

Over the past few decades, port governance in Spain has been shaped by a decentralised, landlord-style model, which has enabled port authorities to operate with a considerable degree of autonomy under the coordination of *Puertos del Estado* (Notteboom and Winkelmans, 2001). This institutional framework has effectively addressed the challenges arising from the growth in maritime traffic, the modernisation of infrastructure and the need to attract private investment. However, as it has developed, the focus has been on economic efficiency, financial stability and competitiveness, pushing key issues such as comprehensive security and protection against non-conventional risks into the background.

This regulatory discrepancy is not merely a technical or semantic issue: it has practical consequences that undermine the port system's ability to respond effectively to crisis situations. Adopting a purely logistical and commercial view of ports means that many key decisions—from resource allocation to infrastructure planning—continue to be guided by criteria of efficiency or economic profitability, without structurally incorporating the security and safety dimension. This limits the ability to anticipate hybrid threats, slows down coordination with defence or home affairs agencies, and makes it difficult to incorporate ports into national security strategies.

Ultimately, failing to redefine this legal and conceptual framework carries a clear risk: that ports will continue to be treated merely

as transit points for goods, when in reality they are already—and increasingly so—geostrategic hubs whose protection is in the general interest of the State and vital to the security of the society they serve.

2.2 Logistical reductionism: shortcomings in the face of hybrid threats

The traditional approach has tended to reduce port governance to a matter of operational performance and customer service. Whilst this approach is undoubtedly useful for improving the competitiveness of the Spanish port system, it has clear limitations when it comes to anticipating or managing complex threats such as cyberattacks, foreign interference, sabotage or supply chain disruption.

In a context of hybrid threats, where the boundaries between the civilian and military spheres are becoming blurred, ports require governance frameworks capable of structurally integrating security—not as an afterthought, but as an essential component of decision-making. The lack of stable coordination structures between defence and security agencies, beyond ad hoc protocols or liaison officers, represents a weakness in the current system.

This focus on logistical efficiency has not been unique to the Spanish port system. In the European context, transport policies have for years prioritised the competitiveness of the internal market and the liberalisation of services, relegating the strategic role of ports to a secondary position.

Although regulatory frameworks such as Directive 2008/114/EC, on the identification and designation of European critical infrastructures and the assessment of the need to improve their protection, and initiatives such as the European Centre of Excellence for Countering Hybrid Threats (Hybrid CoE) exist, the European Parliament's own studies have acknowledged the lack of consistent practical implementation in many Member States (European Parliament, 2021).

This disconnection between political rhetoric and operational reality has led to institutional gaps and a lack of preparedness for scenarios involving complex threats. In the United States, however, progress has already been made towards a more strategic approach, with legislation such as the Maritime Transportation Security Act (2002) (U.S. Congress, 2002) and programmes such

as the National Port Readiness Network, which require ports to incorporate security plans in the event of national defence situations (U.S. Department of Transportation, 2024).

In the Asia-Pacific region, areas such as the Strait of Malacca have begun to experiment with hybrid protection frameworks against cyber threats and piracy, recognising the urgent need to adopt a multidimensional approach (Soh and Mak, 2024).

In this context, continuing to rely on a model focused exclusively on operational efficiency entails taking on increasing risks: from cyberattacks and sabotage to systemic failures in the supply chain, a loss of national resilience, and an erosion of public confidence in the State's ability to protect essential services (Seattle Port Authority, 2024).

The consequences of maintaining an overly logistics-focused view of the port, without effectively integrating security into its governance, are not merely theoretical: they have already resulted in tangible social and economic impacts. To cite a more recent example, in August 2024, the Port of Seattle suffered a cyberattack that compromised its IT systems, disrupting day-to-day operations and exposing the personal data of employees and port stakeholders. Although it did not bring maritime traffic to a standstill, the incident triggered emergency protocols, caused logistical delays and highlighted the real vulnerability of infrastructure deemed critical (Seattle Port Authority, 2024).

The situation was even more serious at the Port of Baltimore, where the collapse of the Francis Scott Key Bridge following a collision with a container ship in March 2024 blocked access to several terminals for almost three months. The incident affected thousands of workers; disrupted key supply chains, such as in the automotive sector; and resulted in costs running into millions, highlighting society's reliance on resilient, comprehensive and forward-looking port governance (Wikipedia, 2024).

These cases serve as a reminder that failing to adapt port management models to the new risk landscape not only undermines efficiency but also jeopardises the well-being of society and national security.

2.3 Towards a systemic and strategic approach

Recognising the limitations of the traditional model does not mean undermining its achievements. On the contrary, it is about

building on its strengths to make a qualitative leap forward. Port governance in the 21st century must adopt a strategic approach that directly links management to national security and the resilience of the State.

This requires strengthening the ability to anticipate developments, promoting interoperability between civilian and military actors, and introducing indicators that measure not only logistical efficiency but also vulnerability, responsiveness and institutional resilience. The transition towards this systemic approach also involves reviewing the training of management teams, the nature of governance bodies, and the channels for collaboration with defence and security agencies.

One of the most glaring shortcomings of the current model of port governance is the lack of specific, comparable indicators to measure ports' security, resilience or ability to respond to complex threats. Whilst metrics for operational efficiency and financial performance do exist, there is no standardised system in place to assess the level of critical protection, institutional interoperability or cybersecurity maturity. The incorporation of these indicators into port performance frameworks—in line with the standards already promoted by organisations such as EMSA, the International Maritime Organisation (IMO) and the European Commission in the field of maritime security—is essential for moving towards a model of governance that is transparent, proactive and focused on the public interest.

Adapting the port governance model to the security requirements of the 21st century calls for a more interconnected institutional framework, involving not only, in the case of Spain, Puertos del Estado and the port authorities, but also key players in defence and civil protection such as the Armed Forces, the Civil Guard, the National Centre for the Protection of Critical Infrastructure (CNPIC-Spanish acronym)), the National Intelligence Centre (CNI), the National Cybersecurity Institute (INCIBE-Spanish acronym), Civil Protection, the harbour master's offices and the tax authorities. At the European level, coordination with EMSA (2020), ENISA (2022) and the European Commission is equally essential. Without a shared vision and without indicators to measure real progress in cybersecurity, interoperability or critical resilience, there is a risk that reforms will remain mere rhetoric without any concrete implementation. Only through collaboration, transparency and continuous evaluation can a port system be built that truly serves national security and social welfare.

In short, the current port model has been useful and effective in a stable environment, but it is showing signs of falling short in the face of the challenges posed by a global environment characterised by instability, technological pressure and multidimensional risks. Overcoming these limitations is the first step towards a model of governance that effectively protects citizens' rights and genuinely serves the interests of national security and the common good.

3 Ports as a critical national infrastructure

3.1 Legal and technical perspective: national and European legislation

The recognition of ports as critical infrastructure is no longer merely a symbolic gesture but has become a legal reality with practical implications. Both European and Spanish legislation have established a legal framework that requires port security to be treated as a structural aspect of management, rather than as an ancillary element.

At the European level, the first major regulatory initiative was Directive 2008/114/EC, which focused on the identification and protection of European critical infrastructure (ECI). This regulation, recently replaced by Directive (EU) 2022/2557 (CER [European Commission, 2022a]), (CER Directive (EU) 2022/2557 [Critical Infrastructure Resilience Directive]), broadens the concept of a critical infrastructure, introduces specific resilience obligations and requires continuous risk assessment. This new Directive expressly recognises the role of ports as key hubs for the economy and security, and requires Member States to establish frameworks for inter-agency cooperation between civil and military authorities and private operators.

At national level, Act 8/2011 and Royal Decree 704/2011 establish the Critical Infrastructure Protection System (SPIC). This system, managed by the CNPIC (National Centre for the Protection of Critical Infrastructure), imposes obligations on operators designated as critical (including various port authorities), such as the preparation of operator security plans (OSPs) and specific protection plans (SPPs). These documents must be coordinated with all State law enforcement agencies and updated regularly.

Without going into the operational aspects, which will be covered in greater depth in other chapters, it is worth noting that the real

usefulness of these instruments depends to a large extent on their integration into the overall port governance strategy. When these plans are treated merely as bureaucratic requirements or are kept separate from strategic planning, they lose their effectiveness as protective measures. Hence the importance of ensuring that their development, updating and evaluation are closely linked to decision-making, the allocation of responsibilities and the resources allocated to security within the port.

Despite the abundance of regulations, the legal framework suffers from fragmentation and a lack of operational coherence. In many port authorities, matters relating to critical infrastructure protection are still managed as a separate function, disconnected from the strategic and budgetary core. The lack of coordination between technical departments, governance bodies and security officers hinders the consistent implementation of the critical infrastructure approach.

3.2 Current vulnerabilities: physical, operational and digital

Recognising ports as critical infrastructure means acknowledging that they are exposed to a wide range of risks, not only from external sources but also from within the system itself. Physical vulnerabilities remain a significant concern: uncontrolled access points, poorly lit areas, inadequate physical barriers, and a lack of capacity to respond to acts of sabotage or deliberate attacks (European Commission, 2008a)[1]. Added to this are the effects of climate change, with infrastructure vulnerable to rising sea levels, more intense storms and coastal erosion. Incidents such as the partial collapse of the breakwater at the port of Gijón in 2014 or the flooding of infrastructure along the Andalusian coast show that climate-related risks are no longer merely theoretical, but an operational reality.

At an operational level, the Spanish port community exhibits a marked disparity in security capabilities and approaches, stemming from the coexistence of multiple operators (public, private and mixed) with varying levels of responsibility, protocols and organisational culture. This diversity has led to the emergence of technical and operational elites concentrated in certain areas,

[1] This Directive sets out the need to identify and protect critical infrastructure against physical and cyber threats, expressly highlighting the importance of assessing access points, lighting and measures to prevent sabotage.

whilst other ports still rely on reactive, poorly professionalised approaches.

In many cases, operational procedures do not include joint drills or practical coordination exercises, which seriously undermine the ability to respond to sudden threats. Simply carrying out these exercises on an ad hoc basis is not enough: it is essential that they form part of pre-defined plans, with clear objectives, assigned responsibilities and validated inter-agency coordination protocols. Only in this way will they be able to fulfil their true role of preparing and continuously assessing the system.

The rapid digitalisation of the port environment has also opened up new areas of risk. Systems such as PCS (Port Community Systems), TOS (Terminal Operating Systems), sensors, the Internet of Things (IoT), surveillance cameras, predictive traffic tools and traceability platforms are now essential for efficiency. However, in many cases this technological infrastructure has developed in an uncoordinated manner, without a common cybersecurity framework or a culture of digital risk management. This fragmentation makes ports potential targets for cyberattacks, internal sabotage or the manipulation of critical data (González-Cancelas, Molina and Soler, 2022: 340).

Incidents at international ports in recent years have made it clear that cyber risks have a real-world impact. In 2022, a cyberattack on the Port of Antwerp severely disrupted cargo operations for several days (Maritime Cyber Attack Database, 2022).

In 2021, the Port of Marseille was the target of a cyberattack that forced the temporary suspension of operations at several terminals. Even better known is the attack on Maersk's management system in 2017 (NotPetya) (Greenberg, 2018: 45), which brought the company's global shipping operations to a standstill and also affected terminals in Spain. In all these cases, the real weakness was not the technology itself—which, like any complex system, can be vulnerable to attack—but the lack of robust contingency plans, functional backup systems and staff trained to respond to a digital disruption. The vulnerability lay not so much in the software as in the lack of effective governance in the face of an imminent threat.

In Spain, although some ports have taken the lead, the port system as a whole still lacks a standardised national cybersecurity strategy. Not all ports have up-to-date digital contingency plans, coordination protocols for dealing with multiple attacks, or staff

with specific training in critical incident management. This makes them vulnerable to hybrid threats, where cyberattacks can coincide with physical sabotage, disinformation or coordinated geopolitical pressure.

Added to these vulnerabilities is a widespread lack of investment in structural resilience. Few Spanish ports have adopted advanced methodologies such as cross-vulnerability analysis—which enables them to anticipate how a failure in one system might affect others—or the simulation of complex disruption scenarios, both of which are essential for training responses to extreme situations. Furthermore, reliance on single suppliers for critical services, combined with inadequate contingency planning for operational breakdowns and a culture of prevention that remains weak, limits the port system's ability to adapt, withstand and recover. This vulnerability not only compromises port security but may also jeopardise functions that are essential to national defence and security.

3.3 Port security as a function of governance

Port security can no longer be treated as an isolated or ancillary subsystem, separate from other strategic functions. Physical, digital and operational security must form part of the core structure of port governance, on a par with logistics planning and financial management. Managing a port also means ensuring that the local community is protected against real and emerging risks. Not as a mere formality, but as an inalienable public responsibility, because any model of governance that aspires to legitimacy must begin by ensuring the right to safe, stable and reliable infrastructure for all (Spanish Institute for Strategic Studies, 2020).

Similarly, investments in cybersecurity, particularly those relating to critical infrastructure or strategic operational systems, must be coordinated with the Ministry of Defence and the relevant national cybersecurity bodies, such as the Joint Cyberspace Command, the CNPIC or the INCIBE, in order to ensure their coherence, effectiveness and alignment with national security priorities (Ministry of Defence, 2023).

This view is consistent with the findings presented by Gómez Díaz *et al.* (2023:7), who emphasise that digital port governance requires robust institutional coordination structures and standardised operational frameworks that incorporate security from the outset as a structural factor in technological development.

This integration calls for a redefinition of the division of powers and institutional responsibilities. Whilst the landlord model has promoted port autonomy and operational efficiency, it has also led to a significant disparity in the implementation of security policies. Some ports have made progress in developing specific protocols and more integrated security systems, whilst others still operate using basic or outdated systems. This imbalance in capabilities and priorities undermines the cohesion of the port system as a whole and conflicts with the principles of national security, which require a consistent and coordinated response to risks that do not distinguish between 'major' and 'minor' hubs (European Commission, 2008b).

The establishment of a common framework for security governance cannot be left to the discretion or capacity of individual port authorities. The protection of ports as critical infrastructure requires structural coordination that goes beyond the local level and is integrated into the strategic remit of Puertos del Estado and the relevant Ministries, in direct and ongoing collaboration with the relevant Defence, Intelligence and National Security Agencies. This inter-institutional coordination is not only desirable but essential if the aim is to build a cohesive, resilient port system that is aligned with the principles of national security (Spain, 2011).

Inter-institutional cooperation must become standard practice. Port governance needs to embrace more resolutely ongoing collaboration with all branches of the Armed Forces, the Intelligence Services, the Civil Guard, the CNPIC, the Department of National Security and the bodies responsible for cybersecurity (Dunn-Cavelty, 2008). This collaboration should not be confined to emergencies or annual exercises but should form part of day-to-day governance. This involves participating in decision-making bodies, sharing information and jointly developing contingency plans and response protocols.

Furthermore, resilience must be a key consideration in investment planning. Future governance must not only measure economic performance or operational efficiency, but also resilience. New evaluation indicators are needed that take into account the resilience of systems to disruptive events, the speed of recovery, the redundancy of critical infrastructure, and the port's institutional sustainability in the face of prolonged threats; in short, indicators that incorporate criteria relating to defence and institutional continuity.

Security should be understood not merely as protection, but as a prerequisite for the port's operation and its contribution to the public interest. Its effective integration into governance is a strategic issue that affects the State's autonomy, the strength of the economy and the stability of the geopolitical environment.

In order to move towards port governance that prioritises protection as a core function, it is essential to expand and systematise the network of stakeholders involved. In addition to the port authorities and Puertos del Estado, this body must operationally integrate organisations such as the CNPIC, all the Armed Forces, the National Intelligence Centre (CNI), the National Cybersecurity Institute (INCIBE), the maritime authorities and Civil Protection, as well as European agencies such as the European Maritime Safety Agency (EMSA) and the European Union Agency for Cybersecurity (ENISA). Cooperation with the Tax Agency and the State law enforcement agencies must move away from being reactive and become part of a structured and ongoing planning process. Only in this way can a governance model be established that anticipates, coordinates and protects in an environment characterised by the volatility and complexity of contemporary threats.

4 Towards a model of port governance suited to the 21st century

4.1 Key elements of the new model: integration, foresight and shared responsibility

Moving towards a model of port governance suited to the 21st century requires integrating safety as a core pillar of management, strengthening the ability to anticipate complex risks, and establishing mechanisms for shared responsibility among all stakeholders. Safety must cease to be a technical afterthought and instead become a cross-cutting principle that guides decisions on investment, concessions and infrastructure design. Similarly, ports need tools that enable them to anticipate hybrid threats through risk analysis, strategic simulations or predictive technologies. Finally, it is essential to redefine the relationships between Puertos del Estado, the Port Authorities and Defence and Security Agencies, within a common framework of shared responsibilities, coordinated information and uniform standards. Without institutional and operational cohesion, the port system will remain vulnerable.

4.2 Institutional constraints and the need for a consensus-based redesign

One of the most persistent weaknesses of the Spanish Port System is the lack of an institutional framework designed to operate under strategic pressure or in situations of complex disruption. Although Port Authorities have planning and operational tools that have proven their worth in normal circumstances, they lack a governance structure suited to situations that require rapid cooperation, coordinated decision-making and shared leadership among civil, military and technological agencies.

The Prestige case starkly illustrates what can happen when governance, coordination and institutional response fail to match the scale of the risk (European Commission, 2003: 8). In 2002, the oil tanker Prestige suffered structural damage off the coast of Galicia, causing a massive oil spill that affected thousands of kilometres of coastline, the fishing industry, tourism, public health and the environment. This incident revealed not only technical failures but also profound shortcomings in decision-making, such as the delay in granting a place of refuge, the lack of protocols for large-scale pollution incidents, and gaps in institutional accountability, all of which exacerbated the social and environmental damage (Caballero-Miguez and Fernández-González, 2015).

Situations such as this therefore demonstrate that the protection of critical port infrastructure cannot be limited to operational efficiency: robust institutional governance, clear standards and proactive coordination between local, regional and national authorities are required, as well as a genuine capacity to take action in a crisis, rather than merely reacting to it.

This shortcoming results in structural failures in both horizontal and vertical coordination. At the local level, relations between Port Authorities, Security Forces, Intelligence Services, operators and local authorities are not always governed by specific rules or protocols beyond general regulatory frameworks. At Spanish level, the link between Puertos del Estado and the wider security and intelligence system is fragmented, often depending on the individual initiative of those in charge.

Nor is there yet a forum for strategic governance where all stakeholders involved in port security can come together on a regular basis: logistics operators, public authorities, law enforcement agencies, defence and security bodies, cybersecurity centres,

local authorities, etc. This lack of a forum for dialogue prevents the development of a shared vision, the joint identification of vulnerabilities and the collective definition of improvement objectives.

In other strategic areas, such as European dual-use (civil and military) rail corridors, the European Union has promoted the creation of integrated governance frameworks to facilitate military mobility without compromising civil operations. Programmes such as the EU's Military Mobility programme, coordinated by the European Defence Agency (2023) and the European Commission (2022b:12), have promoted common standards, technical interoperability and joint investment in key infrastructure. This model demonstrates that civil-military cooperation is possible if it is based on shared structures, coordinated leadership and clearly defined objectives (European Defence Agency, 2023: 5). As Spanish port governance does not yet have similar integration mechanisms in place, it is missing an opportunity to establish a framework for strategic partnership with the Ministry of Defence in a context of growing geopolitical complexity.

The challenge, therefore, is not merely technical, but institutional and cultural. This requires a shift from a model based on closely established powers to one founded on operational accountability, the exchange of relevant information, system interoperability and collaborative decision-making.

This redesign cannot be imposed through a unilateral regulatory framework. It must be developed through a deliberative, open and consensus-based process, involving both the traditional stakeholders in port governance and the new strategic players who now play a vital role in safeguarding it: intelligence services, technology centres, digital operators, European institutions, etc.

Furthermore, various experts have pointed out that current governance mechanisms in emergency situations are highly fragmented, with poorly integrated protocols and an excessive reliance on third parties outside the port or State structure. This fragmentation hinders a rapid and coordinated response to complex crises and highlights the lack of a system that ensures unified leadership, functional interoperability and effective command when it is most needed (European Court of Auditors, 2021).

The development of this updated model cannot be limited to the mere formal adaptation of rules or the introduction of new structures. It calls for a thorough review of the principles and values

that guide port management: from the principle of efficiency to the principle of resilience, from decentralisation without coordination to coherent governance, and from an exclusively economic approach to an integrated approach based on strategic public service (Linkov and Palma-Oliveira, 2017).

European experience in the field of military mobility has highlighted the need for integrated governance mechanisms involving both civilian and military actors. The European Commission's Action Plan on Military Mobility 2.0 emphasises that dual-use infrastructure, such as ports, requires structured cooperation frameworks to ensure interoperability between transport authorities, defence agencies, customs authorities and private operators. This coordinated approach not only improves logistical efficiency in peacetime but also strengthens strategic resilience in the face of hybrid crises, cyberattacks or emergency deployments. To this end, the creation of stable multi-level governance structures and joint protection, planning and response plans is being promoted (European Union, 2025: 7-9).

4.3 Training, innovation and European alignment

No transformation will be possible without an internal cultural shift. It is essential to strengthen specialised training for port management staff in areas such as risk management, national defence, cybersecurity, a culture of security, and civil-military cooperation. This content should be incorporated into the programmes run by Puertos del Estado, as well as into university master's degrees and technical courses offered nationwide.

Innovation must be harnessed to serve strategic protection. Many disruptive technologies—such as blockchain, artificial intelligence, smart sensors and collaborative platforms—can be powerful allies in improving port security. But they will only be effective if they are deployed with care, interoperability and a system-wide approach.

Finally, this model must be aligned with key European strategies: the CER Directive[2], the European Strategy for Sustainable

[2] *CER Directive*: Directive (EU) 2022/2557 Directive (EU) 2022/2557 of the European Parliament and of the Council of 14 December 2022 on the resilience of critical entities and repealing Council Directive 2008/114/EC of the European Parliament and of the Council on the resilience of critical entities, repealing Directive 2008/114/EC.

Mobility[3], the European Green Deal, the EU Strategic Compass, and the digital governance framework set out in Directive (EU) 2022/2555 (Network and Information Security 2) –[4] NIS2. Spain cannot afford to have port governance stuck in the 20TH century if it wishes to continue playing a key role in European logistics.

The European dimension also offers useful lessons. The responses from the European Commission and the European External Action Service to the Court of Auditors highlight the urgent need to improve institutional coordination in the field of military mobility, drawing attention to regulatory fragmentation, delays in project implementation and the lack of a shared vision in critical situations. These challenges also reflect observable shortcomings in national port governance, particularly with regard to civil-military coordination in relation to strategic infrastructure (European Commission and EEAS, 2025:4-5).

5 Ceuta and Melilla as strategic and priority areas

5.1 The geostrategic and functional uniqueness of the ports of Ceuta and Melilla

The ports of Ceuta and Melilla are an exception within the Spanish port system, not because of their size or volume of traffic, but because of the role they play in national security, territorial sovereignty and the Spanish State's international presence. Located in North Africa, they constitute the European Union's only external land border on that continent, which gives them a unique border function in both logistical and geopolitical terms (European Commission, 2021).

Located in the Strait of Gibraltar, one of the world's most strategic maritime passages, these ports serve as key hubs for the control of international maritime traffic, energy supply, the movement of goods and people, and the projection of Spanish State capabilities in the western Mediterranean and the Maghreb region.

[3] Strategy for Sustainable and Smart Mobility: steering European transport towards the future.

[4] Directive (EU) 2022/2555 of the European Parliament and of the Council of 14 December 2022 on measures for a high common level of cybersecurity across the Union, amending Regulation (EU) No 910/2014 and Directive (EU) 2018/1972, and repealing Directive (EU) 2016/1148 (NIS 2 Directive)

Beyond their geostrategic significance, Ceuta and Melilla are essential infrastructures for ensuring the continuity of public services, access to basic goods and connectivity with the mainland. Their insular and border location, with no alternative routes by road or rail, means they are entirely dependent on maritime transport, which makes this all the more critical in terms of operations, supply chains and public welfare.

The value of Ceuta and Melilla lies in their structural role in Spanish national security, territorial sovereignty and the Spanish State's maritime presence. Ceuta (Spain, 1995a) and Melilla (Spain, 1995b) are not merely unique enclaves due to their geographical location, but territories that are fully integrated into national sovereignty, whose institutional and functional presence must be guaranteed on an ongoing and priority basis (Spanish Parliament, 1978)[5].

5.2 Specific vulnerabilities and unresolved challenges

Despite their importance, both enclaves show signs of institutional and operational fragility. The first major risk factor is its logistical isolation: any disruption to the maritime supply chain (whether due to conflict, sabotage, an energy crisis or a cyberattack) would have an immediate impact on the population. The lack of redundancy makes every port operation a lifeline.

Furthermore, migratory pressure has at times been used as a means of destabilisation, introducing a constant hybrid security variable. Although port areas are equipped with physical security measures and protocols under the International Ship and Port Facility Security Code (ISPS Code), they do not always have specific systems in place to manage situations involving mass arrivals or irregular transit by sea. Added to this is a structural shortfall in investment in technology, digitalisation and cybersecurity, which limits their ability to respond to complex threats.

In terms of governance, the port authorities of Ceuta and Melilla operate within a unique institutional environment, in which collaboration with the Security Forces and military units is common, but is not always formalised within stable structures or specific regulatory frameworks. Reliance on the will of individual actors or

[5] '"The Spanish Parliament may, on grounds of national interest, authorise the establishment of an Autonomous Community where its territorial scope does not exceed that of a province and it does not possess the characteristics set out in Article 143(1)" (Article 144(b)'. This is the legal basis for the Statutes of Ceuta and Melilla.

on the political context has led to instability in institutional continuity and in the implementation of long-term solutions.

5.3 The need for a differentiated strategic approach

This assessment highlights the need to move towards a governance model tailored specifically to Ceuta and Melilla, based on their status as State ports and key geopolitical hubs. This is not about establishing arbitrary privileges or exceptions, but about recognising an operational reality that calls for tailored, sustainable solutions that are firmly integrated into the Spanish national security framework.

A proposal for a differentiated approach should include:

- The development of a specific national strategy for border enclaves, combining port governance, defence planning and diplomatic outreach.
- The mandatory inclusion of Ceuta and Melilla in the major investment, innovation and cybersecurity programmes launched by the State for critical infrastructure.
- The development of permanent institutional cooperation protocols, involving Puertos del Estado, port authorities, defence and security agencies, and other relevant stakeholders.
- The inclusion of these ports in international forums on maritime security, border management and the protection of strategic hubs.
- Strengthening the civic dimension of governance: ensuring that the public perceives security, the continuity of services and the effective presence of the State as genuine guarantees of territorial cohesion and equality.

In short, Ceuta and Melilla must be treated for what they are: areas of strategic sovereignty. Safeguarding its operational capacity, governance and resilience is not merely a logistical or territorial necessity, but an institutional obligation towards the people who live there and towards the stability of the State as a whole.

6 Operational proposals and conclusions designed to stimulate discussion

Port security cannot be separated from national defence. Ports are critical infrastructure, and their protection forms an inte-

gral part of the State's security system. In the context of hybrid threats, technological interdependence and geostrategic pressure, any vulnerability in the port system directly jeopardises sovereignty, institutional resilience and public welfare. Therefore, its governance must be fully aligned with a comprehensive security approach.

One key lesson from this analysis is that the current governance model, whilst effective in operational and economic terms, is not equipped to operate under strategic pressure. Its design is suited to a stable environment but proves inadequate in the face of complex and changing risks. The lack of a coordinated Spanish national port security strategy exacerbates this weakness.

Secondly, it is clear that security cannot be managed as an isolated function. It must be an integral part of decisions regarding investment, planning, digitalisation and institutional relations. Regulatory fragmentation and disparities in capacity between ports undermine the cohesion of the system, leading to inequalities in the protection people receive depending on where they live or work.

To make progress towards this genuine integration, it is essential to develop standardised strategic indicator systems that measure preparedness, resilience and the ability to respond to threats across all ports in the system. These indicators should form part of institutional scorecards and be used in decision-making, audits and budget planning. Without common metrics, there can be no shared security.

Thirdly, port security must be built on the basis of shared governance, with the active participation of all the Armed Forces, Security and Cybersecurity Agencies, Civil Authorities, the private sector and the public. Security cannot depend on individual goodwill, but rather on permanent structures and an organisational culture focused on the public interest.

This governance must also take into account the dual nature of many components of the port system, whose infrastructure, connectivity and technology can and should serve both civilian purposes and strategic and defence needs. Joint planning within this framework is an institutional obligation, not an option.

Fourthly, the geostrategic importance of Ceuta and Melilla as unique enclaves must be highlighted. They cannot be treated as residual exceptions. Their specific operational and territo-

rial nature requires tailored and sustained attention, based on their value as symbols of the Spanish State's presence and commitment.

Finally, this chapter argues that any transformation in port governance must be driven by a clear guiding principle: institutional leadership and a culture focused on public service. Effective port management is not just about optimising traffic flows, but also about managing risks, safeguarding sovereignty and maintaining public confidence; because, ultimately, what is at stake is not only the competitiveness of Spain's infrastructure, but also people's safety and dignity.

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Chapter Three

Ports as clients of the Navy in maritime security

Federico Ruíz Pedreira

Abstract

The National Maritime Security Strategy (ENSM- Spanish acronym) assigns ports a vital role within its framework. Their protection must be regarded as essential. The Navy contributes to the early detection of threats to ports through a layered system.

Maritime safety has developed in a reactive manner. The Achille Lauro incident raised awareness of maritime terrorism. The attacks on the USS Cole and the Limburg highlighted the vulnerability of a ship in port to asymmetric attacks. The 9/11 attacks paved the way for the use of ships for terrorist purposes.

In the current climate, maritime safety requires more attention than ever. The Navy protects ports using various types of defences. The regulatory framework sets out at each level who is authorised to do what, for what purpose, and where they may do so. There is another cross-cutting axis: an understanding of the maritime environment, which involves assessing the maritime situation at a specific time and place, thereby enabling threats to be identified in advance. Building on these, there are various physical layers, ranging from operations in remote seas to those

closer to home. Finally, the NCAGS system and the specialist bomb disposal teams form the frontline defences.

Key words

Navy, Maritime security, Maritime situational awareness, Vulnerability, Risks and threats.

1 Introduction

'Maritime safety is an endeavour that pursues an ever-elusive goal requiring constant attention and effort', (Pozo, 2014: 5). This premise is taken as the starting point for this article, and its validity is anticipated as its main conclusion.

The term 'maritime security' is used to refer to a wide range of issues; the English language, which is more specific in this regard, distinguishes between 'safety' and 'security', a distinction that does not exist in Spanish (Franco, 2015: 246). Although not strictly speaking, the term 'safety' is associated with others such as prevention, risk and accident, whilst the term 'security' is associated with protection, crime, threat and intent, usually of an external nature. There are further interpretations that link the military sphere with the objective of achieving security and the civilian sphere with that of achieving safety, noting that 'there will be situations in which the boundary between the two concepts is truly difficult to discern' (Fernández Diz, 2009: 105). This dilemma would be clarified by the definition of maritime security set out in the 2015[1] Naval Concept of Operations, namely as 'a civil-military activity aimed at preventing risks and combating threats in the maritime environment, in constant collaboration with State bodies and institutions and the international community'. Finally, the 2024 National Maritime Security Strategy[2] (ENSM 2024) defines maritime security as:

> '[…] combination of preventive and response measures designed both to protect the maritime environment from threats and deliberate illegal acts, and to limit the effects of natural hazards, accidents and damage to the environment, economic activities and people'.

The ENSM 2024 classifies risks and threats to maritime security into four main categories: those attributable to hybrid strategies; threats to national interests in the maritime domain; illicit maritime trafficking and cross-border crime; and risks to the environmental health of the marine environment. The first module is independent of the other three, which may therefore be implemented in a conventional or non-conventional manner. This article examines maritime security from the perspective of security

[1] A document that was replaced in 2022 by publication PDC-3.1, *Maritime Operations.*

[2] *National Maritime Security Strategy 2024*. Ministry of the Presidency, Justice and Relations with the Parliaments, Madrid, 2024.

and its links to port protection, focusing on aspects related to the first two sections.

Within the first of these categories, hybrid strategies involve coordinated actions designed to undermine a State's interests. To this end, they may employ various tactics such as economic coercion, pressure on energy supplies from abroad, terrorism and other forms of low-intensity violence, as well as the use of military capabilities[3]. The actors involved in these strategies may be State actors, employing unconventional force, or non-State actors; in all cases, they act directly or indirectly, openly or covertly.

Closely linked to these hybrid strategies is the concept of the *grey zone*, understood as a space encompassing the infinite spectrum ranging from pure white—representing a state of complete normality and peace—to the black of open, conventional conflict. Operating in this vast area entails the possibility of unconventional attacks, ambiguous actions, a variety of actors, difficulties in attributing responsibility, difficulties in deciding on a response, prolonged duration and attrition. At its most subtle levels, it can even involve difficulty in perceiving intentionality. One might question the nature of these claims. On the one hand, States will always seek to exert coercion or influence over others in pursuit of their own interests, meaning that the line between *normality* and the more ambiguous *grey area* can be very fine. As for the opposite extreme (black), in any open and conventional conflict there will be involvement from non-State actors, who will take sides and take action. In this way, moments of heightened tension within the normal course of relations between States could be regarded as falling within the grey area, or at least into hybrid territory, given some of the circumstances mentioned, such as economic coercion.

One example of hybrid activities in the maritime domain is China's use of maritime militias in disputes over maritime areas, where large fleets of fishing vessels are deployed to occupy disputed maritime zones[4] and also to hinder the manoeuvring of foreign vessels in peacetime[5] within those areas. In this regard,

[3] ENSM *2024*. p. 41.

[4] Of particular note are the gatherings of Chinese fishing vessels at Pagasa Island in July 2019 and at Whitsum Reef in March 2021.

[5] As was the case in 2009 with the USNS IMPLECCABLE, a US oceanographic research vessel, which was harassed by numerous Chinese fishing vessels in international waters.

we should not rule out the possibility of using, for example, fishing vessels to block narrow passages or access points to ports.

Other examples include the sabotage of the Nord Stream I and II gas pipelines in the Baltic Sea in 2022, or, more recently, the damage to the communication cables between Finland and Germany in November 2024 and to the cable between Finland and Estonia on Christmas Day 2024.

The growing hybrid threats require a comprehensive response, including enhanced maritime surveillance (Navy Lookout, 2025).

The ENSM 2024 makes it clear that:

> 'The legal framework governing maritime employment makes this sector particularly vulnerable to the sort of threats that arise in the grey area. The difficulty in enforcing the legal framework and the challenge of assigning responsibility encourage destabilising actions'.

From the very first chapter, explicit mention was made of the importance of gas carriers and regasification plants in the case of Spain, and it is made clear that its port infrastructure, the refineries in their vicinity and the regasification stations along the coast are of great strategic value.

With regard to the second section, which concerns threats to national interests in the maritime domain, the ENSM 2024 covers attacks on ships and infrastructure and addresses issues such as threats to shipping lanes, deliberate incidents in straits and narrow sea passages, and the use of autonomous marine vehicles as a means of carrying out deliberate unlawful acts. It goes on to state that the strategy offers 'a proactive approach, aimed both at protecting and promoting Spain's interests in its maritime sphere, with a view to capitalising on the opportunities for improvement that arise in the maritime environment'.

The same document lists the Spanish national interests relating to the maritime sector, notably ports and maritime infrastructure, as the primary and fundamental aspects of the matter addressed in this article. In addition to this direct reference, a second interpretation is possible in light of other interests reflected in the ENSM 2024, such as maritime trade and transport, the shipping industry and other maritime sectors, or ships of national interest and their crews—interests that rely on ports as the cornerstones of their operations. Or even a third approach via the 'blue economy'—a buzzword—which encompasses not only maritime activ-

ities but also sea-related activities, such as those carried out in ports.

In this way, maritime safety as envisaged by ENSM 2024 gives national ports a significant role to play in this context. For this reason, their protection must be regarded as essential. Within the broader context of threats, this article will focus on deliberate criminal acts that could impact the operations of Spain's port infrastructure, analysing their origins and development and examining how the Navy can contribute to the early detection of such threats through a multi-layered prevention system.

2 Terrorism at sea. The origins and the answers

Awareness of maritime security has grown in response to recent events. The terrorist attacks on the Achille Lauro in 1985[6] and the City of Poros in 1988 led to the adoption of the Convention for the Suppression of Unlawful Acts against the Safety and Security of International Maritime Navigation and the Safety of Fixed Platforms located on the Continental Shelf, known as the SUA Convention and the SUA Protocol, which were signed in Rome in 1988. This agreement established *maritime terrorism* as a distinct offence from the crime of piracy as defined by the Montego Bay Convention, Article 101 of which implies the need for collective action and the fulfilment of the requirements of *two vessels* and a *personal motive*—conditions which are not necessary to classify an act as terrorism, where an ideological motive is present. Even in cases where a terrorist act is motivated by financial gain, the aim is not personal profit but the financing of the organisation.

The SUA Convention does not establish universal jurisdiction for the suppression of maritime terrorism (Fernández Sanz, 2016: 162–167), but the Spanish Organic Act on the Judiciary does; Article 23(4) of that Act should be amended to include offences against maritime safety, thereby conferring powers on warships to pursue such offences and on the Spanish courts to hear cases relating to them.

In October 2000, the USS Cole was attacked whilst docked in the port of Aden. A speedboat approached it and exploded, tearing

[6] A group of four terrorists—including Abu Abbas, a PLO leader—seized control of the ship off the coast of Egypt and demanded the release of a number of Palestinian prisoners. During the event, a passenger on the ship was murdered.

a 10-metre-long gash in the hull and killing ten crew members. The attack was carried out by *al-Qaeda*. This attack highlighted the vulnerability of a moored vessel and the use of asymmetric methods, such as a small boat that could easily be mistaken for a standard port service (mooring crew, refuse collection, etc.). A similar method was used in 2002 in the attack on the oil tanker Limburg as it approached a terminal in Yemen.

However, it was the attacks of 11 September 2001—which did not take place at sea—that marked a turning point in maritime security and public perception of it. These events triggered a significant response across various areas of maritime safety. The entry into force of Chapter XI-2 of the SOLAS Convention on 1 July 2004, the *International Ship and Port Facility Security Code* (ISPS Code), has formed the basis of a comprehensive regime of mandatory security measures for international maritime transport (International Maritime Organisation, n.d.). It would not be the only initiative to emerge during those years; as Dominguez-Matés (2009) points out, the Seafarers' Identity Documents Convention was amended in 2003, with a number of proposals added to create a more secure identification system. A number of unilateral measures were introduced, such as the US Customs Container Security Initiative (CSI) in 2002, in response to the potential use of containers in terrorist attacks. With regard to preventing the trafficking of weapons of mass destruction, missiles and related materials, the US Proliferation Security Initiative (PSI) would include measures for the interception of suspicious vessels[7], the need for constant monitoring of maritime transport and, as a third objective, cooperation between States.

In response to the 11 September attacks, NATO launched Operation Active Endeavour in 2001, following the invocation of Article 5[8] of the NATO Treaty for the first time in history. This operation was carried out in the Mediterranean with the aim of detecting, deterring and countering terrorist activities. During the operation, more than 128,000 commercial vessels were questioned at sea and around 172 suspicious vessels were boarded (NATO, 2022). In this way, NATO's presence helped to improve

[7] See: https://www.psi-online.info/psi-info-en/botschaft/2077920-2077920. It is worth noting the observations made by Domínguez-Matés regarding the compatibility of this document with UNCLOS, particularly with regard to the right of innocent passage, the right of transit passage and the right of access.

[8] 'The Parties agree that an armed attack against one or more of them, occurring in Europe or North America, shall be regarded as an attack directed against them all […]'.

the sense of security for all traffic passing through the Strait of Gibraltar (STROG). NATO helped to keep the seas safe, protect shipping and inspect suspicious vessels.

The Active Endeavour counter-terrorism operation is set to remain active until 2016 and will be succeeded by Operation Sea Guardian, which has a broader scope and can cover the full range of tasks assigned to NATO's maritime security operations[9]. In this case, it is a maritime security operation not covered by Article 5, currently carrying out tasks aimed at maintaining situational awareness at sea (CEM), deterring and countering terrorism, and enhancing capacity-building[10]. As part of this operation, a number of focused operations were carried out, concentrating efforts on maintaining situational awareness at sea and counter-terrorism deterrence in specific areas of the Mediterranean. In 2025, the frigate Canarias was assigned to this operation, leading one of these operations focused on the western Mediterranean[11].

In the non-NATO naval sphere, the Combined Maritime Forces (CMF) coalition was established in the Indian Ocean. It currently comprises five task forces[12] dedicated to various aspects of maritime safety.

[9] Maritime Security Operations (MSO).

[10] Specifically, if approved by the North Atlantic Council (NAC), Operation Sea Guardian may carry out the following additional tasks: 1) maintaining freedom of navigation, which includes surveillance, patrolling, maritime interdiction, special operations, the deployment of police detachments and, where authorised, the use of force; 2) conducting maritime interdiction, including rapid response actions and the use of special operations forces and CBRN experts to board suspicious vessels; 3) preventing the transport and deployment of weapons of mass destruction by locating, identifying and securing illicit CBRN material in transit by sea; and 4) protecting critical infrastructure: at the request of a NATO or non-NATO country, NATO helps to protect critical infrastructure in the maritime environment, including the control of chokepoints.
For further information on Operation Sea Guardian, see: https://emad.defensa.gob.es/operaciones/operaciones-en-el-exterior/34-OTAN-SEA-GUARDIAN-Mediterraneo/

[11] The frigate F-86 Canarias and the submarine S-71 Galerna have taken part in Operation Sea Guardian in the Mediterranean. These Navy units have been patrolling the Alboran Sea and the western Mediterranean, ensuring maritime safety. This operation also involved the M-35 Duero minesweeper, which is deployed with NATO's Standing Mine Countermeasures Group 2 (SNMCMG-2), contributing to freedom of navigation as well as to international security and stability.

[12] TF150, which carries out Maritime Security Operations (MSO); TF151, with specific anti-piracy duties; TF152, combating illegal activities in the Gulf of Arabia, assisting in the protection of maritime infrastructure such as oil platforms against terrorist acts; TF153, focused on the Red Sea, the Bab-al-Mandeb Strait and the Gulf of Aden; and finally TF154, carrying out training missions to enhance maritime security capabilities.

It is thus clear that 9/11 highlighted not only the vulnerability of the aviation sector, but also that of the maritime sector (Enríquez, 2007: 167). The extrapolation from the use of aircraft as a means of terrorist attack to the use of ships is obvious, though not without significant differences which mean, amongst other factors, that the maritime environment is far more conducive to criminal activities (Pozo, 2014: 8).

The terrorist attacks of 2001 had an impact on the SUA Convention and Protocol, which were revised in 2005. Two protocols of amendment were adopted, both to strengthen the treaties and to provide an appropriate response to the increased risks and threats to shipping posed by international terrorism. The 2005[13] version introduced the concept of a ship being used as a weapon or instrument to commit a terrorist act, or to transport terrorists or goods intended for use in a terrorist act[14], in a clear response to 9/11.

Also prompted by the events of 2001, the International Maritime Organisation (IMO) established the LRIT[15] system, which, according to the organisation[16], 'enables the global identification and tracking of ships to improve the safety of navigation and for the purposes of maritime safety and security'.

As a result, awareness of maritime safety has developed in a reactive manner. From the Achille Lauro incident, which raised awareness of maritime terrorism, through the attacks on the USS Cole and the Limburg, which highlighted the vulnerability of a ship moored in port or in its vicinity to attacks using asymmetric means, to the 9/11 attacks, in which commercial aircraft were used as a means of attack, thereby opening the door to the use of ships for terrorist purposes.

The instruments that have been developed—the ISPS Code and the LRIT system, which are primarily technical in nature, and the SUA Convention and Protocol, which are primarily procedural in nature—form a comprehensive set of technical and legal tools in

[13] The agreement only mentions the word 'terrorism' in its preamble, without providing any definition. However, it refers to various treaties relating to terrorism.

[14] It is worth noting that Fernández Sanz's article includes an appendix containing a summary table of the most important Articles of the SUA Convention, comparing the original 1988 version with the 2005 amendment; of particular significance are Articles 3bis, 3ter and 3quarter, which relate to the definition of offences.

[15] Long range identification and tracking.

[16] See the IMO website: https://www.imo.org/es/ourwork/safety/pages/lrit.aspx

the fight against maritime terrorism. Despite these measures and despite the technical advances in the detection and surveillance methods that underpin them, preventing a carefully planned terrorist attack will present enormous difficulties; countering its effects, should it actually take place, will be equally challenging (Enríquez, 2007: 155 and 174).

3 The current context

These developments, combined with other factors, would explain the sense of vulnerability and maritime insecurity that was taking hold in the EU (Sobrino, 2007: 424). At the time, there was nothing to suggest that events such as the war in Ukraine would unfold—with the use of UAVs to systematically invade airspace and the proliferation of hybrid operations in the maritime domain that are spreading to other parts of Europe and drawing ever closer, such as the use of merchant ships of dubious ownership as drone launch platforms. In this complex context, this war provides an opportunity for the diversion of weapons for terrorist purposes. Finally, the deep polarisation of all kinds of actors worldwide regarding the conflict in the Middle East paints a picture in which maritime security requires more attention than ever, not in a reactive manner, but by anticipating how the situation might develop.

The situation in the East, with the recent attacks on ships[17], is causing container ships to be diverted to the Cape of Good Hope route. As a result, the original Asia–Suez–Mediterranean–Spain–Northern Europe route is shifting towards the Asia–Spain–Northern Europe route, which could have a number of unintended consequences. On the one hand, there has been a significant increase in maritime traffic through an area that remains high-risk, namely, the Gulf of Guinea (GoG); on the other hand, this could lead to undesirable congestion in Spanish ports, given that, generally speaking, once terminal capacity exceeds certain thresholds, operating conditions are no longer optimal.

In this context, the ENSM 2024 makes it clear that 'the sea is an environment conducive to the escalation and realisation of many of the identified threats', including terrorism and violent radicalisation, and devotes particular attention to the former, to

[17] See: https://edition.cnn.com/2025/07/09/world/video/houthi-rebels-red-sea-ship-attack-ldn-digvid

the extent that one of the twenty-two resulting lines of action focuses[18] specifically on it: 'To strengthen cooperation on counter-terrorism and judicial matters between the Member States of the European Union, as well as with third countries.' With regard to the situation in the East, the ENSM 2024 states:

> 'The risk to maritime traffic navigating the waters of the Red Sea, the Bab el-Mandeb Strait and the Persian Gulf is heightened by the escalating violence in the Gaza Strip, the instability in Yemen, and tensions between regional powers in the Middle East.'

As the shift towards the current situation began in 2023, a few months before the 2024 ENSM came into force, the latter does not provide for any effects other than those relating to maritime safety in the waters in question. The current state of the conflict, characterised by extreme polarisation and intense media coverage, could act as a catalyst for potential terrorist acts anywhere in the world, including incidents that affect maritime security.

Awareness of maritime security and its agenda have evolved from an initial focus on counterterrorism, with a nascent maritime situational awareness (MSA), towards combating piracy and building capabilities; experience in this fight has revealed its links to other types of criminal activity. Against this backdrop, awareness of environmental protection began to grow, the first maritime safety strategies emerged, and the CEM was refined. Finally, concepts such as the 'grey area' emerge, strategies begin to take on a broader scope, and work is carried out on a global CEM (Bueger and Edmunds, 2024: 21).

In this discussion of ports and *maritime security*, particular attention should be paid to all matters relating to terrorist threats that could lead to situations in which Spanish port facilities are directly affected, either because a vessel is intended to be used as a weapon due to the nature of its cargo, or because it is used

[18] Unlike its predecessor, the 2013 National Maritime Security Strategy, which had a separate action plan published in 2019 (Order PCI/567/2019 of 21 May). (Official State Gazette No. 125 of 25 May 2019), the ENSM 2024 incorporates it as an annex and comprises twenty-two lines of action (LA). In the allocation to the relevant bodies, twelve of the twenty-two Ministries are explicitly mentioned. However, several of the local authorities are assigned to *Ministries* on a general basis. It also identifies the coastal Autonomous Communities and Autonomous Cities, as well as the National Maritime Safety Council (CNSM) itself, as responsible bodies in various areas of responsibility. This LA system includes indicators linked to each of the objectives.

to smuggle substances or weapons that could be used to carry out an attack on those facilities (Bueger and Edmunds, 2024: 74) or because actions are being taken that prevent or hinder ships' access to the facilities. These actions can take various forms, ranging from the simple anchoring of civilian vessels to obstruct the passage—a typical 'grey zone' tactic—to the use of explosive devices in access routes as floating IEDs. We will examine how, through a layered approach, the Navy contributes to the protection of Spanish ports and facilities, establishing a comprehensive, systematic and methodical maritime surveillance system designed to ensure early detection, whether through domestic operations in nearby waters or as part of international task forces operating in remote areas[19].

4 The layers of maritime safety

The Navy contributes to the security of national ports by deploying various types of assets. The first layer is the foundational layer and will be referred to as the *regulatory layer*; a complex layer that encompasses everything from the UNCLOS—which serves as the 'Constitution of the seas'—through various conventions and the ISPS Code, right up to the transposition of these regulations into national legislation, such as, in the case of Spain, the Organic Act on the Judiciary (LOPJ, Spanish acronym) and the Criminal Code. For the purposes of this study, this category should also include all decisions on which military operations are based, as well as the operational plans for those operations. This may also include all agreements between national bodies relating to the various aspects of maritime safety. In short, a layer that defines, at each level, *who can do what, for what purpose, and where they can do it.*

There is another cross-cutting axis, known as *maritime domain awareness* (MDA), which simply involves understanding the maritime situation at a specific time and place, thereby enabling threats to be identified in advance. The Navy not only relies on it but also makes a significant contribution to it. This layer could be referred to as the *information layer*. At a more advanced stage, the information layer generates *intelligence*, which involves an

[19] For their participation in operations, Navy units report to the Chief of the Defence Staff (JEMAD) through their operational structure, which includes the Operations Command (MOPS) and the Maritime Operations Command (MOM).

advanced stage of analysis. For the purposes of this article, *intelligence* shall be included as part of *the information layer*.

Building on these conceptual layers, there are various physical layers that extend from distant seas to the vicinity of Spanish ports. Operational activities across all these areas contribute to deterrence, protection and improved CEM, which in turn influences the planning and subsequent implementation of these activities. In this way, maritime security operations (MSO) and the CEM form a cycle that continuously feeds back into itself at every level. Through various mechanisms, this feedback extends beyond them and contributes to a global CEM.

It is important to understand that a threat to our ports can be conceived and preparations for it can begin far from our waters. This is why it is so important to have a global CEM that includes remote areas.

The Navy's activities in more remote areas, such as the EU's Operation ATALANTA, led by Spain from its operational headquarters in Rota (OHQ); participation in the Combined Maritime Forces (CMF), with a presence at the Headquarters (HQ) in Bahrain; interactions between ATALANTA and the CMF themselves; or interactions with forces from countries with a greater naval presence in the Indian Ocean, such as the US or France,[20] contribute significantly to maritime security in that distant region and promote the interoperability of the CEM amongst the actors carrying out these operations. Similarly, the EU's presence in other remote areas such as the Gulf of Guinea (GoG) through its Combined Maritime Presences (CMPs) contributes to maritime security and, consequently, to the CEM in those regions. In both the Indian Ocean and the Gulf of Guinea, the Navy also contributes, through the aforementioned operations, to building the coastal States' own capabilities in the field of maritime security.

In an intermediate zone, the Navy is participating in NATO's Operation Sea Guardian in the Mediterranean, the area of operations for which has extended as far as the Alboran Sea, thereby forming a closer layer of defence. As this is primarily an anti-terrorist operation, one of its main tasks is to support the Joint Staff in the area.

[20] There is also a smaller naval presence from other countries, such as Japan and South Korea.

At a closer level, the Navy continuously carries out national maritime security operations (MSO) in waters adjacent to Spanish territorial waters; these operations include, amongst other things, maritime surveillance, counterterrorism at sea, and the protection of maritime communication lines and critical infrastructure. Some of these activities may be carried out in cooperation with other authorities with the power to intervene. The maritime surveillance carried out by the Navy is comprehensive, systematic and well-planned.

Consequently, the only way to gain a comprehensive understanding of the maritime environment is through a physical presence in maritime areas, the exchange of information between all relevant agencies and authorities, and the subsequent analysis of that information. Furthermore, as has been stated, the resulting CEM serves as a basis for planning new MSOs.

Two further physical layers will be examined below, both of which frequently operate within the ports' areas of responsibility: the NCAGS system[21] and specialist explosive ordnance disposal teams.

5 The information layer

What has been termed the *maritime safety information* layer is generated continuously by a vast array of stakeholders who, at national and international level, have a presence in maritime areas or are able to obtain real-time information from them, for example via satellites. They are actors who feed into complex information networks. Both nationally and internationally, there is a high degree of fragmentation among the organisations involved and, consequently, among information systems, which, operating as separate networks, process vast amounts of data. The main challenge facing the information layer is to achieve integration that will help create a CEM that is as comprehensive as possible. The first step in this regard is to share information, which is key to the effective and efficient management of maritime safety. On the one hand, this sharing must overcome the technical challenges involved in its implementation, a problem that can be tackled using new systems supported by artificial intelligence. It must also overcome the tendency to keep information within the community that generated it, a phenomenon that is common in all fields (Pozo, 2014: 13-15).

[21] *Naval Cooperation and Guidance for Shipping.*

Piracy in the waters off Somalia began to rise in the early 2000s. To date, various methods have been devised to enable information relating to maritime safety incidents to be shared securely. Traditionally based on a 'need-to-know' principle, information sharing gradually shifted towards a different model, in which content creators contribute data and have access to data contributed by members of the community of interest. In addition. agencies and associations in the maritime sector provide their trusted bodies—whether NATO, the European Union, regional maritime security centres, etc.—with data collected or incidents reported *on the ground* by their information sources (ships, security companies, shipowners, etc.). These organisations collect data, which are verified, assessed and shared in the form of advisories for the rest of the maritime community.

The Navy, whether operating at national level or as part of the EU and NATO, is regarded as a trusted partner by Spanish shipping companies and by those associations with vessels operating in waters where the international organisations of which it is a member are present. The Navy also provides information gathered from its own sources, which has been verified and validated by the Maritime Action Operations and Surveillance Centre (COVAM), and has access to any information that may affect Spain's interests in the field of maritime security.

At this level, there is a *cooperation agreement* between the Ministry of Defence and *Puertos del Estado* regarding the exchange of information on maritime traffic and port movements. Another example is a cooperation agreement in the maritime sector between the Civil Guard and the Navy, which involves, amongst other things, the exchange of information between COVAM and the Maritime Surveillance Coordination Centre (CECOVIGMAR). Inter-agency exercises are organised on a regular basis to put this exchange of information into practice in more challenging situations. Ports are often involved in such exercises, with their security plans being activated. MARSEC[22], organised by the Navy, is one of them.

[22] MARSEC exercises are advanced maritime exercises that bring together the efforts of various civil and military bodies and agencies to achieve the common objective of safeguarding national interests in various maritime areas. During the most recent exercise held in Huelva, a simulated terrorist attack was staged at the port involving an explosive device to be detonated remotely from a vessel, and a joint assault was carried out on a suspicious vessel by a Civil Guard unit using a helicopter and a fast boat deployed from a Navy vessel. In addition, a Navy diving unit carried out a search

6 The Maritime Action Operations and Surveillance Centre (COVAM- Spanish acronym)

COVAM is the tool used by the Navy's Maritime Action Force (FAM) to consolidate and analyse information received from a wide range of sources, thereby providing an accurate picture of everything taking place in maritime areas of national interest, and thus contributing to the CEM. It is important to note that these areas of interest are not confined to zones under sovereignty and jurisdiction, but extend to other, more distant areas[23].

COVAM generates information at various levels. On the one hand, it produces a layer of open, unrestricted information; on the other, it produces sensitive information—whether due to industrial or commercial interests or its potential media impact—which may be accessed by such bodies or agencies as may be determined at any given time and in any given circumstances, through internet access control systems. Finally, it produces a layer of classified information intended solely for military access and use. The first two are primarily used for functions supporting the maritime community (Gándara, 2011).

COVAM operates the Integrated Maritime Surveillance and Awareness System (SIVICEMAR-Spanish acronym), which brings together information from national and international authorities and agencies—both civilian and military—responsible for maritime traffic management, port control, fisheries inspection and surveillance, maritime rescue, and security and defence. Among other things, this system enables the automatic analysis of the behaviour of various Spanish and foreign vessels passing through areas of interest, in order to detect unusual behaviour and take appropriate action.

COVAM's activities affect all the groups mentioned above. For example, during the peak of piracy in the Indian Ocean, contacts were made with various fishing associations operating in the area to encourage Spanish fishing vessels to send information

for explosives in the harbour waters. This exercise also involved close cooperation with the Port Security Committee, as the Port's Security Plan was activated.

[23] The ENSM 24 states that maritime areas of interest also include: the Mediterranean Sea; the Atlantic coast, West Africa and the Gulf of Guinea; the Indo-Pacific, specifically the Horn of Africa, the Persian Gulf and the Southeast Asian region; and international fishing grounds where Spanish fishing vessels operate. In addition, there are other areas of interest such as the Pacific, the Antarctic and the Arctic.

to COVAM. Even fishing vessels from other countries reported their situations to COVAM. In addition, local notices were issued in those waters with the aim of encouraging the merchant shipping community operating in the Gulf of Aden and off the coast of Somalia to cooperate voluntarily with COVAM. The aim was to support Spanish-flagged vessels and all merchant ships linked to national interests for any reason (shipowner, shipping company, cargo, crew, etc.), regardless of their flag (Gándara, 2011: 7). The work carried out at this level has relied, and continues to rely, on data provided by Navy vessels operating in the area as part of Operation Atalanta, as well as on data exchanges with agencies such as the European Union's Maritime Security Centre—Indian Ocean (MSCIO), formerly the Maritime Security Centre—Horn of Africa (MSCHOA).

7 Other data centres

Within the intelligence layer, countries collaborate through a network of intelligence fusion centres (IFCs), which are maritime security centres located in strategic locations. One of the first and most advanced is the military-run IFC-Singapore, whose area of responsibility covers part of the western Indian Ocean and the eastern Pacific. In the Indian Ocean, this centre is complemented by the information gathered and disseminated by the European Union through the MSCIO, supported by the UKMTO (United Kingdom Maritime Trade Operation), whose area of focus is the eastern Indian Ocean, and by the IFC-IOR (Information Fusion Centre Indian Ocean Region), run by the Indian Navy and involving more than fifty countries. Other examples include the IFC-LA (Information Fusion Centre Latin America), based in Peru, and the PFC (Pacific Fusion Centre) in Australia, which is a civilian organisation; its remit includes providing maritime security advice to coastal States, as well as gathering information that can be shared with third parties.

These centres use different methods to share information. On the one hand, they issue regular maritime security reports, covering incidents such as piracy, terrorism and armed robbery, amongst others; on the other hand, they provide access via platforms that require users to register.

One example of an information-sharing tool is IORIS (Indo-Pacific Regional Information Sharing Platform), funded by CRIMARIO (Critical Maritime Routes Indo-Pacific Project). IORIS consoli-

dates information from various maritime centres and now covers more than fifty countries and one hundred agencies.

In the Atlantic Ocean, there is NATO's NSC (NATO Shipping Centre), based at Northwood, and its MarIE application, as well as MDAT-GoG (Maritime Domain Awareness for Trade – Gulf of Guinea), a collaboration between the French MICA-CENTRE (Maritime Information, Cooperation and Awareness Centre) and UKMTO, which contributes by maintaining a CEM in the western region, with the capacity to support merchant vessels in that area. Building on the *Yaoundé Architecture*—a 'regional consultation mechanism established in 2013 to coordinate the fight against illegal activities in the waters of the Gulf of Guinea[24]'—and in collaboration with European Union funding, the YARIS (Yaoundé Architecture Regional Information Sharing) tool was funded to facilitate the sharing of maritime security information.

As for the Mediterranean, in addition to the NSC, which also covers the region, there are other major information hubs such as the V-RMTC (Virtual Regional Maritime Traffic Centre*)*, managed by the Italian Navy, which links various MOCs, with the participation of up to 35 navies, including the Spanish Navy.

The European Union also collaborates by sharing information through EMSA (European Maritime Safety Agency) and the creation of CISE (Common Information Sharing Environment), a decentralised structure that enables classified and unclassified information to be shared between agencies in a secure and fully controlled manner. Finally, it is worth mentioning the MARSUR (Maritime Surveillance) system, run by the EDA (European Defence Agency), which aims to enable the navies of EU countries to share CEM. MARSUR will form what might be described as the *military component* of CISE, a system with which it will be interconnected.

It is not possible to provide a detailed description of what has been termed the 'information layer'. Through various examples, we have sought to highlight the scale and complexity of this *network of networks*, recognising that the protection of Spanish ports depends to a large extent on the sharing of information.

Using information from these networks, the Navy helps to ensure security in its ports. When generating a CEM relevant to their

[24] See: https://www.fiap.gob.es/proyectos_fiiapp/seguridad-maritima-en-el-golfo-de-guinea/

security, a significant amount of information is obtained from networks using a 'push-pull' model; this information will complement that gathered by the Navy itself. It is important to note that information relevant to port security may be generated at a remote location. If there is any suspicion of a threat to a port that may originate from a ship, the Navy has various means of monitoring the ship's activities, regardless of where in the world it is currently operating or has previously operated, through the aforementioned network system.

The various conceptual (regulatory and information) and physical layers have been described, ranging from ATALANTA and the CMPs in the GoG, through to more recent initiatives such as Sea Guardian, and down to the national MSOs. Finally, it is worth considering two units based near the ports, which, if necessary, would be the NCAGS system and the specialist bomb disposal teams.

8 The nearby layers. Naval Cooperation and Guidance for Shipping (NCAGS)

The naval system for cooperation and maritime traffic guidance is a model of voluntary collaboration between merchant shipping and the military authorities in the area of operations, designed to achieve mutual benefit (Perales Garat, 2016). On the one hand, this improves the safety of the traffic in question; on the other, it facilitates military operations and prevents unwanted interference with them. In this model, there is direct interaction with the merchant community by giving it instructions. NCAGS is closely linked to the AWNIS system[25], which aims to disseminate maritime safety information.

There are various tools available for civil-military interaction, such as the Maritime Collaboration Platform (ENCOMAR, Spanish acronym) at national level, an open system accessible via the web. There are also various NATO tools.

These interactions form part of a comprehensive approach that involves building relationships with a wide range of stakeholders in the maritime sector, including government bodies and other organisations such as associations, guilds, agents, etc.

To implement these NCAGS/AWNIS systems, structures are established at national or higher levels, in which COVAM plays

[25] Allied Worldwide Navigation Warning System.

a leading role. Naval commands may, if necessary, provide support within this structure. In the event of an incident within their area of responsibility—for example, in a port or its approaches—which warrants the use of these collaborative mechanisms, naval commands may act as deployed NCAGS units[26], known as DNE, thereby enabling the NCAGS/AWNIS system, within the multi-layered defence system described above, to provide closer protection to ports.

A practical example of what is described in the previous paragraph could be any criminal act that poses a threat to merchant shipping in the approach to a Spanish port, for example, by obstructing the access channels. In such circumstances, the Navy, using its resources, could establish safe shipping routes and channels, with the DNE, set up for this purpose, taking charge of guiding merchant traffic through them.

In order to ensure that personnel are trained in these systems, naval commands regularly conduct NCAGS/AWNIS exercises, involving various stakeholders from the maritime community. To this end, DNE units are established which, depending on the type of exercise, report to the national command (COVAM) or to NATO's Maritime Command (MARCOM[27]). In these simulations, the port in question is depicted as being located in an operational zone, usually linked to a current scenario. When planning these exercises, contact is made with local shipping agents with the aim of encouraging participation from merchant ships due to enter port, given that, as mentioned, participation is voluntary.

In the establishment of these NCAGS/AWNIS structures, voluntary reservists play a very important role, particularly those from the maritime community; given their expertise in the field, they are best placed to provide advice[28] and serve on the relevant DNE committees.

It is thus clear that the NCAGS system constitutes a more immediate layer within the multi-layered system through which the Navy contributes to the protection of ports.

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26 Deployable NCAGS Element.

27 Allied Maritime Command, based in Northwood, England.

28 A notable example is the case of the Huelva Naval Command. At this port, one of the corporation's pilots is a voluntary reservist, assisting the naval command whenever the DNE is deployed to conduct exercises. This example represents a specific instance of full synergy between the military and civilian branches of this structure. The fact that he is a practising professional brings things into full circle almost perfectly.

9 The nearby layers. Specialist bomb disposal teams

The *diving units* (UUBB, Spanish acronym) and the *mine countermeasures diving unit* (UBMCM, Spanish acronym), belonging to the Maritime Action Force (FAM, Spanish acronym) and the Mine Countermeasures Force (FMCM, Spanish acronym) respectively, are responsible for forming *specialist explosive ordnance disposal teams* (GEDE, Spanish acronym) of the Navy, which carry out the tasks of defusing explosive [29]devices on the coast and at sea.

The GEDE teams remain on standby around the clock (24/7). Their nationwide presence enables them to respond promptly to incidents involving potential underwater devices or those found in ports and on beaches along the entire Spanish coastline, including the islands. In the event of urgent deployments, in more remote locations or in more demanding situations, these teams are supported by aircraft. In any case, the activation and deployment of the GEDE units in response to an alert—which will normally come from the State Corps Security Forces or from naval commands and naval headquarters—is carried out by COVAM.

Such actions by the Navy are legally authorised under current legislation, without prejudice to the powers vested in the law enforcement agencies.

As explained above, the Navy conducts exercises, as part of the MARSEC programme, which frequently involve this type of incident, thereby making a direct and tangible contribution to the security of Spanish ports.

10 Conclusions

Maritime safety can never be taken for granted; it requires a sustained effort.

Among the wide range of factors affecting maritime security, as defined by the *2024 National Maritime Security Strategy*, the protection of national ports against deliberate criminal acts deserves particular attention.

Awareness of the threat of potential attacks in the maritime sector has been growing gradually since the 1980s, culminating in the dramatic turning point that was 9/11. The polarisation result-

[29] EOD (Explosive Ordnance Disposal).

ing from the current global situation could act as a catalyst for actions that jeopardise maritime safety.

In this complex context, the Navy plays a vital role in the early detection and prevention of potential criminal acts. This early detection requires a maritime presence across a wide range of areas, from the most remote regions such as the Indian Ocean (the EU's Operation Atalanta) or the Gulf of Guinea (the EU's Coordinated Maritime Presence) to the western Mediterranean (NATO's Operation Sea Guardian), as well as closer to home through national operations such as the MSOs. In all cases, they report to the Operations Command of the EMAD.

A presence in these maritime areas is essential for gaining an *understanding of their maritime environment* (CEM, Spanish acronym), which contributes to a global CEM within a complex system of data centres organised as a network of networks.

In the immediate vicinity of national ports, the Navy can contribute to their protection through the NCAGS system (Naval Maritime Traffic Cooperation and Guidance System) in cases where a threat makes its deployment advisable. Finally, the *specialist explosive ordnance disposal teams* (GEDE, Spanish acronym) teams of the Navy are on standby to provide immediate support should the need arise.

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Chapter Four

The deterrence and defence of extra-peninsular territories and their ports defence 'on and from' land

Ramón Armada Vázquez

Abstract

Throughout history, the protection and defence of Spain's overseas territories has been key to defending the peninsula and national interests. Today, its ports are strategic infrastructures that are essential to ensure the well-being of its citizens and drive economic and socio-cultural development and national identity.

Throughout history, the defence 'on' and 'from' land of ports has allowed national sovereignty to be maintained in the face of enemy fleets. Today, wars such as those in Ukraine and Russia highlight the importance of this land defence.

The 2021 National Security Strategy highlights the need for credible and effective deterrence and autonomous defence capabilities against different forms of aggression, from hybrid strategies to conventional conflict. The Land Operations Command, within the framework of permanent operations, plans and conducts land operations involving presence, surveillance and deterrence in territories outside the peninsula. Its ports are key infrastructures for the defence of these territories and for the sustainment of deployed forces.

The article analyses the institutional coordination fields in order to deepen the deterrence, protection and defence of overseas ports of 'military interest'.

Key words

Deterrence, Defence, Ports, Extra-peninsular, Operations command.

> 'Spain's configuration is unique, with a peninsular territory, archipelagos, islands, rocks and the Autonomous Cities of Ceuta and Melilla in North Africa, as well as a significant maritime extension.' National Security Strategy (ESN, Spanish acronym) 2021.

1 Introduction

1.1 Relevance of extra-peninsular territories

Spain's extra-peninsular possessions—the Canary Islands, sovereign territories in Northen Africa and the Balearic Islands—have historically been strategic hubs for ensuring Spain's projection in its areas of influence and the defence of the peninsular territory and national interests. They served as crucial naval and military platforms for the protection of commercial maritime routes, contributing to controlling the Atlantic and the Mediterranean. This network of enclaves allowed Spain to protect itself from external threats, maintain its geopolitical projection and preserve Spanish sovereignty in complex and disputed border territories.

Each of them was key in its geographical environment. The Balearic Islands, historically inhabited, were essential to control the western Mediterranean Sea and dominate maritime trade routes. They allowed Spain to project its naval power and protect the peninsular territory from Mediterranean threats such as pirates and Ottoman attacks, ensuring the strategic connection between the peninsula and other Mediterranean possessions of the Spanish kingdoms.

For their part, the Canary Islands played an essential role as a platform for military, economic and cultural expansion since their incorporation into the Kingdom of Castile in the 15th century. They were the starting point for the exploration and conquest of America, and due to their strategic location, they were key to controlling the Atlantic routes to the American continent and Africa. In addition, they served as a base for the protection of the peninsular coasts against maritime incursions and piracy.

The Autonomous Cities of Ceuta and Melilla and the rest of the sovereign territories in North Africa are small territories of great strategic value that were incorporated into the Crown from the 15th and 16th centuries until the 19th century. With their Spanish identity more than confirmed (Echeverría, 2021), they

emerged as a complement to the coastal watchtowers, urban fortifications and peninsular naval bases and were called *presidios*[1], that is, prominent military positions on the African coast with a marked defensive character[2]. Thus, during the reign of the Catholic Monarchs, Melilla (1497) and Peñón de Vélez de la Gomera (1508) were incorporated. With the unification of the peninsula, Ceuta (1582), occupied by Portugal in 1415, was incorporated, and with Charles II, the rock of Alhucemas (1673). The Chafarinas Islands were incorporated during the reign of Isabella II (1848). The Spanish positions in North Africa were key to controlling the Strait, guaranteeing trade and communications between the Mediterranean Sea and the Atlantic, and containing Berber incursions on the Spanish and European coasts. In addition to contributing to the defence of the peninsula, they were used as a platform to project Spanish influence into the interior of the Rif, thus guaranteeing its defence.

1.2 Relevance of ports in extra-peninsular territories

Ports have been, and continue to be, strategic infrastructures that are fundamental to Spain's economic, political, social and cultural influence, especially in its extra-peninsular territories. Until the advent of air transport, they were the only gateway for the entry and exit of goods and citizens, trade and culture. They have been strategic bases for the arrival and departure of military capabilities, as well as for the surveillance and control of maritime routes, and have been drivers of economic and sociocultural dynamism and national identity.

We could say that today the insularity of the archipelagos is shared by the possessions in North Africa, as Ceuta and Melilla have practically closed commercial traffic with their Moroccan land borders[3]. Today, ports outside the peninsula guarantee connectivity, supply and mobility. They are fundamental drivers of economic and social development in these areas with a special

[1] From Latin *praesidium,* 'military garrison', 'protection', 'help'. A city or fortress that could be garrisoned by soldiers. Royal Spanish Academy. See: https://dle.rae.es/presidio

[2] The major *presidios* were Ceuta and Oran, and the minor ones were Peñón de Vélez, Alhucemas and Melilla.

[3] On 1 August 2018, Morocco unilaterally closed the commercial border with Melilla. Ceuta did not have a border, and the Spanish government has tried unsuccessfully to open it. See: https://www.eldebate.com/espana/20250114/frontera-ceuta-melilla-cronologia-seis-anos-medio-merced-caprichos-marruecos_260640.html

regime and, as we will see in the course of this article, they are key to the deterrence and defence of territories outside the Peninsula. The connectivity that these ports offer with the mainland and the rest of the world allows for the import of essential resources, the export of local products, the transport of passengers and their operation as international logistics hubs. All of this allows them to be centres of growth and territorial cohesion. In short, without ports, the extra-peninsular territories could not be maintained.

Ports are part of critical infrastructure and are particularly vulnerable to national security risks. From a defence perspective, extra-peninsular ports are key to the maintenance of the military units deployed there, to their sustainment and to the possible arrival or departure of reinforcements. As the Armed Forces are responsible for guaranteeing Spain's sovereignty in these territories, as well as protecting the lives of their populations and their interests, ports become points of interest for security and defence.

1.3 Historical importance of the military defence of overseas ports

Spanish overseas ports were key points for maintaining Spanish sovereignty, protecting trade routes and ensuring the geopolitical and economic control of its vast overseas empires. Their strategic location allowed control of naval routes vital for the trade of overseas products and the movement of military fleets. When choosing their location, it was essential to analyse their capacity for defence from land, as it was necessary to protect naval resources and arsenals and repel attacks from enemy fleets, since their defence ensured the expansion and permanence of overseas Spain in the face of rival powers. From the 16th century onwards, fortifications such as castles, batteries and walls were built, combining artillery and strategic positions to cover the sea entrances. These defensive systems were updated over the centuries in response to new threats, incorporating technological advances and adapting to maritime warfare tactics. Military defence made it possible to preserve Spain's overseas territorial integrity for centuries and delay the loss of its colonies.

Since the advent of gunpowder, there has been a close relationship between coastal defence at key points and the manoeuvring of naval squadrons (Solá Bartina, 2019). This is in line with Julian

Corbett's argument, complementing Mahan's view[4] that states should maintain a large fleet to weaken the enemy with an effective naval blockade, pointing out that naval power should support and facilitate land operations, and that control of the sea allows for effective landings and protection of forces on land[5] (Romero Sobrino, 2025).

From the 16th to the 18th century, due to the extent of its possessions and the difficulty of having a navy capable of protecting all its coasts, Spain had to rely on land-based defences consisting of artillery fortifications and the organisation of militias (Solá Bartina, 2019). Thanks to these, its possessions were maintained despite numerous attacks by its European adversaries. Among others, the defences of Las Palmas de Gran Canaria (1599) and Santa Cruz de Tenerife (1797) stand out.

In the former, the coastal defences weakened Admiral Van der Does' Dutch fleet but were unable to prevent it from reaching the coast on its fifth attempt to land[6], besieging and taking the city of Las Palmas. The defence was organized by retreating inland, where some four hundred militiamen under the command of Lieutenant Pamochamoso defeated the four thousand Dutchmen in the Battle of Batán, a prelude to 'guerrilla warfare' tactics, expelling them from the island.

In the second, Lieutenant General Gutiérrez's coastal defence prevented the victory of Admiral Nelson's British fleet. Thanks to a defence that combined forts and militias, it was possible to prevent, first, the advance of some thousand men who had landed on Valleseco beach, forcing them to re-embark, then the

[4] Alfred Thayer Mahan (1840-1914) is the leading theorist of maritime power, focusing his analysis on the decisive influence of naval dominance on state power and international politics. According to Mahan, effective control of the oceans, sea lanes and strategic points (natural harbours, straits and naval bases) is the key to achieving global pre-eminence. Mahan's main counterpart was Halford Mackinder, who in 1904 formulated the Heartland theory, referring to the central area of Eurasia (from central Europe to the Black Sea and Siberia) as being of great strategic importance due to its resources, size and position.

[5] The difference between Mahan and Corbett lies in their approaches. While Mahan focused on maritime trade and the importance of maintaining a powerful fleet, Corbett prioritised cooperation between the navy and the army, focusing on the navy's contribution in conflicts with a significant land component.

[6] Seventy-four ships and 150 landing craft succeeded thanks to the technological surprise of flat-bottomed boats approaching in a shallow area unprepared for defence and the superiority of the enemy's rifle range (Galán García, 2017).

neutralization of the mass frontal attack against Santa Cruz with fire from the batteries and infantry, and finally the neutralization of the advance of the landing troops into the city and their capitulation (Lanuza Cano, 1955).

In the 19th century, the dilemma remained as to whether to reinforce the coast or strengthen the Navy. The ports were barely maintained with coastal defence batteries, although these were insufficient. Even so, in 1898, the battery of two modern 305/35 mm Krupp guns in Havana kept the American fleet away from the port, preventing the city from being bombarded. However, as the mouth of the Santiago estuary was not armed, the American squadron was able to defeat Admiral Cervera's ships one by one as they left the narrow mouth of the estuary in single file (Solá Bartina, 2019).

In the 20th century, following the loss of overseas possessions and in the face of European greed, plans were made to build a modest but modern fleet and reinforce our coasts with British support (Munáiz-Argüelles and British Vickers pieces). In the 1930s, the coastal artillery was equipped with modern 381/45 mm and 152/50 mm Vickers guns, the backbone of our coastal defence, which continued to be maintained after our war to complete the defences and replace obsolete equipment. The coastal artillery was divided into two large groups according to their mission: the protection of naval bases and relevant geostrategic points, and the coverage of ports, industrial areas and coastlines of certain importance both on the Peninsula and in the Canary and Balearic archipelagos. They were organised into coastal artillery groups with primary and secondary batteries of different calibres and anti-aircraft batteries, all under the same command (Solá Bartina, 2019).

It is clear that, throughout our history, the 'land' defence of our ports has been key to maintaining our overseas and extra-peninsular possessions.

1.4 The importance of military defence of ports today

Moving on to the 21st century and taking the war in Ukraine as an example, it is worth noting how the tactics, techniques and procedures used to defend Ukrainian ports from the mainland have proven effective against Russian naval and air power.

Although the Black Sea scenario could be considered specific, with international limitations on naval operations[7] and subject to the tactics of 'warfare in confined spaces' studied by Milan Vego[8], we can say that at the start of the conflict, Russia had a fleet[9] and air power far superior to Ukraine[10], which should have allowed it to blockade its ports and support its land operations from the sea. Professor Vego points out that in confined spaces, control of the sea can be absolute, limited or disputed by the opposing fleets, but he introduces the possibility of denial of use of the sea, which occurs when a weaker fleet chooses strategic times and places to launch surprise attacks, although this does not necessarily mean gaining control of the sea. In this case, Ukraine did not have a fleet to deny Russia the use of the sea, but it did have a set of military capabilities launched from land.

In theory, control of the sea should have been on the Russian side, but Ukraine managed to wrest it away and secure its access to the sea through a combination of coastal fire, sea mines, surface drones, anti-aircraft and anti-ship missiles that forced the Russian fleet to abandon Sevastopol(Audrant, 2025).

The ability to evolve and introduce new tactics, techniques and procedures for the protection and defence of ports and coastlines using coastal-based assets, as successfully demonstrated in the defence of Odessa during the Russian aggression against Ukraine, highlights the key importance of this in the current war, as it has been throughout history.

[7] The 1936 Montreux Convention grants Türkiye the power to regulate passage through the Bosphorus and Dardanelles straits, allowing it to restrict access for warships and merchant ships in times of peace or war.

[8] Milan Vego, professor in the Joint Operations Department at the United States Naval War College, discusses naval operational art in 'restricted waters' in his work 'Naval Strategy and Operations in Narrow Seas,' highlighting the importance of control, especially when the main campaign is taking place on land. See: https://www.defensa.gob.es/ceseden/-/esfas/control_del_mar_en_la_guerra_de_ucrania

[9] According to Vilches, it had 34 ships, 6 submarines, 28 surface units, 45 aircraft and several helicopters since the invasion of Crimea. The fleet was composed of units from the 30th Surface Ship Division (Slava-class cruisers, Krivak II frigates and Krivak V-class frigates), the 4th Independent Submarine Brigade (Kilo-class and Project 636.3 submarines), the 197th Assault Ship Brigade (Aligator-class and Ropucha I and II ships), two divisions of small ships (Buyan-M and Tarantul II and III corvettes), mine countermeasure units and logistics units (Romero Sobrino, 2025).

[10] The weakness of the Ukrainian fleet became apparent at the start of the conflict with the deliberate sinking of its flagship, the frigate Hetman Sahaidachny, to prevent it from falling into Russian hands.

2 Deterrence in overseas territories

2.1 Deterrence in the Armed Forces

If we review our legislative system, we will see that the word 'deterrence' does not clearly appear as a task of the Armed Forces until the 2021 National Security Strategy (ESN)[11]. What does appear is the word 'defence'.

Thus, the Spanish Constitution grants the Armed Forces[12] the defence of Spain's territorial integrity, and the Organic Law on National Defence regulates national defence and establishes the basis for military organization[13]. The Prime Minister, assisted by the National Defence Council, directs armed conflicts and the management of crisis situations affecting defence. Although the Armed Forces are its main tool, other ministries are represented on this Council[14], as defence is a matter of state.

It is in the ESN 2021 that the link between deterrence and defence is established. In fact, the first paragraph of the first axis of the ESN, 'A Spain that protects people's lives and their rights and freedoms, as well as the constitutional order', is dedicated to 'Deterrence and Defence'[15].

The word deterrence appears in a fundamental strategic context, highlighting the need for Spain to have 'a credible and effec-

[11] ESN 2021 is currently under review. BOE 126, dated 26 May 2025, establishes the procedure for drafting the new ESN 2025. Its preamble states that 'the strategic review process will emphasize measures such as strengthening deterrence and defense'.

[12] CE Article 8. 1. The Armed Forces, consisting of the Army, Navy and Air Force, have the mission of guaranteeing the sovereignty and independence of Spain, defending its territorial integrity and constitutional order. *BOE* No. 311, of 29/12/1978

[13] It establishes among the types of operations 'The surveillance of maritime spaces, as a contribution to the action of the State at sea, the surveillance of airspace and the control of national sovereign airspace, and any other activities aimed at guaranteeing the sovereignty and independence of Spain, as well as protecting the lives of its population and its interests'. Organic Law 5/2005, of 17 November, on National Defence. *BOE* No. 276, of 18/11/2005

[14] Minimum Home, Foreign Affairs and Cooperation, and Economy and Finance ministries, with the possibility of convening the rest of the members of the Government.

[15] First axis: A Spain that protects the lives of its people and their rights and freedoms, as well as the constitutional order. Strengthening the capabilities of the fundamental components of National Security—National Defence, Foreign Affairs and Public Security, with the support of the State Intelligence and Information Services—together with reinforcing Public Health, Civil Protection and the protection of Critical Infrastructure are key to addressing the threats that affect Spain's values and interests and contribute to its territorial cohesion.

tive deterrence capability and an autonomous defence capability against different forms of aggression: from hybrid strategies to conventional conflict.' It stresses that maintaining credible deterrence requires technologically advanced military capabilities sufficient to cover the entire spectrum of conflict, including combat operations, together with a stable budgetary framework. Deterrence is therefore part of the overall strategic approach to strengthening prevention, detection and response to hybrid threats and risks in a geopolitical environment characterized by competition between powers and the use of new technologies. Deterrence is linked to the consolidation of the National Security System and to alert and monitoring procedures in crisis situations.

The 2020 National Defence Directive (DDN, Spanish acronym) emphasizes that defence contributes to the national security system by providing unique capabilities, expertise and availability to expand the possibilities for action in multiple scenarios. In other words, defence is part of the solution to any security problem. The use of hybrid strategies that combine conventional procedures with other asymmetric ones leads to a framework of intense confrontation in cyberspace and in the information environment. Action is taken in the grey area, below what is identified as our response threshold.

Going down to the 2020 Defence Policy Directive (DPD, Spanish acronym), it establishes that, domestically, the operational action of the Armed Forces will be articulated through the conduct of permanent missions of surveillance, control, collaboration and protection in areas of national sovereignty. The principle of integration with the rest of the State's instruments will be followed, seeking synergy, concurrence and added value that avoids competition and enhances preparedness to enable a rapid and effective response to any emergency. In this way, it contributes to the first objective of the Defence Policy[16], to guarantee the security of Spain and its citizens in accordance with the missions assigned by the Constitution and the Organic Law on National Defence.

In order to address the various threats to national defence, Royal Decree 521/2020 of 19 May establishes the basic organization of the Armed Forces (FAS), providing them with the necessary

[16] Its third objective is to 'contribute to stability and progress in the Mediterranean, North Africa and the Sahel, combining participation in international initiatives with bilateral agreements with the countries concerned. The fight against terrorism and the training of our partners will remain the priority aspects of this effort'.

instruments to adapt to a constantly evolving environment. These threats, which traditionally came from the areas of operation of the land, sea and air domains, now also materialize in outer space and in the cyber and cognitive spheres. This Royal Decree provides that operational organizations may be created on a permanent or temporary basis, reporting directly to the Chief of Defence (CHOD).

Thus, the CHOD exercises command of the operational structure of the Armed Forces, under the authority of the Minister of Defence, and proposes the creation of permanent operational organisations to the latter. The operational structure is organised into three levels: the strategic level, which is retained by the CHOD; the operational level, which is the responsibility of the Chief of Operations Command (CMOPS)[17], who is responsible for planning, conducting and monitoring operations; and the tactical level, which is under the command of the commanders of the operational organizations that are created.

2.2 Standing orders

Therefore, at the tactical level of the operational structure and reporting to the CMOPS, there are the following permanent operational organizations[18](spelled by their Spanish acronym): the Land Operations Command (MOT), the Maritime Operations Command (MOM), the Air Operations Command (MOA), the Space Operations Command (MOESPA) and the Cyberspace Operations Command (MOCE).

These operational organizations are responsible for carrying out permanent operations on national territory. Unlike the temporary organizations, they are continuously active, which allows them to fulfil their tasks at all times. Their ability to act in all domains—land, sea, air, space, and cyberspace—ensures the convergence of efforts and allows the Operations Command, in coordination with other non-military actors, to carry out multi-domain operations[19].

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[17] 'And the commanders of those operational organizations determined by the Chief of Defense for the execution of contingency plans.' RD 521/2020, of 19 May, establishing the basic organization of the Armed Forces (FAS).

[18] ODEF/1110/2023, of 4 October, amending Order DEF/710/2020, of 27 July, developing the basic organisation of the Defence Staff.

[19] According to NATO doctrine, 'multi-domain' operations differ from the concept of "joint" operations in that the former, in addition to military capabilities

Permanent Operations are an effective tool for maintaining surveillance of sovereign spaces, enabling early detection of threats and facilitating an immediate and viable response to a potential crisis. On a daily basis, more than 10 % of Armed Forces personnel are involved in permanent operations[20].

If we analyze the 2024/2025 risk map in the 2024 Annual National Security Report[21], the vulnerability of cyberspace appears among the very high risks, while six threats to national security appear as high risks: disinformation campaigns; irregular migration flows; strategic and regional tension; espionage and foreign interference; economic and financial instability; and terrorism and violent radicalization. Medium-intensity risks include threats to critical infrastructure; emergencies and disasters; energy vulnerability; organized crime and serious crime; the effects of climate change and environmental degradation; epidemics and pandemics; and maritime vulnerability.

In view of these risks, the surveillance carried out by permanent operations contributes, to a greater or lesser extent, to the detection of most of the risks presented. Its role in detecting vulnerabilities in cyberspace, disinformation campaigns[22] and migratory flows[23], monitoring strategic and regional tensions and critical infrastructure[24], and monitoring maritime space[25] is particularly noteworthy.

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in different areas, include other non-military capabilities, such as government entities, the private sector and international bodies. By their very nature, they allow military operations to be synchronised with collaboration with other actors for the benefit of deterrence and defence. See: https://www.act.nato.int/article/mdo-in-nato-explained/

20 See: https://ejercito.defensa.gob.es/unidades/Santa_Cruz_De_Tenerife/cg_mcana/Noticias/2021/visita_jemad_mot.html

21 2024 Annual National Security Report, DSN. See: https://www.dsn.gob.es/sites/default/files/2025-05/IASN2024%20ACCESIBLE.pdf

22 All operational commands within their scope and level. Other intelligence and analysis bodies complete surveillance at higher levels.

23 The report explicitly states that 'Permanent Operations contribute effectively to the monitoring and control of migratory flows across the borders of Ceuta and Melilla, and along maritime routes from the Maghreb and Sahel, as well as to other aspects related to public security in the management of migratory flows'.

24 For example, the Land Operations Command is responsible for the tactical conduct of fire prevention operations in support of the Island Council of Tenerife and the Regional Community of Galicia.

25 Role of the Maritime Operational Command. See: https://www.defensa.gob.es/ministerio/organigrama/emad/mopmaritimo/index.html

2.3 The Land Operations Command and non-peninsular ports

The Land Operations Command (MOT) is the body within the operational structure of the Armed Forces responsible, at its level, for the planning, conduct and monitoring of military operations on land. The Chief of the Army Staff (JEME, Spanish acronym) proposed to the CHOD the appointment of the Commander of the Land Operations Command (CMOT), which since 2020 has been held by the Chief of the Canary Islands Command (MCANA, Spanish acronym)[26].

The MCANA is an Army Command whose main task is to prepare operational structures, with the peculiarity of including all units of the Force deployed outside the Iberian Peninsula. Its headquarters is in Santa Cruz de Tenerife and its large units are three General Commands (COMGE) (spelled by their Spanish acronym), located in Ceuta (COMGECEU), Melilla (COMGEMEL) and the Balearic Islands (COMGEBAL), and one Brigade, the 16th 'Canarias' Brigade, deployed in the Canary Islands. It also has other small units that provide different capabilities[27].

The appointment of the General Chief of the Canary Islands Command of the Army as Commander of the Land Operations Command is particularly appropriate, as its organic units are responsible for carrying out the permanent operational tasks assigned by the Operations Command. In other words, they operate where they are trained.

The tasks carried out by the MOT[28] are focused on the presence, Surveillance and Deterrence of the areas of land sovereignty in the Canary and Balearic archipelagos and in the Autonomous Cities of Ceuta and Melilla, as well as in the Islands and Rocks

[26] Proposed Instruction from the Chief of the Army Staff, developing the organization of the Army (IODET). Art. 41.b 'At the proposal of the JEME and by appointment of the CHOD, as specified in Order DEF 710/2020 of 27 July, amended by Order DEF 1110/2023, which develops the basic organization of the Defense Staff, the General Chief of the Canary Islands Command acts as Commander of the Land Operational Command (MOT), planning, conducting and monitoring permanent operations in the land domain.'

[27] Order DEF/708/2020, of 27 July, implementing the basic organisation of the Army. See: https://www.boe.es/eli/es/o/2020/07/27/def708/con

[28] See: https://www.defensa.com/espana/activados-agrupamientos-tacticos-presencia-vigilancia-disuasion and https://emad.defensa.gob.es/operaciones/operaciones-nacionales/70-OP-PRESENCIA-VIGILANCIA-DISUASION/noticias/listado/250313-ni-visita-CMOPS-MOT.html

of national sovereignty, Alborán Island, Chafarinas Islands, Alhucemas Islands and Vélez de la Gomera Rock.

The designated MOT units carry out permanent and non-permanent deployments or activations. Among the permanent ones are the military detachments on the Islands and Rocks, Alborán Island, the Chafarinas Islands, Vélez Rock and Alhucemas Rock. These detachments usually have the status of a reinforced section[29] and are relieved every month.

Non-permanent activations take place in Ceuta, Melilla, the Balearic Islands and the Canary Islands and involve deployments of units ranging from platoon to tactical group size [30]. Many deployments are made to islands that do not have a permanent military presence. The activation period can be from three to ten days and is distributed throughout the year, ensuring that units are always deployed. Success lies not only in the activations but, above all, in the availability of these units to be deployed at any time.

Each unit is focused on its area of responsibility, which contributes to the effectiveness of the operation. The Melilla Command, in addition to Melilla, is responsible for the islands and rocks except for the island of Alborán, which has a specific Navy detachment. The Ceuta Command carries out its deployments in the Autonomous City, the Balearic Islands Command deploys throughout the Balearic archipelago, and the Canary Islands Brigade throughout the Canary Islands archipelago.

Their deployments have four objectives: knowledge of the environment, presence, surveillance and deterrence.

Knowledge of the environment allows for the completion and updating of a large database on infrastructure and services of all kinds, populations, hospitals, accommodation, energy centers, watering holes, petrol stations, institutions and key points of military interest for both the protection and, if necessary, the defence of the territory.

The presence of the patrols and units deployed instils confidence in the population and naturalness in the performance of their duties, as society in these extra-peninsular territories is increas-

[29] Around forty military personnel.

[30] Up to 600 military personnel. See: https://www.eldebate.com/espana/defensa/20250318/grupo-tactico-despliega-canarias-rastrea-puentes-embalses-bunkeres_279874.html

ingly accustomed to seeing military units patrolling. It is not unusual for these patrols to provide assistance in accidents or situations of need on the part of the population.

The surveillance mission allows for the detection of indicators that could affect security, facilitates knowledge of the environment and contributes to deterrence. Available land-based resources are used to acting at all times and across the entire spectrum, allowing the chain of command to update the situation and, if a threat is detected, to activate response measures. The MOT, with its surveillance, would form part of the 'early warning system that provides indicators in all areas of National Security', as recommended in the ESN2021[31].

Finally, the deployment of units achieves deterrence. In line with the third objective of the ESN2021[32] and with the review of deterrence in NATO's 2022 Strategic Concept[33], the presence of military units that are prepared, equipped and highly available or 'ready' to ensure immediate deployment in case of need contributes to deterrence against possible threats to territories outside the Peninsula.

As stated in the 2020 DDN, 'the preparation of Armed Forces personnel and the acquisition of capabilities that enable collaboration with and support for civil authorities, especially in crisis and/or emergency situations, will be promoted'.

3 The defence of non-peninsular ports 'on' and 'from' land

Having seen the contribution of the Army to deterrence and surveillance in extra-peninsular territories, including their ports, we

[31] The first objective of the ESN, which advocates advancing the crisis management model, is that 'the National Security System will focus its efforts on early warning, the formulation of preventive measures and enhanced coordination between all public entities'.

[32] The third objective is to develop Spain's capacity for prevention, deterrence, detection and response to hybrid strategies, in a security context in which conventional threats alternate with the combined use of economic, technological, diplomatic and information vectors, among others, as elements of pressure and destabilization.

[33] 'With the return of war to Europe, NATO has been forced to develop a more assertive deterrence strategy, based on combat readiness and the development of advanced and up-to-date military capabilities. This is part of the Alliance's collective defense with warfighting-oriented forces.' Deterrence in NATO's 2022 Strategic Concept. Implications for military operations. Stefano Parisi, Cte ITA. See: https://www.defensa.gob.es/documents/2073105/2341685/la_disuasion_en_el_concepto_estrategico_de_la_otan_de_2022.pdf/60ccafbe-18ca-c6b6-e3be-abb8d88cf882?t=1737969971522

should now analyse how it would participate in what, by way of complementarity to other concepts, we will call the defence of ports 'on' and 'from' land.

3.1 Permanent commands in port protection

The protection of critical infrastructure, including ports that are considered as such, is organised through the Critical Infrastructure Protection System, which is the responsibility of the Home Ministry. The National Centre for the Protection of Critical Infrastructure (CNPIC, Spanish acronym) liaises and coordinates with the other agents. Its members include certain ministries and agencies, among which are the Ministry of Defence[34]. The protection of critical infrastructure has evolved in recent years in Europe, moving from an initial more sectoral approach to a comprehensive approach covering multiple areas and all types of threats, both physical and cyber[35]. Of particular note is the improvement in the strategy and resilience plans for critical infrastructure in Member States[36].

Furthermore, each port must have and evaluate its own protection plan, which is approved by the Home Ministry. The port protection authority sets up a port protection advisory committee, which includes, among others, a representative of the Naval Command, and may invite other representatives of public organizations related to port protection to participate in this committee[37].

There is no doubt about the importance that the Maritime Security Strategy (ESM 2024, Spanish acronym) is attached to the extra-peninsular territories and their ports. In particular, the maritime communication lines connecting the peninsula with

[34] SEGENPOL is the Ministry of Defence authority that participates in the National Commission for the Protection of Critical Infrastructure, while a representative of the Joint Chiefs of Staff (EMACON) and a representative of DIGENPOL collaborate in the permanent working group. PDC-01 (A) Doctrina para el empleo de las Fuerzas Armadas.

[35] The EU NIS2 Directive promotes the adoption of advanced technologies for the protection of critical infrastructure. 'Directive (EU) 2022/2555 of the European Parliament and of the Council of 14 December 2022 on measures for a high common level of cybersecurity across the Union". See: https://eur-lex.europa.eu/eli/dir/2022/2555/oj

[36] 'Directive (EU) 2022/2557 of the European Parliament and of the Council of 14 December 2022 on the resilience of critical entities'. See: https://eur-lex.europa.eu/eli/dir/2022/2557/oj

[37] RD 1617/2007, of 7 December, establishing measures to improve the protection of ports and maritime transport. See: https://www.boe.es/eli/es/rd/2007/12/07/1617

these territories are considered 'maritime areas of preferential interest' and 'ports and maritime infrastructure, as well as critical infrastructure or infrastructure of interest to maritime security located on the coast' form part of the national interests in their maritime dimension. Therefore, the primary objective of ESM2024 is to protect Spain 'at' and 'from' the sea, with deterrence and protection of maritime infrastructure taking centre stage, citing ports as a fundamental link in the global supply chain[38].

However, it would be absurd to think that this deterrence and protection would be limited to the maritime sphere. The National Aerospace Security Strategy (ESAN2025) contemplates the protection of Spain 'in' and 'from' the air and space[39], which includes the skies over the non-peninsular territory and its ports, a task assigned to the Air Operations Command and the Space Operations Command[40] . This protection also includes the air defence resources of the Army and Navy assigned to the Air Operations Command. In this case, the protection of airspace involves its defence by military means.

In the maritime, land and cyberspace domains, although responsibility for protecting ports in peacetime falls to the national security system, the Land, Maritime and Cyberspace Operational Commands contribute to protection through their deterrence and surveillance actions and, with their response capabilities, they are prepared for their defence.

3.2 The defence of ports 'on' and 'from' land

It is understood that defence is resorted to when deterrence has failed. Defensive measures are taken when an attack is antic-

[38] ESM 2024. See: https://www.boe.es/buscar/doc.php?id=BOE-A-2024-10762

[39] Strategic Objective 1 of the National Aerospace Security Strategy. Order PJC/845/2025, of 29 July, publishing the Agreement of the National Security Council of 14 July 2025, approving the National Aerospace Security Strategy. BOE 187/2025.

[40] As stated in the 2025 Aerospace Security Strategy, 'Air defense has been integrated, since peacetime, into NATO's Integrated Air and Missile Defense (IAMD) system. Thus, the Air and Space Force continuously monitors the airspace under national responsibility, using the human and material resources of the Aerospace Surveillance and Control System (SVICA), Quick Reaction Alert (QRA) aircraft, the resources made available by the Army and Navy, and the command, control and communications systems that enable the mission to be carried out. This effort, carried out 24 hours a day, every day of the year, employs more than 5,000 people and a large part of the EA's infrastructure on a daily basis. Air defense protects the national territory against threats such as the use of civil aircraft for terrorist acts (Renegade)'.

ipated. In this case, ports of military interest become strategic targets. The aggressor will seek to isolate the territory by destroying or denying its services and, where appropriate, occupying it in order to carry out its offensive. For the defender, the port becomes a key facility for the defence of the territory and for the arrival of resources and reinforcement capabilities.

When the response capabilities of 'permanent' operational organizations are exhausted, the instrument provided for in the regulations is the establishment of 'temporary' operational organizations at the tactical level under the strategic command of the Chief of Defence and the operational command of the Joint Operations Command (CMOPS, Spanish acronym). The defence would not only be of the port but would also include the territory to be defended.

There would be a comprehensive defence plan that could lead to specific defence plans for those ports considered 'key'. This is especially necessary in territories outside the Peninsula because, in the event of conflict, ports become strategic points for the defence and survival of the territory itself. Of course, ports, bases, stations, arsenals and naval facilities of a military nature are included among the strategic facilities that have their own specific defence plan.

These ports, considered 'key' or of 'military interest', are so because they allow liaison with the national territory, both for the maintenance and reinforcement of military capabilities deployed in the extra-peninsular territory and to feed its civilian population and ensure its evacuation if necessary. It could also be the case that, among the so-called second-generation ports, which differ from first-generation ports in that they do not include cargo and passenger transfer but do include energy or industrial infrastructure, there are some that, due to the importance of this infrastructure, are also considered 'key' or of 'military interest'.

The defence plan would involve joint action by the various military components: land, air, space, sea and cyberspace, and in order to be efficient, it would need to be coordinated with the other government and civilian actors involved.

In the case of land forces, they would contribute to the territorial defence plan with means of obtaining information (electronic, communications or images with ground sensors or drones), with anti-aircraft and anti-drone means to deal with air and drone threats, cyber defence and electronic warfare means to protect

our command posts and our transmissions and to analyze and neutralize those of the enemy, and key point defence means with direct coastal artillery fire, missiles and armed drones to counter naval means, and small arms and deployed units to prevent amphibious landings, infiltrations or land attacks.

Logically, each port's defence plan would include defence 'on' and 'from' land and should be coordinated with existing port protection systems. Key points to be protected within the port infrastructure would have to be taken into account, prioritising services and facilities essential to its operation, command posts, energy centres, command and control systems, etc. Provision would have to be made for the port to maintain essential services operational, either with peacetime personnel or with military personnel trained for this purpose. Defence would also include the reinforcement of existing security measures[41]. All of this requires prior analysis and the development of plans which, without the agreement presented in chapter 2 of this monograph as 'port governance' and without coordination with the Port Protection System, would be impossible to carry out.

There are currently 46 ports of general interest managed by 28 port authorities[42] that fall under the jurisdiction of the State, of which less than twenty are considered Critical Infrastructure[43].

NATO highlights the importance of defending infrastructure of military interest with a commitment to allocate 1.5% of national GDP at the Hague Summit[44]. At the very least, these port infrastructures should be subject to a specific defence study that includes not only the land component, but also other areas of defence.

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41 'In the context of infrastructure security, the protection and resilience of infrastructure requires the incorporation of new means of physical, electromagnetic and cybersecurity protection, as well as the integration of emerging technologies and the application of disruptive technologies, such as AI for new generations of sensors.' ESN 2021

42 'The state-owned port system includes 46 ports of general interest managed by 28 Port Authorities responsible for providing infrastructure and leading port services. The coordination and efficiency control of the Port Authorities is the responsibility of the Public Body Puertos del Estado, which reports to the Ministry of Transport, Mobility and Urban Agenda'. The official dossier of Puertos del Estado, *Rumbo Compartido,* is available at: https://share.google/dTNTJ3qEwBJJMZT37

43 'Critical infrastructures are the backbone of a country's physical resilience. Their operation is indispensable and allows for no alternative solutions, so their disruption or destruction would have a serious impact on essential services.' DSN2021

44 See: https://www.aae.org.es/otan-declaracion-oficial-la-haya-25-de-junio-de-2025/

The ESN 2021 devotes a chapter to crisis management[45] and emphasizes in its introduction that 'prevention and adaptation will be the keys to achieving an efficient National Security System', pointing out that this requires more anticipation, with an early warning system and the preparation of crisis management plans involving the autonomous communities, greater integration based on the coordination of all public administrations and state resources, and greater resilience.

It seems clear that these response plans must include military capabilities, as they will allow for a transition from a normal situation, where 'permanent' presence, surveillance and deterrence operations are carried out, to a crisis situation, where these capabilities would be involved in protection and defence and, if necessary, other specific organizations would be involved if their capabilities were exceeded in armed conflict.

3.3 The case of Ceuta and Melilla

Having seen the importance of ports outside the peninsula as a link with the rest of the national territory and the importance of protecting critical infrastructure, the case of the Autonomous Cities of Ceuta and Melilla requires special analysis.

Events such as the occupation of Perejil Island (July 2002) or the irregular entry of thousands of citizens into Ceuta (May 2021)[46] as well as claims[47] over internationally recognized Spanish sover-

[45] The fifth chapter is devoted to crisis management within the framework of the National Security System, with an approach based on a vision of the principle of resilience that includes the progression from a normal situation to recovery after a crisis situation. Progress in the integration of the System is reflected in specific actions. The first of these is the development of a catalogue of National Security resources. The second is the preparation of response plans for specific scenarios. The third is the development of an early warning and analysis system with indicators that facilitate decision-making based on specific objective data. The fourth measure refers to the integration of National Security information through technological solutions. The improvement of special communications from the Presidency of the Government is the fifth measure, which will contribute to the efficiency of the National Security System by allowing greater coordination between administrations in crisis management. The sixth and final measure contemplates the integration of the Autonomous Communities and Cities into the National Security System. ESN 2021.

[46] Some authors consider this to be part of Morocco's hybrid strategies. Jordán, Javier (2021), 'Deterrence in the grey zone: an exploratory assessment applied to Ceuta and Melilla', *Global Strategy Report*, No 28/2021.

[47] Claims made since Morocco's independence and formalized on 27 January 1975 before the UN, when Morocco sent a memorandum to the United Nations Decolonization

eign territories in North Africa, which are constantly contested by Spain[48], call for specific measures to be taken at national level.

The ESN 2021 explicitly recognises that Ceuta and Melilla, due to their geographical location on the African continent and the specific nature of their Spanish and European border, require special attention from the General State Administration to guarantee the security and well-being of their citizens. For all these reasons, it dedicates a line of action to the development of a Comprehensive Security Plan for Ceuta and Melilla[49].

The development of this Comprehensive Plan must include the ports of the Autonomous Cities due to their importance for their own security. Their location outside the peninsula makes them key to the sustainability of the cities and the armed forces that guard them. This plan must include the actions of presence, surveillance and deterrence of the areas of sovereignty that are carried out in permanent operations and the plans of other operational structures in the field of their defence. Everything must be contemplated in perfect coordination with the other instruments of the State, with the Autonomous Cities and with the key civil actors (energy infrastructures, services, companies, etc.).

In addition to the coordination necessary for the security plans of the ports of Ceuta and Melilla, coordination between institutions is key to ensuring that the existing infrastructure in these ports allows for the rapid and orderly arrival of defence resources. Aspects such as the dimensions of the docks and the availability of tugs or cranes for the simultaneous unloading of cargo must be coordinated with the maritime transport resources available to the Armed Forces. All of this makes it possible to complete the corresponding plans and be in a position to act in the event of a crisis.

All of this would be facilitated by what some authors(Camarero, 2014) are calling for the ports of Ceuta and Melilla due to the geographical, political and economic situation of these autono-

Committee calling for Spain's withdrawal from the occupied territories in North Africa. See: https://www.lepetitjournalmarocain.com/2021/01/27/27-janvier-1975-memorandum-maroc-pour-decoloniser-ceuta-melilla-iles-chafarines/

[48] See: https://www.elespanol.com/espana/politica/20221018/gobierno-marruecos-onu-soberania-ceuta-melilla-indiscutible/711678976_0.html

[49] LA 12 is part of the 'Action in response to crisis situations' of the 1st Axis of the Strategy 'a Spain that protects people's lives and their rights and freedoms, as well as the constitutional order'. DSN2021.

mous cities: a special status that grants a differentiated approach within the national port strategy, reinforces their capacity to manage the various crisis situations to which they may be subjected, and provides tax, logistical and commercial advantages to promote their competitiveness in an area of special national interest. This special status could envisage their removal from the port system managed by Puertos del Estado (State Ports) and their direct management by the Presidency of the Government, with representatives from the Ministries of Defence, Foreign Affairs, Home, Transport, Economy and Justice (Camarero, 2021).

4 Conclusions and recommendations

4.1 Conclusions

The extra-peninsular ports are key to the peace, security and well-being of Spaniards and the citizens who live there, they are sources of wealth and are fundamental to territorial cohesion.

Due to their location outside the Peninsula, they are particularly necessary for sustaining, entering and exiting the military capabilities required to guarantee the national sovereignty of these territories. They are strategic hubs for security and defence.

The permanent command structure within the Armed Forces guarantees the surveillance and deterrence of sovereign spaces. On land, the convergence of the operational chain of command (Land Operational Command) and the organisational chain of command (Canary Islands Army Command) within the same command allows for greater efficiency in the performance of its operational tasks for two reasons. Firstly, the units are located within the area of responsibility of their operational deployment for the execution of presence, surveillance and deterrence operations. Their permanence and knowledge of the environment allow them to contribute efficiently as sensors of the situation, contribute to deterrence and generate confidence in the population, and be in a position to carry out the first response to a crisis. Secondly, by combining operational and organisational responsibilities in the same commanders, synergies are generated between instruction, training, logistics and personnel with the mission to be accomplished, and command and control is facilitated.

The protection and defence of strategic ports or those of 'military interest' requires coordinated planning with the civil and military

actors involved in order to achieve the convergence and integration of efforts.

4.2 Recommendations

Having analysed the need to protect our ports outside the peninsula, the following lines of work are recommended at the institutional level:

- Develop a catalogue of ports of 'military interest' that are fundamental to security and defence. This could include those that are critical infrastructure and any others proposed by the Ministry of Defence.
- Analyse the capabilities and possibilities for improvement of these ports to contribute to national defence.
- Develop preventive plans, protection and defence plans in coordination with the port governance of ports considered to be of interest for security and defence. This would involve integrating Defence into the Port Protection advisory committees.
- And carry out exercises to evaluate these plans.

All these actions would be in line with the recommendations of the National Security Strategy, which identifies threats to critical infrastructure, seeks to protect the lives, rights and freedoms of individuals, develop the state's capabilities in the face of hybrid strategies, develop a catalogue of resources, draw up preparedness plans, establish an early warning and crisis management system, coordinate and integrate with administrations, and develop integrated strategic planning.

There is no doubt that in this scenario, collaboration between all parties is key to the deterrence, protection and defence of extra-peninsular ports 'on' and 'from' land and their integration with the rest of the cognitive, maritime, air and space domains.

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Chapter Five

The naval command headquarters of the spanish Navy: a strategic axis for national defence and maritime cooperation in Spain

Tomas García-Figueras

Abstract

Spain's entry into NATO gave a strong expeditionary character to the roadmap that the Navy had been following. An increasingly specific course was adopted toward its Security and Defence tasks, which allowed for the development of a modern, balanced force prepared for international deployments, never before seen in the preceding decades of the 20th century.

As a consequence of the decentralization process of the General State Administration in 1992, Spain's maritime domain underwent substantial restructuring, giving rise to a complex institutional ecosystem in which multiple actors—Port Authorities, Maritime Captaincies, SASEMAR, the Maritime Service of the Civil Guard, Customs Surveillance, and regional administrations, among others—continue to operate today. As a result, the Navy's role shifted from that of the primary executive authority for the State's action at sea in certain domains to that of a cooperating institution.

In this context, in the eyes of society and, more specifically, in the eyes of regional maritime stakeholders, the Naval Commands have increasingly come to be perceived as entities limited to institutional representation functions.

This article details the numerous tasks assigned to Naval Commanders, in addition to the institutional representation of the Navy. It analyses the current situation, presents a comparison with similar models in the navies of our neighbouring countries, describes the strategic role that our Commands could play in National Defence, and proposes a transformation, in line with the 'Armada 2050' strategy, to ensure that Naval Commands occupy their rightful place in the State's actions at sea.

Key words

Naval commands, Maritime field, Institutional ecosystem, Actors, Restructuring.

> 'Cooperation without overlap, and coordination without subordination'.

1 Spain as a maritime nation

Spain holds a privileged geostrategic position, with over 8,000 kilometres of coastline washed by both the Mediterranean and the Atlantic, controlling the Strait of Gibraltar—one of the world's principal maritime chokepoints (Sanz Alisedo, 2022)—and with two archipelagos that project our maritime influence.

The *Estrategia de Seguridad Nacional* (ESN, National Security Strategy) (Spain, 2021) defines Spain as a European, Mediterranean, and Atlantic nation that is firmly committed to international peace and security. 90 % of Spanish imports and 60 % of exports move by sea[1]. According to the National Maritime Security Strategy(*Estrategia Nacional de Seguridad Marítima,* ENSM24)[2], Spain's energy dependency on foreign sources stands at approximately 70 %, with the bulk of oil and natural gas arriving via maritime routes. The Strait of Gibraltar sees the transit of over 100,000 vessels annually, making any maritime incident a potential problem of global consequence.

This maritime character is shaped by our particular territorial configuration; beyond the peninsular landmass, Spain comprises two archipelagos and territories in North Africa (the autonomous cities of Ceuta and Melilla). Maritime security[3] takes on special relevance in these frontier spaces, where it is essential to strengthen the mechanisms necessary for the defence of national interests, safeguard the welfare of the population, and ensure the proper management of risks and threats.

Submarine cables, gas pipelines, and oil pipelines of strategic importance[4], traverse our seabed, and their protection requires

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1 STRATEGIC FRAMEWORK. Port system of general interest. Puertos del Estado, Ministry of Transport, Mobility and Urban Agenda (MITMA, Spanish acronym).

2 *Estrategia Nacional de Seguridad Marítima* (ENSM24), which updates the first strategy developed in 2013.

3 Defined in the ENSM24 as 'the combination of preventive and response measures oriented both toward protecting the maritime environment from threats and intentional illegal acts, and toward limiting the effects of natural hazards, accidents, and damage to the environment and persons.' (First definition agreed upon by multiple maritime security actors in Spain).

4 ESN 2021

vigilance and cooperation with the international community[5]. Of particular interest are the electrical and digital connections with our autonomous cities and archipelagos, to which must be added the major fibre optic cables linking us to the Americas, Africa, and Asia, as well as certain international electrical interconnections that lend greater stability to our energy grid.

2 The current environment and its challenges

The characteristics of the maritime domain—a global common—justify the fact that maritime security is not a strictly national matter; rather, it transcends our borders and renders it a concern of paramount importance to NATO, the EU, and numerous other agencies and initiatives with a growing presence in this maritime sphere.

Our concept of maritime security has evolved in parallel with that of the EU, thanks to the effort invested in unifying criteria and solutions. A national-level example of this endeavour is the development of a National Maritime Security Strategy and, after more than ten years, the achievement of a definition of maritime security agreed upon by our entire maritime community.

However, despite the distinct competencies of the civilian and military administrations, the security of the contemporary maritime environment is characterized by the threat posed by hybrid strategies that transcend the traditional distinction between the civil and the military. The 2024 National Maritime Security Strategy (ENSM24) defines hybrid strategies as a set[6] of:

> 'coordinated and synchronized actions aimed at exploiting the vulnerabilities of States and their institutions through activities that tend to foster political destabilization of national and international institutions, employing economic coercion and pressure on energy supplies from abroad, cyberattacks,

[5] In March 2023, NATO created a coordination cell for the protection of undersea infrastructure.

[6] The 2024 National Maritime Security Strategy (ENSM24) describes the set of risks and threats to maritime security using a geometric simile, grouping them—taking into account upon whom the effects are produced—at each of the vertices of a triangle: a first vertex, where national sovereignty and international legality would be affected; a second, involving third States; and the third vertex, oriented toward preserving the marine environment. The Strategy also establishes three objectives: 'to protect Spain ''in'' and ''from'' the sea; to improve maritime capabilities; and to contribute to a safer ocean.'

> influence campaigns, terrorism, and other forms of low-intensity violence, in addition to the use of military capabilities.'

The legal frameworks governing the use and enjoyment of the sea make this domain a propitious space for carrying out such strategies, which materialize as threats in the so-called 'grey zone[7]'. The difficulty of applying legal regimes at sea, and the challenging attribution of responsibility, favour the execution of destabilizing actions by both state and non-state actors.

Hybrid strategies are not the sole threat, and the various administrations must confront new specific threats (United Nations Security Council, 2025), among which the following stand out:

- Cyberattacks against critical maritime infrastructure: The sabotage (Adomaitis and Ahlander, 2025) of the Nord Stream I and II gas pipelines in the Baltic Sea in September 2022 constitutes a clear example of actions derived from hybrid strategies.
- Hostile activities against vessels, cargoes, and passengers, with the Red Sea serving as a stark example.
- Deliberate marine pollution and unauthorized exploitation of natural resources: The latter aspect is in high demand in the Horn of Africa with regard to fishing.
- Irregular migration by sea, where the Mediterranean is regrettably a focal point.
- Piracy[8] and armed robbery[9] in the Horn of Africa and the Gulf of Guinea, areas with a Spanish naval presence.
- Maritime terrorism, such as Houthi attacks south of the Red Sea.
- Disruption of submarine telecommunications cables.
- Illicit trafficking by sea and transnational crime, where the Mediterranean is once again a protagonist.

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[7] The term 'grey zone' first appeared in the 2010 Quadrennial Defence Review (QDR) of the U.S. Department of Defence. Activities characterized by ambiguity about the nature of the conflict, opacity of the parties involved, or uncertainty about the relevant political and legal frameworks.

[8] Defined by Article 101 of the United Nations Convention on the Law of the Sea (UNCLOS), adopted at Montego Bay (Jamaica) on December 10, 1982.

[9] The International Maritime Organization (IMO) uses the term 'armed robbery against ships' to encompass those criminal acts that do not meet the legal definition of piracy under UNCLOS, which requires that the acts take place on the high seas.

Instability in areas of interest to Spain, such as the Mediterranean and the Black Sea—affected by Russia's invasion of Ukraine—as well as the risk to maritime traffic navigating the waters of the Red Sea, the *Bab el-Mandeb* Strait, and the Persian Gulf, intensified by the spiral of structural violence in the Middle East, add complexity to this panorama of threats at sea.

Faced with this scenario of complex and interconnected threats, and given the diversity of maritime responsibilities distributed across the civilian and military spheres, a renewed civil-military vision of maritime administration governance is advisable—one in which the civilian and military domains should no longer operate as watertight compartments[10], but rather in a coordinated manner under the framework of the National Maritime Security Council (CNSM, Spanish acronym), the body from which actions to implement the National Maritime Security Strategy are driven.

3 Historical development of maritime administration: the turning point of 1992

And in this evolution of maritime administration, what place do the Naval Commands occupy? Historically, the Military Commands of the Navy exercised numerous civilian maritime administration functions on behalf of the State. Until the early 1990s, the Commanders of the Navy (*Comandantes de Marina*), in each province or at ports of significant size, assumed competencies such as traffic control and maritime safety, vessel registration and flagging, fisheries inspection, and coordination of salvage operations, among others. These functions had been delegated to the Navy by earlier legislation (such as Law 60/1962[11]) and transformed the Commands into true peripheral maritime authorities of the State. In practice, the Navy was the executing arm of state maritime policy in ports and along the coast.

However, with the democratic transition and Spain's entry into the EEC/EU, the need arose to separate the administration of the 'civil navy' from that of the 'naval service[12]'. This separation

[10] See ENSM24 (CNSM as coordinating body) and Zamora-Roselló, *Maritime Security*, where it is argued that the different levels of regulation 'are not presented as watertight compartments.'

[11] Law 60/1962, of December 24, on the regime of assistance, salvage, towage, findings, and maritime recoveries (repealed).

[12] At the beginning of the last century, perhaps due to the influence of the Ministry of the Navy, to which the merchant marine was also assigned, the term War Navy was used extensively; it is now obsolete.

was codified in Law 27/1992, on State Ports and the Merchant Marine, which completely reorganized civilian maritime administration. The aforementioned Law created the Maritime Captaincies as new, exclusively civilian peripheral bodies, reporting to the Ministry of Public Works and Transport, and abolished the delegation of civilian functions to the Military Commands of the Navy. The reform represented a substantive change in this maritime administration governance model, transferring numerous competencies to the then newly transformed Directorate General of the Merchant Marine. In parallel, the state-owned company SASEMAR (Maritime Safety and Rescue Agency) was established to assume services such as maritime search and rescue and pollution response—competencies that had traditionally also involved naval[13] participation.

The Eighth Transitional Provision of the cited Law established that the Military Commands and Naval Assistantships would continue to exercise those civilian functions on an interim basis only until the new Maritime Captaincies were operational, at which point they would cease those duties and gradually transfer Defence assets to the competent civilian ministries. This process was completed throughout the 1990s, and from then on, the Navy focused on its military missions and State action at sea.

For the Military Commands of the Navy, now known as Naval Commands (hereinafter CCNN, by its Spanish acronym)[14], this historical moment represented a functional reconfiguration, leaving them without the executive role they had held in the civilian administration of ordinary maritime traffic.

Experience has shown that, following the 1992 restructuring, gaps emerged in coordination: throughout the 1990s and 2000s, observers spoke of gaps in State action at sea (Aldaz Casanova, 2020: 5), as various competencies were dispersed among agencies without unified command as before.

The central thesis articulating this chapter holds that true integration between the civilian and military spheres in matters of maritime administration must inevitably pass through the CCNN, which need to recover a reinforced operational role—without

[13] According to the dictionary of the Spanish language: 'Pertaining or relating to the *Armada* (Navy).'

[14] Organically integrated into the Maritime Action Force (FAM, Spanish acronym) of the Navy. The FAM is part of the Fleet (organized into Headquarters, Force, and Force Support) specializing in what is generically known as Maritime Security missions.

losing their representative function—to become true nodes of integration for responsibilities in the maritime domain. This conceptualization does not seek to revert to the pre-1992 model, but rather to develop a new paradigm adapted to the challenges of the 21st century, where the Commands act as catalysts for coordinated and integrated maritime action.

This approach is fully consistent with the current doctrinal framework of National Security[15]. Both Spanish regulations (the 2021 National Security Strategy, ESN 2021) and European policy (the EUMSS[16]) insist on the 'collaboration of all instruments of the State' to protect the maritime domain. Although the Navy is no longer a civilian maritime authority, it is advisable to establish close cooperation with the competent civilian authorities through agreements in areas such as protection of the marine environment and submerged heritage, the fight against piracy, and rescue operations, among others. Moreover, this renewed vision is supported by the 2024 National Maritime Security Strategy, which underscores the principles of 'more anticipation', 'more integration', and 'more resilience' as fundamental pillars for security in the maritime domain.

4 Current structure and organization of naval commands

In 2023, the Admiral of Maritime Action (ALMART) issued the Standing Order[17] that updated the organization and functions of the CCNN. This directive formalizes the role of the Commands within the new concept of comprehensive maritime security, defining guidelines for them to act as nodes in the network of maritime surveillance and cooperation, and articulating their relationship both with the Maritime Action Staff and with the maritime community[18] and other civilian agencies of the Administration.

[15] Law 36/2015 on National Security 'regulates the basic principles, superior bodies and authorities, and fundamental components of National Security; the National Security System, its direction, organization, and coordination; crisis management; and the contribution of resources to National Security.'

[16] EUMSS: European Union Maritime Security Strategy (2014, revised in 2018 and 2023). European Union.

[17] Standing Order 04/2023 of the Admiral of Maritime Action (ALMART), on the duties, competencies, and operations of the CCNN.

[18] For the purposes of this chapter, 'maritime community' is understood as the set of public and private actors who operate, regulate, or are functionally related to the maritime and port environment. It includes, among others, Port Authorities, Maritime Captaincies, SASEMAR, Puertos del Estado, Civil Guard Maritime Service, shipown-

Currently, there are 24 Naval Commands[19] and 9 Naval Assistantships[20] that function as extensions of the Commands in frontier or insular locations.

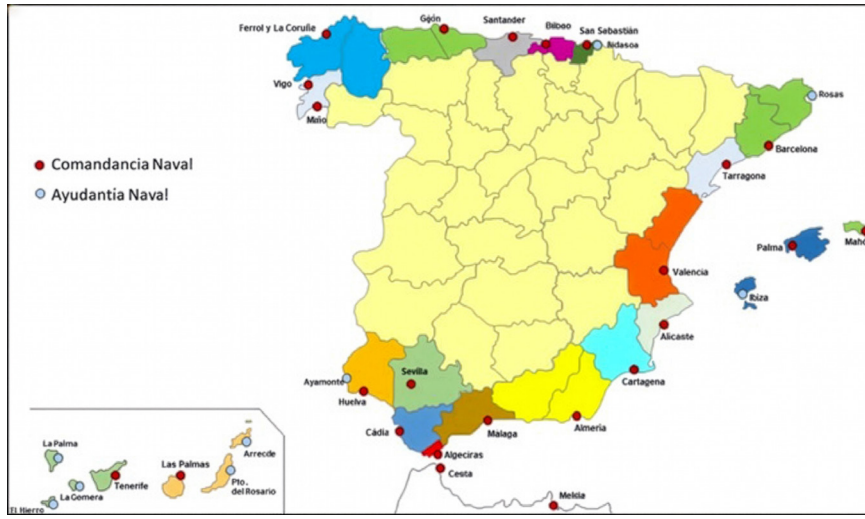


Figure 1. Map depicting the deployment of Naval Commands and Naval Assistantships of the Spanish Navy. Source: Standing Order 04/23 of the Admiral of Maritime Action, on the duties, competencies, and operations of naval commands

This territorial distribution ensures the Navy's presence along the entire Spanish coastline, creating a mesh of institutional representation unparalleled in other domains of the State Administration.

Naval Commanders exercise their duties throughout their entire area of responsibility, which encompasses a defined geographic area of the Spanish littoral. This zone includes both the maritime spaces under national jurisdiction and the internal waters and adjacent territorial sea. Naval Assistants[21] always act in a sub-

ers, shipping companies, logistics operators, shipyards, the fishing fleet, yacht clubs, marine environment NGOs, and academic or technical entities linked to the knowledge and use of the sea.

19 San Sebastián, Bilbao, Santander, Gijón, Ferrol and La Coruña, Vigo, Miño, Huelva, Sevilla, Cádiz, Algeciras, Ceuta, Melilla, Málaga, Almería, Cartagena, Alicante, Valencia, Tarragona, Barcelona, Palma, Mahón, Las Palmas and Santa Cruz de Tenerife

20 Bidasoa, Ayamonte, Rosas, Ibiza, Lanzarote, Fuerteventura, La Palma, Hierro and La Gomera.

21 Within this territorial network, Naval Assistantships are subordinate bodies to Naval Commands and have identical missions and duties but restricted to a reduced area of responsibility within the general area of operations of the Command on which they depend.

ordinate capacity to the corresponding Naval Commander and in accordance with his supervision and guidance.

Traditionally, the CCNN reported to the Flag Officers commanding the Maritime Zones. In 2009, the reorganization of the Navy, based on functional criteria (Zaragoza Soto, 2002a: 389), brought about the disestablishment of the Maritime Zones and the creation of a single command—the Admiral of Maritime Action—who directs the Navy's contribution to State action at sea, subordinate to the Fleet Commander.

This transition presents both opportunities (greater coherence and standardization in operations) and challenges (risk of diminished local influence) for the CCNN.

5 Current responsibilities of naval commands

The CCNN have been assigned a significant number of duties[22]:

a) Contribution to State action at sea[23]: the CCNN participate in various activities that comprise the State action at sea:

- Surveillance of illicit activities: collaboration with the Civil Guard, Customs Surveillance, and other law enforcement agencies in the detection of illicit activities such as drug trafficking, irregular migration, and illegal fishing. The Commands serve as the liaison between these agencies and naval units that may be tasked with surveillance and interdiction missions.
- Environmental protection: coordination with SASEMAR and environmental authorities in the prevention of and response to marine pollution incidents. The Commands can facilitate the deployment of Navy assets in the event of significant spills or threats to the marine environment.
- Maritime rescue: although maritime rescue falls primarily under SASEMAR's purview, the CCNN act as the liaison with

[22] Standing Order 04/2023 of the Admiral of Maritime Action (ALMART), on the duties, competencies, and operations of the CCNN.

[23] State action at sea, according to Zaragoza Soto (2002b) is the exercise of State authority to ensure that maritime activity is regulated in accordance with established law and that national maritime interests are protected. It encompasses aspects as diverse as the exercise of sovereignty, fishing, surveillance and law enforcement actions, protection of the marine environment, navigation control and safety, port matters, compliance with international agreements, and salvage.

the Navy when additional military assets are required for complex search and rescue operations, especially in areas distant from the coast or under adverse weather conditions.

b) Maritime domain awareness management: the capability to collect, analyse, and disseminate information about the maritime environment constitutes one of the principal value-added contributions of the CCNN. This work is realized through the issuance of periodic reports on the local maritime situation; the monitoring of unusual or potentially dangerous activities; the tracking of vessels of interest; and early warning of possible threats.

   This function entails maintaining a comprehensive picture of what is 'happening' within the area of responsibility, and for its effective execution, the CCNN maintain permanent contact both with COVAM[24] (the Maritime Operations and Surveillance Centre), and with local maritime stakeholders (ports, fishermen's guilds, yacht clubs) who provide valuable information sometimes not accessible through other channels.

c) Naval Cooperation and Guidance for Shipping (NCAGS[25]) System: The CCNN are the units responsible for implementing the NCAGS system, a NATO mechanism designed to provide navigation guidance to merchant shipping in times of crisis or conflict.

   Participation by the merchant community[26] is voluntary, and the benefit is mutual; on one hand, merchant vessels operate with greater security, and on the other, naval units avoid interference with their operations. Given the growing number of threats to maritime security, subscription to this system is increasingly common.

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[24] COVAM is the Maritime Operations and Surveillance Centre of the Maritime Action Force, which fuses and analyses data received from a wide variety of sources, enabling it to know almost in real time what is happening in Spanish waters of interest. This activity is known as MSA (Maritime Situational Awareness). The result of this continuous process of fusion and analysis is known as the Recognized Maritime Picture (RMP), which is the final product that COVAM provides to all Navy ships at sea and, upon specific request, to national State agencies with competencies at sea.

[25] NCAGS: Naval Cooperation and Guidance for Shipping.

[26] Despite its potential, the NCAGS system in Spain currently presents some operational limitations. The frequency of specific exercises is still low, and voluntary participation by the merchant sector remains limited, partly due to lack of awareness of the system or the perception of limited applicability in peacetime.

To this end, the CCNN train their personnel in NCAGS procedures; conduct periodic exercises[27]; stand ready to establish deployed NCAGS elements[28] in the event of a crisis; and maintain an updated database on maritime traffic in their area.

d) Protection of underwater archaeological heritage: The CCNN collaborate with regional autonomous administrations on matters of marine environmental protection, oceanographic research, and submerged cultural heritage.

   A paradigmatic example was the so-called Odyssey case[29] in 2007. In the wake of this case, Spain strengthened its mechanisms for the protection of underwater archaeological heritage[30] and consolidated collaboration between the Ministry of Defence and the Ministry of Culture[31].

e) Authorization and control of submarine activities: Naval Commanders process requests to report these activities and obtain the concurrence of the Fleet Commander in order to avoid possible interference with other underwater activities[32].

   This competency is becoming increasingly relevant given the proliferation of ROVs (Remotely Operated Vehicles) and AUVs (Autonomous Underwater Vehicles) in Spanish jurisdictional waters.

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[27] During these exercises, procedures related to merchant traffic control are conducted, such as advisories, identification of suspect vessels, and declaration of zones. For their execution, the Command's manning is reinforced with volunteer reservists who are subject matter experts.

[28] Naval Commands and their corresponding Assistantships, where applicable, must be capable of exercising, when so determined, the operational functions proper to a subordinate unit of the NCAGS System, such as a DNE (Deployed NCAGS Element).

[29] See: https://www.cultura.gob.es/cultura/areas/patrimonio/mc/patrimonio-subacuatico/actuaciones

[30] Warship wrecks, in particular, are an important part of this heritage, as many of them may be considered unexpected cemeteries where, according to the Navy, the remains of the crew rest. The protection of these sites is crucial, not only to preserve naval history, but also to honour the memory of those who lost their lives at sea.

[31] General Protocol between the Ministries of Defence and Culture on collaboration and coordination in the field of protection of Underwater Archaeological Heritage (July 2009); under which the Navy provides ships, diving units, and logistical support to locate, identify, and protect historic wrecks in Spanish waters.

[32] Guide for information exchange between the Navy and the Directorate General of the Merchant Marine to avoid interference with civilian underwater vehicles.

Examples include the use of AUVs in the Ulysses project[33] off the Basque coast, and ROVs in Canary Islands waters.

f) Participation in port system bodies: Naval Commanders serve on the Port Protection Advisory Committees in accordance with RD 1617/2007[34], contributing to the development and review of port security plans.

While some Naval Commanders sit on Navigation and Port Councils, ideally all should also serve on the Boards of Directors of Port Authorities at ports of relevance to Defence.

g) Logistical support to national and foreign vessels[35]: The CCNN facilitate port calls by Spanish Navy ships and foreign navies at civilian ports, managing the procurement of berths and coordination of port services; support for logistical and personnel needs; management of incidents and accidents involving crews; management of visits and activities during the port call; and coordination of protocol events.

h) Discovery of ordnance or explosive devices. Maritime salvage and recoveries: The CCNN report possible discoveries of ordnance or explosive devices found at sea and along the coastline within their area of responsibility, and in cases involving activation of a GEDE[36] team, the corresponding Naval Commander assumes the role of On-Scene Commander, accountable to the Admiral of Maritime Action.

Likewise, Naval Commanders are responsible for processing salvage and maritime recovery case files occurring within their area of responsibility.

i) Institutional representation: The CCNN constitute the visible face of the Navy in their respective districts, through participation in civilian and military events; maintenance of institutional relations with local authorities; promotion of naval and defence culture; organization of open-house days and

[33] The Ulysses Project emerged as an initiative to combat plastic pollution in the oceans, with special attention to the Bay of Biscay environment. It focuses on the reception, analysis, and mitigation of marine debris (especially plastics) reaching the coasts and seas of Europe. It is led by the Data For Science Foundation, in collaboration with institutions such as the Basque Government. See: https://www.ulyssesproject.org

[34] Royal Decree 1617/2007, of December 7, establishing measures for the improvement of port and maritime transport security.

[35] This function, apparently routine, acquires strategic relevance by facilitating Spain's naval projection and the strengthening of ties with allied Navies.

[36] Explosive Ordnance Disposal Team (EOD).

ship visits; and support for nautical, sporting, and cultural events.

Within his province, the Naval Commander exercises, by delegation, the functions of institutional representation of the Navy, in accordance with the provisions established by the Chief of Naval Staff (AJEMA, Spanish acronym[37]).

This representative function, while fundamental for maintaining the bond between the Navy and civil society, should not overshadow the operational functions essential for defence and maritime security.

j) Management of international maritime borders: the Naval Commands of San Sebastián, Miño, and Huelva exercise specific functions in the international reaches of the Bidasoa, Miño, and Guadiana rivers, respectively. Similarly, the Commands of Algeciras, Ceuta, and Melilla have responsibilities in maritime border management with Morocco.

These Commands represent the Navy and other State agencies in frontier maritime activity. They coordinate with the authorities of neighbouring countries on matters related to activities in those waters, navigation, fishing, and other issues of mutual interest.

A noteworthy example is the initiative driven by the Admiral of Maritime Action and carried out over several years by the Naval Command of Huelva in the development of two fundamental documents to regulate activities in the International Reach of the Guadiana River (TIRG, Spanish acronym): the *Regulation for Safety, Navigation, and Recreational Boating in the TIRG*, and the *Fishing Regulation* for the TIRG, in coordination with the agencies having competency in these matters and with Portugal. These agreements were signed at the XXXV Spanish-Portuguese Summit in Faro in October 2024. Both treaties provide for the creation of a Permanent Commission of the TIRG[38], designating the Naval Commander of Huelva as chairman of the Spanish delegation.

[37] Organizational Standing Order 5/2022, of July 14, of the Chief of Naval Staff (AJEMA), on institutional representation and the general regime of the Navy.

[38] The CPTIRG (Spanish, acronym) shall be composed of no more than seven members per Party, including naval representatives, maritime administration representatives, and representatives from the fishing, navigation, maritime transport, and environmental sectors.

6 Strategic role in national defence[39]

Naval Commands constitute essential peripheral structures of the Navy with a strategic function in the maritime defence of the national territory.

The following details other functions, or domains, where the CCNN stand out in a differentiated manner and which, in my view, comprise the strategic role they could play within National Defence.

6.1 Maritime sovereignty

The 2024 National Maritime Security Strategy (ENSM 2024) establishes as a strategic objective 'to protect Spain "in" and "from" the sea' for which it includes actions oriented toward preserving the integrity and security of those maritime spaces over which Spain exercises sovereignty, sovereign rights, or jurisdiction according to international law and Spanish law, our coasts and littoral, as well as protecting maritime infrastructure and economic activities linked to the marine environment.

The CCNN, as territorial elements of the Navy distributed along the coastline, are fundamental pieces for the realization of this strategic objective and, therefore, a facilitating element for State action at sea.

This function takes on special relevance in maritime frontier zones (Bidasoa, Miño, Guadiana, the Strait, Ceuta, and Melilla); disputed waters or those sensitive from a geopolitical standpoint; areas of intense international traffic such as the Strait or Finisterre; and exclusive economic zones, especially around the archipelagos.

In accordance with Organic Law 5/2005[40] on National Defence, the CCNN should have the capacity to develop a more prominent role in the effective preservation of national sovereignty in jurisdictional waters.

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[39] Until 2010, in Spain, only the term 'National Defence' was used; the term 'Security' appeared with the 2011 Spanish Security Strategy (*Estrategia Española de Seguridad de 2011*).

[40] Organic Law 5/2005, on National Defence: 'the Armed Forces, in accordance with Article 8.1 of the Constitution, are assigned the mission of guaranteeing the sovereignty and independence of Spain'.

6.2 Operational liaison centres in emergencies

In crisis situations, the CCNN can act as operational liaison centres, coordinating with COVAM and civilian authorities (Maritime Captaincies, SASEMAR, Civil Guard, Port Authorities, etc.). This capability for agile and direct liaison makes the Commands essential elements of the State's response system at sea, especially in marine pollution incidents; natural disasters with impact on the maritime domain; serious maritime accidents; humanitarian crises such as the mass arrival of migrant vessels; and hostile or terrorist acts.

The strategic positioning of the Commands in major ports and coastal zones enables them to act as 'facilitators' in the event of an emergency, providing coordination of military and civilian resources deployed in the affected area. This capability is especially valuable when a rapid and coordinated response is required in situations that evolve quickly.

6.3 Participation in multinational exercises and operations

The CCNN play an important supporting role in the conduct of national and international exercises led by Spain, such as MARSEC[41] or FLOTEX[42], facilitating for participating units: the management of local permits and authorizations, coordination with port and maritime authorities, and liaison with other involved administrations.

During the execution of maritime security exercises, the Commands act as local coordination cells, facilitating interaction between deployed naval forces and civilian authorities in the area.

In multinational exercises, the CCNN provide support to participating foreign units, acting as a local point of contact and facilitating their integration into the exercise scenario.

6.4 The civil-military dimension: the differential strength of naval commands

Unlike other Navy units, the CCNN possess the unique capability to operate simultaneously in the civilian and military spheres,

[41] MARSEC: MARitime SECurity. These constitute the Maritime Security exercises, distributed across more than fifteen ports along the Spanish littoral and organized annually by the Navy, involving all actors of the maritime community.
[42] FLOTEX: Spanish Navy Fleet Exercises.

constituting true bridges between both worlds. This dual nature enables them to translate military requirements into the language of civilian administration and vice versa; integrate defence considerations into routine maritime management; maintain the presence of the military perspective in predominantly civilian domains; and facilitate the transition from peacetime scenarios to crisis situations.

The security of the maritime domain requires a comprehensive approach (Palaz, 2019) that necessitates the establishment of links with different stakeholders, being aware of each other's activities and structures, and seeking opportunities to coordinate, cooperate, and collaborate. Due to its special geostrategic position, the economic importance of the maritime sector for our country, and the magnitude of its maritime spaces of sovereignty and interest, Spain is obligated to understand and effectively address the problem, equip itself with the necessary capabilities to tackle it, and establish a maritime security policy appropriate to its interests. Also, because our economy is highly dependent on the sea.

This comprehensive approach, which combines civilian and military perspectives, constitutes a differential strength of the CCNN in the Spanish institutional landscape and, moreover, they are the key units for implementing action number 7 ('Advance shared maritime domain awareness') of the 2024 National Maritime Security Strategy (ENSM 24).

6.5 Military mobility

Military mobility[43] has become a strategic priority for both NATO and the European Union (Scazzieri, 2025), as an essential component of deterrence capability, response, and sustainment against threats in the Euro-Atlantic environment.

Spain actively participates in these European and allied initiatives, such as the PESCO Military Mobility project (European External Action Service, 2025), which works to reduce authorization timelines, strengthen interoperability, and secure critical

[43] Military mobility is an EU initiative to ensure the rapid and unimpeded movement of military personnel, materiel, and resources, even at short notice and at large scale, within and outside the EU. Its objective is to create a well-connected network with shorter reaction times and secure, resilient infrastructure. European Court of Auditors Special Report 04/2025.

infrastructure under dual-use criteria (civilian and military). In the Spanish case, the maritime dimension of mobility acquires singular importance, both due to the peninsular and insular geostrategic position and the weight of the national port system. And it is here where the role of the CCNN as key actors in territorial coordination and as operational liaisons with civil, port, and logistics authorities.

The CCNN act as facilitators of military mobility in the maritime-port domain, ensuring that movements by sea of units and assets of our Armed Forces—and of allies in transit or deployment—have the necessary local support: berth management, coordination with Maritime Captaincies, liaison with Port Authorities, and tracking of logistics port calls.

Furthermore, their knowledge of the local environment and their continuous presence enable them to anticipate bottlenecks, mitigate risks, and implement security, force protection, or sustainment measures. In the context of multinational exercises, logistics deployments, or emergency evacuations, their value as local nodes of the military mobility system is indispensable.

6.6 Naval presence

In the Navy, naval presence is specifically realized through ship port calls at national ports (those not hosting a Naval Base).

Naval presence in our ports is a strategic tool for projecting the State toward society and, in particular, toward the maritime community; in this regard, the CCNN are the critical link that transforms a ship's port call into an integrating element of maritime administration: they plan, coordinate, and link the Navy with Port Authorities, Maritime Captaincies, Law Enforcement Agencies, Maritime Rescue, logistics operators, and local administrations, ensuring that each visit yields tangible positive effects for the port and its surroundings.

The current policy of continuity—rather than one-off events—regarding Spanish Navy ship port calls at our ports consolidates relationships, generates civic expectations, and normalizes interaction between the Navy and the port ecosystem. A six-monthly frequency offers a sustainable tempo for the force, compatible with training schedules and deployments, while at the same time frequent enough to keep the connection alive with coastal communities and maritime professionals.

The social benefits of these port calls are extraordinary. Open-house days, school and university visits, flag-raising and lowering ceremonies, military band concerts, and tributes to mariners from the area bring the Navy closer to the citizenry, reinforce defence culture and maritime awareness in cities whose progress depends largely on the port. This direct contact improves civil-military trust, stimulates professional vocations, and makes visible the Navy's role in security, cooperation, and maritime heritage protection missions.

From an operational and institutional perspective, each scheduled port call is a real-world test of interagency coordination and port readiness. Under the leadership of the CCNN, ISPS/port security procedures are put into practice: access control, low-intensity host nation support (fuel, water, waste disposal, repairs of opportunity), coordination with pilots and tugs, deconfliction with commercial traffic, and emergency protocols with the Maritime Captaincy, SASEMAR, Civil Guard, and Regional/Port Police. Moreover, these visits feed maritime domain awareness and engagement with the maritime community, and allow for the assessment of actual port capabilities to support future military mobility requirements or allied port calls, while simultaneously reinforcing resilience against incidents and threats in the 'grey zone.'

7 Assessment of the current situation

The fragmentation of competencies in the maritime domain following the 1992 restructuring left a complex institutional ecosystem where multiple actors operate, as we have seen: Port Authorities, Maritime Captaincies, SASEMAR, Civil Guard Maritime Service, Customs Surveillance, regional autonomous administrations, and others. It is therefore necessary to weave the network of maritime cooperation in order to achieve true interinstitutional collaboration. This general framework of collaboration requires a conceptual shift from competition to complementarity, in keeping with the spirit of the 2024 National Maritime Security Strategy. That is to say, in the civilian sphere, the CCNN should not be perceived as competitors, but rather as integrating nodes that facilitate the coherence of State action and interinstitutional cooperation.

This approach is aligned with the concept of Civil-Military Cooperation (CIMIC) in the maritime domain, where coordination between military and civilian actors is fundamental for confronting complex threats. The maritime domain includes a wide

variety of sectors and actors, which indicates the need for an inclusive and comprehensive approach to maritime security[44].

Despite the theoretical framework of cooperation, the reality reveals significant limitations, such as the absence of standardized communication and coordination protocols; the scarcity of regular joint exercises; the lack of integrated digital platforms for information sharing; the insufficient definition of chains of command in crisis situations; and budgetary constraints that hinder participation in joint initiatives.

These factors underscore the need to strengthen mechanisms for effective cooperation, beyond mere formal coordination. Precisely, the civil-military cooperation approach applied to the maritime domain offers an appropriate conceptual framework to overcome these limitations and advance toward comprehensive maritime security.

From a military perspective, the analysis of the current situation identifies strengths such as territorial capillarity (the Navy has distributed presence along the entire Spanish littoral); deep knowledge of the local environment (the CCNN possess detailed knowledge of their area of responsibility that is difficult to replicate from central organs); consolidated relationships with the maritime community; and the dual civil-military nature, which I consider to be a unique capability of the CCNN to operate simultaneously in both spheres.

From a broader perspective, the analysis likewise reveals opportunities such as the growing awareness of hybrid threats (there is greater recognition of the need for comprehensive civil-military approaches(Feldt, Roell and Thiele, 2013)); new information management technologies (which enable the implementation of systems that multiply capability with limited resources); and the impetus toward interinstitutional cooperation (there is currently a greater predisposition toward coordination among administrations). Furthermore, the Navy emerges as a key actor for implementing the 2024 National Maritime Security Strategy (ENSM 24), and moreover, the CCNN perfectly embody the objective of being 'decisive and relevant from the sea' set forth in the 'Armada 2050' strategy.

[44] See, for example: *CIMIC in the Maritime Domain* (Factsheet, CIMIC COE) on civil-military integration in the maritime environment, and *The Evolution of Civil-Military Cooperation* (CIMIC COE) on the need for synchronization between military and non-military activities.

8 International benchmark: comparative analysis and applicability

The analysis of units analogous to the CCNN in other countries in our environment (the models of the United Kingdom, France, and Italy have been studied) allows us to identify models that, where successful, can inspire the evolution of the Spanish system.

The selection of the models of the United Kingdom, France, and Italy for comparative analysis responds to their status as European maritime powers with consolidated naval structures and challenges similar to those of the Spanish environment. Furthermore, they are priority partners of Spain in frameworks such as NATO, the European Union, and the 5+5 Defence Initiative, which reinforces the strategic and doctrinal interest in considering their experiences as useful references for national reflection.

8.1 United Kingdom: Harbour Masters and Royal Navy Regional Commanders

In the United Kingdom, Harbour Masters and Royal Navy regional commanders exercise functions analogous to our Commands, but with greater operational and doctrinal integration into the national structure for littoral management. The Royal Navy maintains close connection with port and local authorities, as well as with the Maritime and Coastguard Agency, enabling cohesive action in emergencies, exercises, and logistics coordination.

This model[45] stands out for its clear delineation of responsibilities; standardized coordination protocols; integrated communications and information system; adequate manning and resources; and systematic joint training with other agencies.

Applicability: The British system demonstrates that greater operational integration does not undermine civilian effectiveness, but rather reinforces it, especially in crisis situations.

[45] The United Kingdom is also a benchmark in NCAGS, with the UKMTO (UK Maritime Trade Operations) based in Dubai, which demonstrates its leadership in connecting with merchant vessels in high-risk areas (Somalia, Hormuz). This experience, of unquestionable success, could encourage us to implement, through the CCNN, a similar network of Naval Liaison Officers at ports. However, this initiative would require a decisive reinforcement of Command personnel.

8.2 France: The *Prefectures Maritime*[46]

France has maintained a robust civil-military coordination system at sea for decades. The key figure is the *Préfet Maritime* (Maritime Prefect), an admiral of the Marine Nationale designated in each of the three major metropolitan maritime zones (Mediterranean, Atlantic, English Channel).

The Maritime Prefect is the representative of the State in his maritime zone: he exercises state authority that encompasses the functions of maritime safeguarding, law enforcement at sea, and coordination of civilian and military assets. In practice, this means that in an emergency in French waters (whether a spill, an accident, or a hostile intrusion), the Maritime Prefect has the authority to direct both the coast guard and to request support from the Marine Nationale (Navy), acting with powers delegated by the Prime Minister.

France has a dual structure: on one hand, its Marine Nationale for defence; on the other, the forces of l'Action de l'État en Mer (AEM), which include civilian assets and the Maritime Gendarmerie, all under the Prefect for constabulary[47] missions.

Applicability: The French model demonstrates the viability of structures that integrate the civilian and military under a unified command, although its implementation in Spain would require substantial regulatory changes. At the local scale, our Maritime Captaincies could be likened to mini-"prefectures" in their ports, acting as the office where all agencies convene when it comes to managing a local maritime incident.

8.3 Italy: *Capitanerie di Porto – Guardia Costiera*[48]

The Italian *Capitanerie di Porto* are militarized corps under the Ministry of Infrastructure, but with close ties to the Navy Staff.

[46] Ministère des Armées, 2022

[47] The term 'constabulary' refers to the function of ensuring order and security, performed by a force of military character in terms of discipline, hierarchy, and organization. It is associated with police or paramilitary forces, such as the Civil Guard, which have a military and militarized structure for maintaining order, but not for warfare.

[48] Italy decided to keep the Guardia Costiera within the organisational structure of its Marina Militare, but functionally under the Ministry of Infrastructure and Transport for civil matters. Essentially, Italian harbour masters are both naval officers and local civil authorities, responsible for practically everything: navigational safety, ports, the marine environment, fisheries, etc., similar to our national maritime authorities, but with military uniforms and rank (Guardia Costiera Italiana, 2023).

They manage everything from maritime safety and rescue to environmental protection and merchant traffic control.

Their unified functional structure enables them to operate as principal actors in any maritime incident, from the local to the national scale.

The model stands out for its military structure with civilian functions; complete territorial deployment; adequate allocation of assets; effective integration into the defence structure; and autonomous operational capability.

Applicability: The Italian experience demonstrates the effectiveness of a model where the maritime administration maintains a military character that facilitates its integration into the defence system, particularly relevant in the Mediterranean.

8.4 Comparative analysis and conclusions

Of the three models examined, France comes closest to the philosophy of employing territorial naval commands for purposes of total security at sea. Spain does not possess a Maritime Prefect with similar authority, but the CCNN could to a certain extent play an analogous role at the local level.

The United Kingdom emphasizes the centralization of intelligence and the strict separation of civilian and military functions in peacetime, with punctual cooperation through liaison officers. Although the British UKMTO[49] model is an international benchmark for its capability to channel security alerts in high-risk zones, its direct transfer to the Spanish environment is not currently viable. Spain lacks a consolidated network of Naval Liaison Officers deployed with merchant vessels, nor does there exist a structure equivalent to UKMTO with constant connection to critical sea lanes.

However, what is applicable is the approach of preventive culture and proactive collaboration with the merchant community, which could be adapted through the CCNN with a realistic and progressive model[50].

Italy demonstrates the advantages of organic integration (military Coast Guard), but replicating it would require rebuilding

[49] UK Maritime Trade Operations, managed by the Royal Navy from Dubai.

[50] To achieve this, it would be necessary to strengthen capabilities, disseminate the system among shipowners, and establish stable communication protocols at key ports.

structures; in contrast, as already mentioned, leveraging the Commands for cooperation is a simpler path that would achieve similar coordination effects.

In all cases, it is observed that in crisis or conflict situations, navies recover control of the maritime domain. It therefore seems prudent to train for that scenario in peacetime. The proposal of this chapter is in line with equipping Spain with better pre-crisis preparedness, incorporating the Navy into the civilian equation beforehand, in a situation of full normalcy.

9 Conclusions: towards a new model for naval commands

9.1 Summary of the assessment: transformation required

The analysis conducted has demonstrated that we are heading in the right direction toward civil-military integration. We have a national maritime strategy that can be implemented through a multisectoral body such as the National Maritime Security Council. The path travelled has not been easy, but the experience has served us well to advance maritime security in the European Union, NATO, and wherever our collaboration has been requested. It has also enabled us to lead Operation ATALANTA, the European Union's flagship example of how to promote a regional maritime security architecture.

The opportunities offered by the current context—such as greater awareness of hybrid threats, the impetus toward interinstitutional cooperation, and new technologies—should ideally be capable of promoting greater coordination among the various actors in the maritime domain, channelling that tendency toward centralization to the table of the National Maritime Security Council as a true 'chokepoint' for matters of maritime administration.

The assessment makes evident that the CCNN, irreplaceable strategic assets at the civil-military interface, are a great asset for maritime administration to adapt to the new security environment, and that they may deploy their full potential as strategic nodes of Defence and maritime cooperation.

9.2 A fresh perspective: The CCNN as strategic nodes for civil-military integration

The CCNN are evolving toward a model in which their dual civil-military nature can become their principal strength. In this

manner, the Commands of the future will be true strategic nodes where the defence perspective and civilian management of the maritime domain converge, catalysing comprehensive State action at sea.

This evolution is articulated around five key functions:

1st – Local maritime intelligence centers: Collecting, analyzing, and sharing information about the maritime environment with other relevant actors.

2nd – Interinstitutional coordination nodes: Facilitating collaboration among different agencies with competencies in the maritime domain.

3rd – Focal points for the NCAGS system: Acting as the liaison with the merchant community and preparing the transition to crisis scenarios.

4th – Representatives of the Navy before civil society: Projecting the values and culture of the Navy in their respective districts.

5th – Catalysts for maritime innovation: Acting as meeting points among the military sector, civilian administrations, and the maritime industry to foster innovation and knowledge transfer.

This evolution in no way implies reversing the separation of competencies established in 1992, nor questioning the authority of civilian bodies (Maritime Captaincies, SASEMAR, Port Authorities, etc.) in their respective domains.

Quite the contrary, the proposed model is based on a logic of institutional complementarity, where each organization contributes its differential value. The CCNN, as integrating military nodes, can contribute decisively to anticipation, surveillance, crisis management, and the protection of national interests at sea, without encroaching upon civilian competencies.

This approach aligns with the principles of the comprehensive approach (CIMIC) in the maritime domain: cooperation without overlap, and coordination without subordination (NATO Standardization Office, 2018).

As highlighted by both the National Security Strategy (2021) and the European Union Maritime Security Strategy (EUMSS, rev. 2023), the effectiveness of the global maritime security system is not achieved by dividing attributions, but rather by articulating

capabilities that operate in parallel and mutually reinforce one another. The road ahead will not be easy, but the principal pillars are already being established and, who knows, in the not-too-distant future we may see the systematic integration of Naval Commanders into the Boards of Directors of all Port Authorities in their districts and into the Navigation and Port Committees. Or, why not, the creation of provincial 'Maritime Coordination Tables' jointly chaired by the Naval Commander and the Maritime Captain, integrating all relevant actors in the maritime domain.

Furthermore, it would help to implement an integrated maritime information system that connects, in real time, the Commands with COVAM and with the information systems of other relevant agencies.

If we are also capable of developing a digital knowledge management platform that allows us to capitalize on the experience accumulated in the Commands and facilitate knowledge transfer during personnel turnovers, or the creation of maritime cybersecurity cells at strategic CCNN that can provide service to the others, we will be capable of confronting new emerging threats and developing a risk and vulnerability analysis program specific to critical port infrastructure, in collaboration with the National Centre for the Protection of Critical Infrastructure.

Thus, who cannot imagine that, in the short to medium term, we could see the Naval Commands as a civil-military integrating element of the maritime domain and the defence of our ports that this strategy paper advocates, contributing decisively so that Spain, a maritime power by geography and history, may have a port protection system equal to the challenges of the 21st century.

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Chapter Six

Ports and national security. Choke points and global geostrategy

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Abstract

This chapter analyses the role of maritime chokepoints as key elements of trade, energy and global security. Choke points, natural straits and artificial channels, are areas where international maritime traffic is heavily concentrated, creating structural vulnerabilities whilst also serving as instruments of geopolitical power. Control of them, from ancient times to the present day, has shaped maritime hegemony and the global strategic balance, from British dominance to the current disputes between the United States, China and Russia.

This chapter analyses the main choke points—the Strait of Hormuz, the Strait of Malacca, the Bab el-Mandeb Strait, the Strait of Gibraltar, the Suez Canal and the Panama Canal—, whose instability could lead to energy, economic and security disruptions on a global scale. It also addresses new hybrid threats, such as cyberattacks, underwater sabotages, terrorism and climate change, as well as the impact of recent crises such as the Red Sea crisis (2023–2025). In the case of Spain, its geostrategic position on the Strait of Gibraltar and its port network stand out as key assets and vulnerabilities. Finally, the chapter proposes

strengthening maritime resilience through international cooperation, secure digitalisation, European strategic autonomy and the protection of choke points as essential components of national and global security.

Key words

Choke points, Disruption, Trade and maritime transport, Geostrategy, Maritime resilience.

1 Introduction and historical and conceptual background to choke points

1.1 Choke points: concept and significance

So-called maritime choke points, are geographical areas that serve as mandatory transit points on international maritime routes. There are two main types: natural straits such as the Strait of Hormuz, the Strait of Gibraltar and the Strait of Malacca, and artificial canals such as the Suez and Panama Canals, alongside which are strategic ports situated in their immediate vicinities, such as Singapore, Algeciras and Rotterdam. Their shared feature is the disproportionate concentration of trade and energy flows in confined spaces, which makes them points of great structural vulnerability for the global economy and instruments of power for those who control them (Till, 2013).

International trade relies heavily on these routes, since it is estimated that over 90 % of the volume of goods at a global level is transported by sea and that a significant proportion—including oil, natural gas, agricultural bulk cargo and high-value manufactured goods—passes through one of the twenty choke points considered to be the most significant on a global level (UNCTAD, 2024).

From a strategic and military perspective, choke points offer both defensive and offensive advantages, since:

- They are areas where fleets can be contained or blocked.
- They serve as naval control platforms for those with nearby bases.
- They enable the implementation of anti-access/area denial (A2/AD) strategies using relatively limited means such as mines, coastal missiles or submarines.

From an economic and energy perspective, their importance is equally crucial, as the following figures demonstrate:

- Around 25 % of the world's crude oil trade passes through the Strait of Hormuz (UNCTAD, 2024).
- The Suez Canal accounts for between 12 % and 15 % of global trade, including 30 % of global container traffic (UNCTAD, 2024).
- The Strait of Malacca is vital to Asian economies, which rely on 80 % of the oil passing through (International Energy Agency, 2024).

Consequently, the stability or instability of choke points does not only affect the countries bordering them but has repercussions for the international community as a whole. A partial or complete closure could raise oil prices by 150 % within a matter of days, send sea freight rates soaring and trigger global inflation crises (McKinsey & Company, 2022).

1.2 The historical roots of control over the straits

The importance of choke points dates back to ancient times. Maritime civilisations soon realised that controlling the narrow passages meant dominating trade and naval warfare.

In classical ancient times, the Battle of Thermopylae (480 BC) was not a maritime battle, but it serves as a prime example of the value of a narrow passage. In the naval sphere, the Strait of Salamis enabled the Athenian fleet to defeat the Persians. For its part, during the era of Rome and Carthage, control of Sicily and the straits of the western Mediterranean proved decisive in the Punic Wars (3rd–2nd centuries BC), securing Rome's naval supremacy. During the Byzantine era, control of the Bosphorus and the Dardanelles guaranteed Constantinople's strategic position as a link between the Mediterranean and the Black Sea for centuries.

As early as the Middle Ages and the Early Modern period, the Strait of Gibraltar was contested between Muslims and Christians during the Reconquista, becoming the gateway to the Mediterranean. After its conquest by Castile in 1462, it became a symbol of strategic control. With European maritime expansion, other passages came became significant, such as the Strait of Malacca, which was crucial for the spice trade; the Strait of Magellan, which provided access to the Pacific before the opening of the Panama Canal; and the Cape of Good Hope, which was controlled by Portugal in the 15th century. During the era of Spanish and Portuguese hegemony, the control of ports and straits was a decisive factor in securing transoceanic trade routes.

With colonial expansion, the European powers realised that controlling the narrow passages meant guaranteeing routes to Asia, Africa and the Americas. England's capture of Gibraltar in 1704, confirmed by the Treaty of Utrecht in 1713, was a decisive blow to Spanish power and provided Great Britain with a geostrategic springboard to the Mediterranean. During the 18th and 19th cen-

turies, global geopolitics was shaped by competition for maritime locations: England, France, Holland and, later, the United States fought over possession of strategic ports.

With the Industrial Revolution, the importance of choke points increased significantly. The rise of global trade, the need to secure fast routes for coal—and, later, for oil—and the imperial race of the 19th century reinforced the central importance of the straits.

It is in this context that Alfred Thayer Mahan emerges, regarded as the father of modern naval geostrategy. In his work *The Influence of Sea Power upon History* (1890), Mahan argued that a nation's power depended on its ability to control the seas. His ideas, based on the study of British hegemony, underlined the importance of possessing a powerful navy, with secure naval bases in strategic locations, and of having control of the choke points.

In this way, Mahan's theories influenced the naval policy of the United States, Germany, Japan and the United Kingdom. The arms race leading up to the First World War can be explained, in part, by the adoption of these doctrines (Till, 2013).

During the First World War, control of the Suez Canal was essential to the United Kingdom, as it ensured the connection with India and its colonies. The North Sea blockade imposed on Germany by the Royal Navy stifled its economy and contributed to the German defeat.

As early as the Second World War, the Strait of Gibraltar was vital to the Allies´ influence in the Mediterranean. Additionally, the base at Rota and the British Rock played a decisive role in the monitoring of maritime traffic. The Suez Canal once again became a strategic target, and control of it enabled the Allies to maintain their connection with Asia and Africa. The Pacific showed the importance of passages such as the Strait of Malacca and control of strategic islands such as the Philippines, Midway and Guam.

During the Cold War, the Mediterranean and the Atlantic became stages for East-West rivalry. NATO secured control of the Strait of Gibraltar, whilst the USSR sought access to the Atlantic via the Arctic and the Bosphorus. The Panama Canal was a critical element in the US strategy to connect its oceans and project power on both coasts. In 1956, the Suez Crisis demonstrated how control of a canal could trigger an international crisis worldwide. Nasser's

nationalisation of the Canal and the Anglo-French-Israeli intervention marked a turning point in the European colonial decline.

Subsequent regional conflicts such as the Six-Day War in 1967, when Egypt closed the Suez Canal, paralysing the Asia-Europe route until 1975; the Yom Kippur War in 1973, when Arab countries used oil as a political weapon, reinforcing the perception of the West's energy vulnerability; or the Iran-Iraq War between 1980 and 1988, the so-called Tanker War in the Strait of Hormuz, with attacks on oil tankers, demonstrated the fragility of energy routes and the importance of choke points in global geopolitics.

1.3 Contemporary conceptualisations

Today, choke points are analysed from a multidimensional perspective, in which the following approaches stand out.

- Economically, as hubs in global value chains.
- In terms of energy, as they are critical arteries in the global supply of hydrocarbons and natural gas.
- Militarily, given that they are advantageous locations for the projection of naval power.
- Geopolitically, as influential tools in international politics.

Authors such as Merk (2025) highlight the growing relevance of ports as commercial choke points, not only logistically, but also geopolitically. For their part, Noorali, Flint and Ahmadi (2022) have underlined the role of foreign investment, particularly from China, in shaping the global port landscape, thereby adding a dimension of economic power to the traditional strategic framework.

Globalisation and interdependence have not eliminated the geostrategic importance of straits and canals; rather, they have intensified it. In a world where trade flows in real time and supply chains are becoming more and more complex, a disruption at any single point could trigger a crisis on a global scale.

Nevertheless, the historical and conceptual evolution of choke points shows that control over them has been a determining factor in shaping global power. This is because controlling these passages amounts to controlling trade and, to a large extent, international politics.

In the 21st century, choke points have remained and grown in significance. They are no longer just routes for maritime traffic, but critical global infrastructure, whose security affects the economy, energy supply and State defence.

Spain, as a maritime country par excellence and situated at the Strait of Gibraltar, must view choke points not as an abstraction, but as an intrinsic component of its national security. History shows that the prosperity and independence of nations depend, to a large extent, on their ability to guarantee access to these points and to manage the risks posed by their vulnerability.

2 Major Ggobal choke points

2.1 Overral standings

Choke points can be classified into two main categories:

- Natural straits, which constitute unavoidable geographical passages for international shipping and are usually characterised by their narrow width, shallow waters, heavy traffic and, on occasion, the presence of islands or archipelagos that make naval manoeuvring difficult.
- Artificial, man-made canals that have radically transformed the maritime geography by shortening routes and connecting previously separated seas and oceans.

Alongside these are strategic ports, which, as logistics hubs, serve not only a commercial purpose, but also act as platforms for geopolitical and military influence.

Altogether, these spaces constitute a highly concentrated and vulnerable global transport system, upon which contemporary globalisation relies (Noorali, Flint and Ahmadi, 2022). The following sections introduce the most significant examples worldwide.

The Strait of Hormuz

The Strait of Hormuz is probably the most representative chokepoint in terms of energy. It connects the Persian Gulf with the Arabian Sea and the Indian Ocean, and has a navigable width of just 2.8 km in each direction.

Between 20 and 5 million barrels of oil pass through it daily, accounting for between 20% and 5% of global consumption.

Additionally, it is also a transit point for liquefied natural gas (LNG), particularly from Qatar, one of the world's largest exporters (International Energy Agency, 2024).

Its geopolitical importance is vital for exporting countries—such as Saudi Arabia, the United Arab Emirates, Iraq and Kuwait—and for consumers—such as China, Japan and the EU. During the Iran-Iraq War, the Strait was the setting of the so-called 'Tanker War', with attacks on oil tankers and US naval escorts. More recently, in 2019, Iran intercepted several vessels in response to international sanctions, causing spikes in oil prices (Spanish Navy, 2024).

In this sense, a complete blockade would be devastating for the global economy, which is why the United States maintains the Fifth Fleet in Bahrain, in order to guarantee freedom of navigation. Meanwhile, Iran, from its side, has developed A2/AD capabilities involving missiles, mines and fast attack craft.

In the words of Till (2013), the Strait of Hormuz is 'the paradigm of the modern choke point: narrow, congested, and with an unstable strategic balance between regional and global powers'.

The Strait of Malacca

The Strait of Malacca, situated between Malaysia, Singapore and Indonesia, is another of the key passages of globalisation. Approximately 30 % of global maritime trade passes through it, including oil, gas and manufactured goods. For China, Japan and South Korea, the Strait of Malacca is the main access point for energy supplies from the Middle East (UNCTAD, 2024).

In some areas, the strait is no more than 2.7 km wide, making it vulnerable to accidental or deliberate blockades. Furthermore, it is surrounded by one of the most densely populated regions with the heaviest maritime traffic on the planet.

It is important to highlight existing threats such as piracy, accidents, congestion and, potentially, terrorism. Although piracy has declined in the past decade thanks to regional cooperation, the risk stills remains.

The existence of the Port of Singapore, which acts as a security valve and a global logistics platform, reinforces the importance of the strait. China views the Strait of Malacca as its 'Malacca dilemma', where overreliance on this passage for importing

energy and exporting manufactured goods poses a strategic risk in the event of a conflict (Merk, 2025).

The Bab el-Mandeb Strait

The Bab el-Mandeb Strait, known as the 'Gate of Tears', connects the Red Sea with the Gulf of Aden and, consequently, with the Indian Ocean. Some 4.5 million barrels of oil and its derivatives pass through it every day, in addition to a considerable volume of containers bound for Europe and Asia (INCTAD, 2024).

At just 29 kilometres wide, it is extremely vulnerable to attacks and blockades, as demonstrated by the war in Yemen, which has turned the area into a hotspot for maritime insecurity. Since 2023, attacks by Houthi rebels against merchant and military vessels have forced a massive shift of traffic towards the Cape of Good Hope, increasing costs and transit times by weeks. As an international response, the United States launched Operation Prosperity Guardian and the EU launched Operation Aspides, to accompany vessels and guarantee safe shipping lanes (Spanish Navy, 2024).

Nonetheless, Bab el-Mandeb symbolises the vulnerability of choke points to non-state actors with limited capabilities but who are capable of inflicting significant global damage.

The Strait of Gibraltar

The Strait of Gibraltar is the natural passage between the Atlantic and the Mediterranean, just 14 km wide at its narrowest point. It is estimated that more than 120,000 vessels pass through it each year, including oil tankers, gas carriers and container ships bound for Europe, Africa and the Americas.

It is one of the most heavily monitored places in the world. The naval base at Rota and the British presence in Gibraltar ensure that the area is heavily militarised. For Spain, the port of Algeciras, situated at the entrance to the Strait, is one of the largest transhipment ports of the Mediterranean, rivalling the Moroccan port of Tanger Med, and its security is, therefore, vital to the Spanish and European economies.

The Strait of Gibraltar is a prime example of how a small area can be the focal point for military, economic and political interests with global implications.

The Bosphorus and the Dardanelles

These Turkish straits connect the Black Sea with the Mediterranean and are governed by the Montreux Convention (1936), which grants Türkiye control over the passage of warships. Around 20 % of the world's wheat passes through these routes, much of which comes from Russia and Ukraine (European Commission, 2023).

In terms of its military significance, Türkiye can restrict the passage of military vessels in times of war, as was the case during the Russian invasion of Ukraine in 2022, when access was denied to additional naval units, thereby limiting Russia's military presence in the Mediterranean. Istanbul's location on the banks of the Bosphorus underscores the strategic importance of this waterway in international politics.

Suez Canal

The Suez Canal, opened in 1869, connects the Mediterranean Sea with the Red Sea, avoiding the need to sail around Africa. It accounts for between 12 % and 15 % of world trade and around 30 % of container traffic (UNCTAD, 2024).

It has not been without critical events, such as the 1956 Suez Crisis, when Nasser nationalised the canal, prompting a military intervention by the United Kingdom, France and Israel, or the closure between 1967 and 1975, during the Arab-Israeli war, which forced traffic to be diverted around the Cape of Good Hope, or, more recently, the grounding of the Ever Given in 2021, which brought the route to a standstill for six days, affecting four hundred ships and highlighting its structural vulnerability.

For its part, Egypt derives key revenue from its operations. However, its economic dependence also makes it vulnerable to fluctuations in trade, as is the case at present due to the loss of revenue resulting from the diversion of major shipping routes around the Cape of Good Hope following attacks by Houthi rebels on major global shipping companies.

Panama Canal

The Panama Canal, opened in 1914 and expanded in 2016, connects the Atlantic and the Pacific, avoiding the route around Cape Horn. Currently, around 14,000 ships pass through it each year,

accounting for around 5% of global maritime trade (Panama Canal Authority, 2025).

Its strategic importance to the United States is crucial, as the canal has been a key element of its foreign and military policy in the Americas. However, it is not without its challenges, such as the drought in 2023–2024, which reduced water depths, limiting the number of daily transits (NOAA, 2023), or growing competition from alternative routes, such as railways in North America or the Arctic route. Panama faces the challenge of balancing revenue, environmental sustainability and geostrategic competition.

All in all, the global map of choke points reflects a precarious balance. Natural straits, artificial channels and strategic ports account for the bulk of global trade and energy flows, but their vulnerability makes the global economy a highly vulnerable system. The cases of the Strait of Hormuz, the Strait of Malacca, the Bab el-Mandeb Strait, the Strait of Gibraltar, the Suez Canal and the Panama Canal illustrate how each region relies on one or more key chokepoints, the disruption of which can trigger economic, political and military crises. Against a backdrop of growing geopolitical competition, these areas are both vital arteries and weak points in the international system.

3 The current strategic importance of choke points

3.1 Globalisation, interdependence and vulnerability

The global economy of the 21st century relies heavily on maritime connectivity. The United Nations Conference on Trade and Development (UNCTAD) estimates that over 90% of the volume of international trade is transported by sea. This means that any disruption to maritime transport immediately affects production, consumption and economic stability on a global scale.

Choke points are, therefore, critical arteries of globalisation. Multiple supply chains converge there: from the hydrocarbons that fuel industrialised economies to the manufactured goods that form the backbone of global trade. However, this centralisation creates a paradox: the more efficient and concentrated the global logistics system is, the more vulnerable it becomes to specific disruptions (McKinsey & Company, 2022).

According to Christopher and Peck (2004), the application of complexity theory to supply chains suggests that highly inte-

grated systems with few critical nodes have structural vulnerabilities, meaning that a failure at one point can trigger a cascade of consequences affecting the entire system. In this regard, choke points act as hubs where risks converge.

3.2 Choke points and global supply chains

The current structure of global value chains depends heavily on the smooth functioning of a series of bottlenecks and chokepoints.

The grounding of the Ever Given in the Suez Canal in 2021 brought 12% of global trade to a standstill for six days. More than four hundred ships were stranded, causing delays in key sectors such as the automotive industry, the chemical industry and the distribution of medical supplies. The estimated cost was USD 9.6 billion a day in blocked goods.

The Red Sea crisis between 2023 and 2025, involving Houthi attacks on merchant ships, forced shipping routes to be diverted around the Cape of Good Hope. This resulted in an additional seven to twenty days' transit time between Asia and Europe, a 200-300% increase in freight rates, and a temporary shortage of containers in Asia.

The COVID-19 pandemic showed that strategic ports, such as Shanghai, Singapore and Los Angeles, can become choke points, where lockdowns and quarantines led to unprecedented congestion and shortages of essential goods in the West.

These cases demonstrate that choke points are not merely geographical abstractions, but hubs that directly affect the daily lives of millions of people.

Sectors such as the automotive, electronics, food and energy industries are highly vulnerable to supply chain delays, but they also depend on the efficient management of bottlenecks. The 'just-in-time' model, based on reducing stock levels, has boosted efficiency but has reduced resilience, to the extent that a delay of several weeks in the delivery of microchips to Europe—caused by congestion in the Suez or Malacca straits—could bring entire factories to a standstill (Merk, 2025).

3.3 Energy security and structural vulnerability

Energy security can be regarded as the most critical aspect of choke points. The Strait of Hormuz handles between 20 and 25

million barrels of crude oil per day, equivalent to 25 % of global consumption, whilst the Bab el-Mandeb Strait and the Suez Canal handle around 4.5 million barrels per day, mainly destined for Europe. Meanwhile, 80 % of the oil destined for China, Japan and South Korea—economies that are highly dependent on imports—passes through the Strait of Malacca (International Energy Agency, 2024).

Liquefied natural gas adds another layer of vulnerability. Qatar, the world's leading exporter, sends the majority of its shipments to Asia via the Strait of Hormuz, so any disruption to this route would have immediate consequences for global gas prices, as was seen during the 2022 energy crisis following Russia's invasion of Ukraine (European Commission, 2023).

The International Energy Agency (IEA, 2024) has warned that a complete closure of the Strait of Hormuz could cause crude oil prices to surge by more than 150 % within a matter of days. A blockage of the Suez Canal, such as the one that occurred in 2021, would trigger an energy transport crisis in Europe and the eastern Mediterranean.

For their part, the major consumer countries are seeking to reduce their dependence on energy products through a series of measures, such as the construction of alternative oil pipelines—for example, the East-West Pipeline in Saudi Arabia, which connects the Persian Gulf with the Red Sea, bypassing the Strait of Hormuz; the strategic storage of crude oil and gas, such as the EU's strategic reserves, and the diversification of suppliers and routes, including an increase in LNG shipments by sea. However, none of these measures would completely eliminate structural vulnerability.

3.4 Naval power and strategic balance

Choke points are more important today than ever before. Their central role in global supply chains, energy security and naval projection makes them critical infrastructure on a global scale. However, this very centrality makes them structurally vulnerable to political crises, armed conflicts, terrorism, piracy, cyberattacks and natural disasters.

Global interdependence means that no country can consider itself immune: congestion in Shanghai affects European factories, an attack on the Bab el-Mandeb Strait disrupts the Spanish economy,

and a drought in Panama has an impact on US trade. In this context, states must combine the military protection of choke points, logistical diversification and resilience, and international cooperation to ensure freedom of navigation and maritime security.

Mahan's classical doctrine remains relevant today, such that control of choke points is essential for countries to project naval power. The United States, for example, maintains the Fifth Fleet in Bahrain to ensure freedom of navigation in the Strait of Hormuz and the Persian Gulf, whilst China, for its part, has established its first overseas military base in Djibouti, near Bab el-Mandeb, to safeguard the security of its trade routes (Merk, 2025).

Controlling the straits does not require massive fleets. Anti-access/area denial (A2/AD) strategies enable regional powers to disrupt the movement of superior naval forces through the use of long-range coastal missiles, diesel-electric submarines, naval mines, or naval and aerial drones. Iran has developed a sophisticated A2/AD system around the Strait of Hormuz, whilst Türkiye is implementing similar strategies in the Aegean. The risk is that these systems will turn choke points into highly militarised and unstable areas (CSIS, 2024).

All in all, the United States seeks to safeguard freedom of navigation as a fundamental principle of the liberal international order, whilst China is attempting to secure its trade routes through investments in ports—the so-called 'String of Pearls'—and a growing military presence. For its part, Russia seeks to maintain strategic access to the Mediterranean via the Black Sea and the Tartus base in Syria, whilst regional powers such as Iran, Türkiye and Egypt use these chokepoints as instruments of political and military pressure.

4 Emerging threats and contemporary challenges at choke points

4.1 From traditional vulnerability to contemporary risks

In the 21st century, choke points no longer face only conventional threats; they must also contend with a constellation of interconnected risks, such as cyberattacks and hybrid sabotage, piracy and transnational organised crime, maritime terrorism, the impacts of climate change on waterways and shipping routes, and regional conflicts that escalate into global crises, amongst others.

This combination makes choke points more insecure and harder to protect than ever before. Its defence no longer relies solely on naval fleets, but on a comprehensive approach that combines military power, technological resilience, international cooperation and environmental adaptation.

Historically, choke points have been seen as areas vulnerable to conventional conflicts, such as naval blockades, interstate wars or colonial disputes. However, the 21st century has seen the emergence of new hybrid and multifaceted risks that are compounding the threats, such as cyberattacks, terrorism, piracy, sabotage of undersea infrastructure, phenomena resulting from climate change, and protracted regional crises.

As Merk (2025) points out, choke points 'are no longer merely a matter of traditional military control, but an area where transnational, economic, technological and environmental risks converge'. This development necessitates a rethink of maritime security in broader terms, incorporating both 'hard' security—naval power and military presence—and 'soft' resilience—governance, international cooperation and cybersecurity.

4.2 New risks: from hybrid warfare to climate change

The 21st century has brought new threats to choke points Hybrid warfare involves the combined use of conventional, cyber and asymmetric means to destabilise an adversary. Cyberattacks and acts of sabotage at sea highlight the vulnerability of critical maritime infrastructure, whilst disinformation campaigns are causing uncertainty regarding the security of strategic shipping routes.

4.2.1 Cyberattacks on ports and critical infrastructure

Modern ports are highly digitised infrastructure. Container management, berthing operations, billing and logistics tracking rely on interconnected IT systems. Whilst this digitalisation boosts efficiency, it also increases the surface area vulnerable to cyberattacks.

Cyberattacks in 2022 on European ports such as Rotterdam and Antwerp brought operations to a standstill for days, affecting the main liquid bulk terminals and disrupting the loading and unloading of fuel. For its part, the Port of Los Angeles was the target of

thousands of cyber-attack attempts in 2021, attributed to both state-sponsored actors and criminal organisations. Furthermore, international shipping companies such as Maersk suffered a cyberattack in 2017 that paralysed their global operations for weeks, resulting in losses of over USD 300 million (McKinsey & Company, 2022).

If an attack on this scale were to affect ports such as Algeciras, Singapore or Shanghai, the consequences for global supply chains would be comparable to those of a physical blockade of a strait.

4.2.2 Sabotage of undersea infrastructure

The sabotage of the Nord Stream gas pipelines in 2022 highlighted the vulnerability of undersea infrastructure—including oil and gas pipelines and telecommunications cables—that runs through areas close to choke points. A targeted attack could disrupt both the energy supply and global digital communications, causing systemic disruption (CSIS, 2024).

4.2.3 Disinformation and psychological warfare

Hybrid warfare is not limited to technical attacks. Misinformation regarding alleged closures of straits or maritime accidents can cause volatility in the energy and financial markets. In 2019, mere rumours of a possible blockade of the Strait of Hormuz caused oil prices to surge by 10 % for a short time.

4.2.4 Piracy and organised crime at sea

Between 2008 and 2011, piracy in Somalia reached alarming levels in the Gulf of Aden and the western Indian Ocean. Dozens of ships were hijacked, and the ransom payments ran into millions. This situation necessitated an unprecedented international response: the EU's Operation Atalanta, NATO's Operation Ocean Shield and various national forces coordinated naval patrols that drastically reduced attacks from 2012 onwards (Spanish Navy, 2024). The lesson learnt was clear: state fragility in Somalia and Yemen makes the Bab el-Mandeb Strait and the Gulf of Aden areas where piracy could resurface at any moment. In 2023, further kidnapping attempts were reported, confirming that the threat has not gone away.

Over the past decade, the Gulf of Guinea has established itself as the global epicentre of piracy, surpassing even Somalia. Unlike Somali pirates, who sought to kidnap people and demand ransoms, criminal groups in West Africa focus on stealing oil cargoes and kidnapping crews to demand quick ransoms. The instability in this region has a direct impact on energy supplies to Europe. The involvement of Spanish shipping companies in the transport of crude oil and gas from Nigeria makes this threat a strategic risk for Spain.

4.2.5 Drug trafficking and organised crime

As well as being commercial hubs, ports serve as key entry points for drug trafficking and smuggling networks. The recent dismantling of a criminal gang operating in the port of Valencia highlights the vulnerability of ports and their importance to international criminal networks as entry and exit points for illicit goods, thereby introducing a risk of criminalisation of critical infrastructure.

4.2.6 Maritime terrorism

Terrorists have on several occasions used the sea as a venue for attacks.

In 2000, al-Qaeda attacked the US destroyer USS Cole in the port of Aden, killing seventeen sailors. In 2002, the French oil tanker Limburg was the target of a suicide attack in Yemen, resulting in a major oil spill. In 2008, the Mumbai attacks included a maritime phase, as the terrorists arrived by sea before carrying out the attacks in the city. The possibility of a terrorist group attacking a tanker in the Strait of Hormuz or Bab el-Mandeb, or planting explosives in critical port infrastructure, remains a credible threat (Global Terrorism Database, 2023).

4.2.7 Drought and artificial canals

The Panama Canal is particularly vulnerable to climate change. In 2023 and 2024, a historic drought caused water levels in the lakes feeding the locks to drop, forcing a reduction in the number of daily transits from 38 to 24 vessels. This caused delays of several weeks and drove up freight costs between Asia and the east coast of the United States (NOAA, 2023). Although the Suez

Canal is less dependent on water resources, it also faces risks arising from storms and changes in sea level.

4.2.8 Extreme weather events

Weather phenomena such as hurricanes in the Caribbean, typhoons in the Pacific and storms in the Indian Ocean pose a growing risk to straits and strategic ports. The increase in the frequency and intensity of these phenomena threatens to lead to a rise in the number of maritime accidents.

4.2.9 New Arctic routes

The melting of the Arctic ice is opening up new opportunities for international trade. The Northern Sea Route reduces shipping time between Asia and Europe by 40 % compared to the Suez Canal, whilst the Northwest Passage opens up a route between the Atlantic and the Pacific via Canada.

However, these routes are giving rise to new geopolitical tensions: Russia is militarising the Arctic, China describes itself as an 'Arctic-adjacent state' and seeks to participate in its development, whilst NATO is bolstering its presence in Norway and Iceland (European Union, 2024).

4.3 The Red Sea crisis (2023–2026): a paradigmatic example

The recent crisis in the Red Sea is a perfect example of how non-state actors can destabilise global trade through a choke point. In December 2023, Iran-backed Houthi rebels in Yemen launched drone and missile attacks against merchant ships in the Bab el-Mandeb Strait, against the backdrop of the conflict in Gaza. As a result, major shipping companies such as Maersk, Hapag-Lloyd, MSC and CMA CGM rerouted their vessels around the Cape of Good Hope, driving up transport costs by up to 300 %, delaying deliveries of raw materials and pushing up commodity prices in Europe.

Meanwhile, the Spanish ports of Algeciras, Valencia and Barcelona experienced delays in container arrivals and rising logistics costs, whilst the port of Las Palmas has benefited from an increase in its transhipment operations.

In response, the United States led Operation Prosperity Guardian, whilst the European Union launched the Aspides mission—in

which Spain is participating—to escort ships and protect maritime traffic. For its part, NATO stepped up its coordination in the region.

All in all, the Red Sea crisis illustrates how a regional conflict can become a global security and defence issue, directly affecting economies far afield, such as Spain's.

5 The case of Spain: between geostrategic opportunity and structural vulnerability

5.1 Spain as a maritime power and a transit country

Spain's geographical location is one of its key strategic assets. Located at the crossroads of the routes linking the Atlantic with the Mediterranean and Europe with Africa and the Americas, Spain has become a key hub for global maritime transport.

The Strait of Gibraltar, which is just 14 km wide at its narrowest point, is one of the busiest shipping lanes in the world. More than 120,000 ships pass through it every year, placing Spain at the heart of one of globalisation's vital arteries.

The militarisation of the Strait is fundamental and evident, with the following aspects standing out:

- The Rota Naval Base, which houses Spanish and US forces and serves as the headquarters for NATO's Aegis missile defence system.
- Gibraltar, which maintains military facilities and advanced surveillance capabilities.
- Algeciras and Tanger Med, which compete as transhipment hubs.

But control of the Strait not only guarantees the security of the Mediterranean but also ensures a strategic presence in Africa and the Middle East. In terms of national defence, Spain cannot afford to overlook this enclave as a strategic priority.

But Spain's importance is not limited to its geographical location. The country has a world-class port system comprising 46 state-owned ports, managed by 28 port authorities under the coordination of Puertos del Estado. These include Algeciras, Valencia and Barcelona on the Iberian Peninsula, and Las Palmas in the Mid-Atlantic, which rank among Europe's largest ports in terms of

total and container traffic. Overall, Spanish ports serve as commercial and strategic hubs, integrated into the European and global networks, but also exposed to external risks.

In this regard, Spain fulfils a dual role as a logistical bridge between continents, acting as a transhipment point on Asia-Europe-America routes and as a security hub, serving as a base for NATO and EU naval operations in the Mediterranean and the Atlantic.

5.2 Energy security and Spain's vulnerability

Spain imports more than 60 % of the energy it consumes, much of it by sea (European Commission, 2023), using the refineries and regasification plants located in Spanish ports or directly connected to them, such as the Puertollano refinery.

Spain is a pioneer in gas logistics, as it has seven regasification plants, giving it an advantage in terms of energy diversification compared to other European countries. However, a large proportion of these flows pass through critical choke points, such as the Strait of Hormuz, Bab el-Mandeb and the Suez Canal, meaning that a disruption at any of these locations would immediately affect supply and prices.

The 2022 energy crisis, triggered by Russia's invasion of Ukraine, positioned Spain as an alternative gateway for LNG into Europe. Spain's regasification capacity, which accounts for more than 30 % of the EU total, has made its ports strategic assets not only at national level but also at European level. However, this strength also entails greater strategic responsibility, which is why protecting the sea routes that supply these plants is essential to the security of the entire continent.

5.3 Ports and national security

The national security framework has recently been strengthened, with significant implications for ports of general interest. The Official State Gazette (*BOE*) (of 1 November 2025) has published three agreements of the National Security Council (CSN) that strengthen the system for protection against crises and threats with direct effects on critical infrastructure, such as ports of general interest to the State, updating the Catalogue of National Security Resources, expanding the coordination mechanism with

the autonomous communities and local authorities, and integrating the Ministry of Economy into the Specialised Committee against Terrorism.

Order PJC/1214/2025[1] amends the procedure governing the National Security Resources Catalogue, meaning that state-owned ports of general interest and their associated infrastructure must be regarded as part of the 'national security resources system'.

For its part, Order PJC/1215/2025[2] reorganises the Specialised Committee on Counter-Terrorism and recognises that ports, as critical infrastructure, are potential targets for terrorist threats or organised crime; consequently, port security must adopt an economic and commercial perspective in combating these threats, rather than focusing solely on operational or policing aspects. The port operator, the port authority, the port community and the authorities must be prepared.

Finally, Order PJC/1216/2025[3] proposes that the catalogue of resources be implemented at regional level, whereby ports of general interest located in regions with extensive regional powers must collaborate on matters relating to security, crisis management, emergencies and resilience. The inclusion of these resources in the national catalogue enhances their visibility and priority within the context of national security. All of this highlights the importance of ports, as critical infrastructure, to Spain's national security.

5.4 Foreign investment and strategic autonomy

The growing involvement of foreign companies, particularly those from China and the Middle East, in the management of Spanish ports has sparked a major debate about national strategic autonomy. The Chinese company COSCO operates the main container

[1] Order PJC/1214/2025 of 30 October, publishing the National Security Council Agreement of 14 July 2025, amending the Agreement of 19 March 2024, which approves the procedure for the development of the National Security Resources Catalogue.

[2] Order PJC/1215/2025 of 30 October, publishing the National Security Council Agreement of 14 July 2025, amending the Agreement of 4 March 2020, which establishes and regulates the Specialised Committee on Counter-Terrorism.

[3] Order PJC/1216/2025 of 30 October, publishing the National Security Council Agreement of 14 July 2025, which approves the procedure for the development of the National Security Resources Catalogue at the level of autonomous communities and cities.

terminals in Valencia and Bilbao, whilst the Hong Kong-based company Hutchinson operates the BEST terminal in Barcelona. These investments have improved the efficiency and competitiveness of the ports, but they raise concerns about economic sovereignty. There is a risk that strategic decisions will be made on the basis of external interests, which could affect national security (Noorali, Flint and Ahmadi, 2022), as there is a clear element of strategic dependence.

Consequently, the Spanish Government and the EU have put in place mechanisms to monitor foreign investment in critical infrastructure, with the aim of safeguarding strategic autonomy; yet, in reality, the extent of this dependence is difficult to assess.

5.5 Risk scenarios for Spain

All in all, Spain faces a number of risk scenarios relating to choke points, which must be taken into account when assessing the situation and deciding on a course of action:

- A closure of the Suez Canal would force shipping to be diverted via the Cape of Good Hope, making imports more expensive and reducing the competitiveness of Spanish ports.
- A blockade of the Strait of Hormuz would affect the national energy supply, particularly LNG from Qatar, leading to supply shortages and rising prices.
- Any tensions in Gibraltar would lead to increased political friction, which could disrupt the smooth flow of maritime traffic.
- A cyberattack on a Spanish port could bring logistics operations to a standstill for weeks and disrupt links with other Spanish ports.
- Competition from Tanger Med and the growth of the Moroccan port could divert traffic away from Algeciras, reducing Spain's central role.

Spain is therefore a leading maritime geostrategic player, owing both to its location and its port network. Its strategic location makes it highly vulnerable, as it depends on the smooth functioning of external chokepoints such as the Strait of Hormuz, the Suez Canal and the Bab el-Mandeb Strait, whilst internally it faces challenges arising from foreign investment, regional competition and hybrid threats.

Spain's ability to protect its ports, ensure free passage through Gibraltar and contribute to international security will determine its role in the geopolitical order of the 21st century.

6 Resilience strategies and the future of choke points

6.1 Military mobility, ports and geopolitics in Europe

The report *Movilidad militar en Europa* (Military Mobility in Europe) examines the evolution of military mobility policy within the European Union, focusing on the implementation of Action Plan 2.0 (2022–2026), which aims to facilitate the rapid and efficient deployment of military forces, materiel and equipment on a large scale in the face of growing threats and a turbulent geopolitical environment. Military mobility, and in particular dual-use port and transport infrastructure, is identified as a key component of both common defence and European strategic resilience, in close cooperation with NATO and with direct implications for the management of global maritime chokepoints.

The governance of military mobility within the EU is characterised by a high degree of complexity and institutional fragmentation, with no central coordinating body; such a body should be established by the highest-level institutions of the European Union. Funding for such dual-use infrastructure—such as ports, multimodal corridors and logistics hubs—under the 'Connecting Europe' facility has been modest to date, although it should be seen as a first step towards civil-military cooperation and integration in transport infrastructure. However, there are no clear criteria for strategic and budgetary prioritisation, which undermines the ability to address critical issues, such as port choke points, in highly tense geopolitical scenarios, such as those resulting from Russia's war against Ukraine or the conflict in the Middle East.

At this stage, it is important to prioritise investment in infrastructure located in geostrategic areas linked to potential bottlenecks, which are essential for both military mobility and energy security, crisis management and the projection of forces in conflict scenarios, thereby preventing imbalances that may arise as a result of a lack of integration between port planning, critical infrastructure and the international commitments of both the EU and NATO.

The main recommendations include:

- To improve multi-stakeholder coordination and institutional design, thereby bringing greater clarity and operational effectiveness to military mobility planning.
- Incorporate military and geopolitical assessment criteria into the project selection process, with particular attention to strategic ports and maritime chokepoints.
- Leverage the dual civil-military nature of port infrastructure to ensure operational flexibility and speed, as well as resilience against hybrid or cyber threats.
- To ensure stable funding that is aligned with a forward-looking risk analysis, taking into account synergies between the TEN-T civil corridors and specific international defence requirements, in line with NATO-EU doctrines.

6.2 From risk to resilience

Maritime chokepoints have become vital arteries of the international order. Their importance to trade, energy and security places them at the heart of contemporary geopolitical tensions. But whilst history shows that these steps have always been strategic, the future suggests that their importance will only grow.

In the near future, the security of choke points will depend on three main factors:

- The energy transition and new energy trade routes.
- Competition between major powers in a multipolar world.
- The impacts of climate change and technological disruption.

Resilience, understood as the ability to withstand and adapt to disruptions, will therefore be the key concept. It will not be enough simply to secure the straits militarily; it will be necessary to diversify routes, strengthen international cooperation and shield critical infrastructure against hybrid threats.

Global decarbonisation will reduce dependence on oil, but it will not eliminate choke points. The transport of green hydrogen and its derivatives, such as ammonia and methanol, will become a new logistics hub. Countries such as Spain, which have plans to export hydrogen to northern Europe, will need to secure new energy routes. Meanwhile, liquefied natural gas will remain

essential to the transition, ensuring that strategic chokepoints such as the Strait of Hormuz and Bab el-Mandeb remain crucial. Furthermore, the installation of large-scale offshore wind farms and solar power plants will require specific supply chains, which will depend on suitable ports.

The concentration of traffic in a few short stretches will make it necessary to consider various alternatives, such as:

- Eurasian rail corridors, which, although slower and more expensive, offer a fallback option in the event of disruptions to sea transport.
- The Arctic route, which will cut transit times between Asia and Europe by 40 %, although its viability will depend on weather conditions and the militarisation of the Arctic (Ge and Tang, 2025).
- Onshore oil and gas pipelines, which will complement maritime transport, such as the East-West Pipeline in Saudi Arabia or the Euro-Mediterranean gas pipelines.

The digitalisation of ports and the maritime sector will be key to efficiency, but it will require cyber-secure systems. The future will involve the use of blockchain platforms for traceability, digital twins for ports and fleets, and the use of AI to predict congestion and risks. All of this must be backed up by robust cybersecurity, with networked maritime security operations centres.

6.3 Naval power and multipolar competition

The United States will continue to uphold freedom of navigation as a fundamental principle. Its presence in the Strait of Hormuz, the Bab el-Mandeb Strait and the Strait of Malacca will remain essential, although this will likely be against a backdrop of increased competition with China.

China will expand its network of ports and bases in Asia, Africa and Europe, such as Gwadar, Djibouti and Piraeus. This expansion will turn it into a global naval power, capable of challenging the West for control of certain strategic corridors.

Russia will focus on militarising the Northern Sea Route, taking advantage of the thaw to gain control of new routes. Its base in Tartus, Syria, will remain a key asset in the Mediterranean.

The EU must move towards greater strategic autonomy in maritime security. Spain could take the lead in this process in the

Mediterranean and the Atlantic, by strengthening cooperation with France, Italy and Portugal. NATO will remain the ultimate guarantor, but a greater sharing of the burden among its members is expected.

6.4 Emerging threats

The future will bring more sophisticated cyberattacks, capable of paralysing global supply chains. In this regard, Spain should invest in port cyber defence centres that are integrated into the European network.

Naval and aerial drones, which are cheap and easy to manufacture, could become disruptive weapons against oil tankers, LNG carriers or port terminals.

The increase in hurricanes, droughts and heatwaves will have a direct impact on the navigability of waterways and the safety of ports. The design of climate-resilient infrastructure will be essential.

6.5 Strategic recommendations for Spain

In the near future, choke points will continue to be key hubs for global trade and security. Their vulnerability will not disappear; on the contrary, it will increase as a result of the energy transition, digitalisation and climate change.

Given its location and capabilities, Spain has the opportunity to become a key player in European and Atlantic maritime security. Their challenge will be to strike a balance between military defence, logistical resilience, economic sovereignty and energy innovation.

Ultimately, choke points will continue to be the places where the global balance of power is decided. For Spain, security is not an option, but an existential necessity. Specifically, the following strategic recommendations can be identified:

- To strengthen the protection of the Strait of Gibraltar as a national priority, with greater Spanish-British coordination within the NATO framework.
- Modernise key ports through investment in secure digitalisation, clean energy and rail links.

- To promote European strategic autonomy, ensuring that critical investments do not fall under the control of rival powers.
- Developing energy resilience, with storage capacity, diversification of suppliers and leadership in new energy sources.
- Strengthen cooperation with North Africa, both in maritime security and energy, to ensure that competition between ports does not lead to instability.

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Chapter seven

The Strait of Gibraltar. A strategic point for national defence

Gerardo Landaluce Calleja

Abstract

Eighty per cent of world trade relies on maritime transport, and the Strait of Gibraltar is a vital geostrategic location. With 130,000 ships passing through a year, it is the second international shipping route in importance. In this context, the port of the Bay of Algeciras (also known as the Bay of Gibraltar) acts as a bridge between Europe and Africa and a key hub in European logistics networks. It is a strategic asset for Spain and the European Union due to its operational capacity—as the EU's leading Mediterranean port and a European leader in efficiency—and its significance in terms of energy and security.

In a world marked by geopolitical tension and a new world order based more strongly in force rather than law, ports are establishing themselves as essential assets for both the economy and security. However, the transformation of maritime transport, the concentration of power in the hands of a few shipping companies, strong competition from non-EU ports and the negative impact of European regulations (EU ETS, Fuel EU Maritime, etc.) are reducing competition and leading to decreased traffic, reduced connectivity and a diversion of investment, thereby undermining Europe's logistical sovereignty.

At the same time, the Strait is facing military tensions, hybrid threats and regional rivalries. All of this calls for a governmental policy on the Strait. The creation of a special economic zone in the Campo de Gibraltar region, along with improved land transport links and effective civil-military coordination, is necessary to strengthen competitiveness and the role of this strategic enclave for national and European security.

Key words

The Bay of Algeciras, Strategic asset, Geopolitical tension, Civil-military coordination, Competitiveness.



Figure 1. Objective: the need and opportunity to implement a State policy 'for' and 'from' the Strait of Gibraltar, with ports of general interest—and, in particular, the Port Authority of the Bay of Gibraltar, which manages the ports of general interest at Algeciras and Tarifa—as key instruments for its definition, planning and implementation

1 The sea as the backbone of international trade

Eighty percent of global trade is conducted by sea. Trade flows are essentially organised along three main axes: east-west, north-south and intra-regional. The optimisation and integration of global logistics chains have reinforced the role of certain border crossings as strategic hubs for international trade.

2 Global strategic hubs: the Strait of Gibraltar in figures

The major maritime routes that account for the bulk of global trade traffic:

- English Channel: 182,000 ships per year, the world's busiest shipping route;
- Strait of Gibraltar: 130,000 ships per year, the world's second-largest shipping route, with more than 300 ships per day passing through a corridor little more than 14 km wide;
- Strait of Malacca: 80,000 ships per year, a vital link for Asia-Europe and Asia-Middle East trade routes;
- Suez Canal: 26,434 ships (2024), a vital route between Asia and Europe, currently affected, as described, by the security crisis in the Red Sea;

- Panama Canal: 11,240 ships (2024), the primary interoceanic corridor of the Americas, constrained by water and capacity restrictions.

This places ports at the heart of the global economy and makes strategic corridors—such as the Strait of Gibraltar—essential chokepoints along primary shipping routes, the control and proper management of which have a direct impact on global economic security.

The Strait of Gibraltar sees five times more traffic than the Suez Canal, eleven times more than Panama, and 60 % more than the Strait of Malacca.

The Strait is therefore a strategic asset of the first order for Spain, the European Union (EU) and the North Atlantic Treaty Organisation (NATO).

The port of the Bay of Algeciras is located in the Strait of Gibraltar and, as described above, represents one of the world's principle maritime hubs, which means it lies on the so-called 'Round the World' route and can offer a 'zero-detour' route for ships using these global maritime connections.

3 The global maritime dashboard

The years following the COVID-19 pandemic have been particularly challenging for the maritime sector due to a global context marked by armed conflicts, such as the invasion of Ukraine in Europe; the consequences of climate change, such as the droughts affecting routes like the Panama Canal; the implementation of the European Green Deal; and, in the case of the Suez Canal, operational disruptions caused by events such as the accident involving the Ever Given container ship in 2021 or the attacks by Houthi rebels in the Red Sea since late 2023, which have led to a 51 % reduction in traffic through the Suez Canal in 2024, as a large number of shipping companies have opted, for safety reasons, to divert their routes and circumnavigate Africa via the Cape of Good Hope (South Africa). This alternative route adds between ten and fifteen extra days to transit times, affecting delivery times and increasing transport costs, as it adds an extra 3,500 additional nautical miles, resulting in higher fuel consumption and, consequently, increased emissions, resulting in increased harm to the environment.

4 The transformation of maritime transport: the concentration of shipping power in a new geopolitical landscape

Containerised shipping—the modern concept of the shipping container—was born in 1956 and has since undergone a constant process of evolution and unstoppable transformation. In fact, over the last two decades, the maritime and port sector associated with containerised shipping has undergone a profound transformation. To summarise, it is worth highlighting the following:

- The ever-increasing size of ships has required billion-dollar investments, leading to mergers, acquisitions and even bankruptcies such as that of Hanjin Shipping. The Korean shipping company filed for bankruptcy in September 2016 after failing to secure bank financing to cover its substantial debt.
- Horizontal integration of the sector: just five shipping companies control over 60 % of the global container market, in terms of cargo capacity, and the top ten shipping companies account for 80 %.

Another trend in the sector within this process of integration is the vertical integration of the logistics chain itself. Thus, shipping groups are taking on a new role to optimise the supply chain; doing so by integrating the entire process: they have their own fleet of ships (the shipping company), their own docks (the container terminal operator) and their own logistics operators.

- In terms of business models, the model is evolving from a 'port-to-port' approach to a 'door-to-door' one. This means that control of the logistics chain is shifting from the shipper to the maritime transport operator. Shipping companies are becoming integrated logistics operators, offering value-added services and controlling the supply chain. As for other players such as agents and freight forwarders, their role is being reduced to that of mere service providers, as the shipping company takes on coordination, logistics management and control of the traffic itself.
- Similarly, the role of port authorities is reduced to the management of port facilities to serve the shipping companies, with less strategic influence over the value chain and, consequently, over the traffic itself.

In practical terms, this context reduces the influence and bargaining power of port authorities—and the maritime-port admin-

istration itself—in the face of the increasingly limited (in number) and thus powerful conglomerates of global operators, raising fears of a drift towards oligopolistic situations.

In fact, this scenario has developed even further in the case of some shipping companies that seek to control and manage their own ports. Such is the case with the China Ocean Shipping Company (COSCO) in relation to the Greek Port of Piraeus, which, as part of a privatisation process, acquired a 51% stake in 2016. Following that, in 2021, it increased its stake to 67%, granting the Chinese shipping company operational and commercial control of the Piraeus Port Authority for a period of 36 years.

The Port of Piraeus is situated at the intersection of three continents (Europe, Asia and Africa), connecting trade routes across the Mediterranean with Inland European via rail and road links, making it a port of great strategic and economic importance and Greece's main gateway to and from the Mediterranean. In terms of container traffic, it ranks among the five busiest ports in the Mediterranean.

This investment and 'takeover' of the Port of Piraeus is an example of the progress of China's strategy in implementing its Belt and Road Initiative, as well as the geostrategic value of ports and the world's major shipping lanes and essential transit routes, as critical assets within the framework of a new world order.

The fierce rivalry over the control of ports considered to be of strategic importance was once again evident with the arrival of Donald Trump's new US administration, due to China's presence in the Panama Canal and US concerns regarding the security and control of the Panama Canal. Intense pressure from the US led Hong Kong-based CK Hutchison Holdings Ltd., which holds the concession for the Ports of Balboa (at the Pacific entrance to the Panama Canal) and Cristobal (on the Caribbean Sea), to announce the sale of its global port business to a consortium led by the US fund BlackRock Inc. Meanwhile, the Chinese authorities reacted by attempting to block the deal, considering it a threat to their interests and national security, even affecting their 'Belt and Road Initiative'.

The geostrategic landscape in Panama is completed by three other port concessions: that of PSA International, based in Singapore; that of the Taiwanese group Evergreen; and a joint venture between the US firm Carrix and the Panamanian Motta and Heilbron families.

Furthermore, the EU is no stranger to this power play in the sphere of international influence, and in particular in the maritime and port sector represented by the Belt and Road.

In this regard, the strategy devised by the EU can be seen as two-fold. On the one hand, it is defensive in nature through the mechanism known as Foreign Direct Investment (FDI), which is a protective measure against new foreign investment in territories and interests considered sensitive or strategic by the EU. An assessment will be carried out to determine whether the investment poses a risk to security, the management of critical infrastructure such as ports, or public order within the EU.

At present, the primary focus is on capital investments of Chinese origin. As far as ports are concerned, the threat is clear considering the case of the Port of Piraeus. In fact, it could be seen as a surrender of economic sovereignty.

In any case, this issue is not without controversy, as European ports, in turn, need investment to continue to modernise their infrastructure and develop new projects to ultimately make their ports more competitive, given that competition with third countries is fierce.

There is also the paradox that large global operators based in Europe are focusing greater investment on third-country ports close to the EU than European ports themselves. This situation is clearly reflected in the transshipment hubs in the Mediterranean. Differences in labour costs, less stringent labour and environmental legislation, and tax and customs incentives are driving the shift of port investments to third countries.

Furthermore, in addition to defensive control measures, the EU is taking proactive steps towards third countries through the Europe Global Gateway Strategy.

This strategy aims to promote smart, sustainable and secure investments in the transport, digital and energy sectors, as well as strengthening healthcare, education and research.

Its fundamental principles include democratic values, good governance, equal partnership, environmental sustainability, security and stimulation of the private sector. Collaboration between organisations and institutions is the 'formula' needed to achieve these new objectives efficiently, securely, sustainably and competitively. Hence the importance of the EU's Global Gateway initiative, which serves to give the EU a more significant external

standing compared to other initiatives such as those implemented by China (like the Belt and Road Initiative).

The Port of Algeciras has been working intensively in this field thanks to two projects selected by the EU as flagship initiatives of the Europe Global Gateway programme. This includes the digital and green Shipping Corridor project between Panama and Algeciras, a public-private partnership that aims to decarbonise 800,000 tonnes of CO2 in the first phase, the equivalent of taking 400,000 vehicles off the road.

Equally noteworthy is the European digital interoperability project between the Central American Digital Trade Platform (PDCC) and the Port Community System (PCS) of the Port of Algeciras, which will streamline exports and boost competitiveness within the framework of the Global Gateway and the EU-Central America Association Agreement.

This initiative will strengthen end-to-end traceability across the bi-regional logistics chain, reducing inspection times and optimising customs efficiency to facilitate agile, sustainable and mutually beneficial trade between both regions.

It should also be noted that this pilot project is designed to be scalable and shared with other partner ports in the future, as 'at the Port of Algeciras, we neither believe in nor support exclusivity or monopolies; on the contrary, we support collaborative logistics and port management', claimed G. Landaluce at the EU Embassy in San Jose de Costa Rica on 5 September 2025.

5 Ports as critical infrastructure and strategic assets

Today more than ever, commercial ports are, and must be regarded as, critical infrastructure and strategic assets, central to national and EU interests. Logistics management and ports perform a vital function. They are strategic hubs for trade flows and global connectivity.

By definition, a port's traditional purpose is to act as a modal interchange. That is, to facilitate the efficient transfer of goods and people between maritime and land transport, acting as a logistical connection point for trade. This involves providing services for loading, unloading, storage, maintenance and shelter for ships, as well as the intermodal connectivity needed to link supply chains.

However, modern ports are specialised logistics hubs that form an integral part of production, transport and distribution chains. European ports thus fulfil their role as intermodal and logistics hubs, channelling the EU's foreign trade.

However, in a world marked by geopolitical tension and a new world order based more strongly on force rather than on the law, ports are establishing themselves as essential instruments of stability, competitiveness and security.

6 New dimensions for ports

Times have changed; we face an era of unprecedented challenges that demand the very best from everyone in terms of adaptability, innovation and resilience.

In practical terms, this means that ports are taking on new roles assigned to them by the economy, society and, consequently, the relevant authorities.

- The energy dimension: ports, particularly energy ports, have always played a significant role in the unloading and distribution of petroleum-derived fuels and other petroleum products, which are subsequently distributed via oil pipeline networks. However, ports now play a crucial role for two reasons. On the one hand, following the invasion of Ukraine, the EU has been making great efforts to reduce and eliminate its energy dependence on Russia. This is the so-called energy autonomy strategy or RePower EU. The plan was implemented in 2022 to reduce dependence on Russian fossil fuels, diversify energy supplies and accelerate the transition to clean energy.

  In line with this approach, ports must and wish to be key players in facilitating the energy transition and the decarbonisation of the economy and society. Ports are currently evolving to become the energy hubs of the future. The Port of Algeciras, as a leader in ship bunkering (supplying fuel to ships) in the Mediterranean, is establishing itself as a Green Energy Hub where various energy and logistics operators, alongside investment funds specialising in the sector, are undertaking a range of projects related to hydrogen, methanol and green ammonia, as well as liquefied natural gas (LNG) as a transition fuel, to decarbonise maritime transport and meet the environmental targets set out in the 'Green Deal / Fit for 55' regulatory framework.

- The security dimension: the issue of security is increasingly taking centre stage in various areas.
- The military dimension, with the Ukrainian war at the forefront, is associated with mass mobility because ports, functioning as integrated logistical hubs, are also developing capacities for military deployment. This transformation benefits European defence by enabling ports to function as 'strategic multipliers' that facilitate the transport of troops and equipment in the event of conflict, making use of existing civil and digital infrastructure.
- Other security uses relate to cybersecurity and the fight against illegal activities and organised crime in port environments. This line of action forms part of the European Port Alliance, a public-private partnership bringing together EU Member States, port operators, shipping companies, customs authorities and State law enforcement agencies, among other entities and bodies, to combat drug trafficking and organised crime in ports and to defend them against such criminal activity, as organised gangs undermine fundamental principles of the system such as personal freedom and integrity.

Ports are hubs for economic sovereignty and national security. That is why it is essential to devote efforts and resources to increasing efficiency and competitiveness and ensuring operational continuity in the face of disruptions and threats. These and other factors form the basis of initiatives aimed at making ports more *resilient* to wide range of crises—from geopolitical, to climatic, to health-related etc.

7 Strong support required at ports: as key drivers of economic activity and employment

Ports form the backbone of the Spain and enable the principle of territorial cohesion to be put into practice.

In summary, the Spanish port system, which comprises all Spanish ports of general interest:

- Handles 60 % of exports and 85 % of national imports.
- Contributes 1.1 % of national GDP.
- Generates more than 100,000 direct jobs and 175,000 indirect jobs.
    - In the case of the Port of Algeciras, its social relevance is of particular significance and relevance. This is a region,

namely the Campo de Gibraltar, home to more than 250,000 people and an unemployment rate exceeding 20 % (in fact the province of Cádiz has the highest unemployment rate of any Spanish province, double the national average).

According to the latest study carried out by the University of Cádiz, the Port of Algeciras generates some thirty thousand jobs, including direct, indirect and induced employment. It accounts for 7 % of Andalusia's gross domestic product. It is the main driving force behind job creation and wealth generation in its area of influence. Hence the great importance of continuing to support and invest in the southern gateway to Europe, which borders the African continent and is home to the last colony on European soil, namely, Gibraltar. By way of illustration, according to the University of Cadiz, its unemployment rate stands at 0.49 %, which is the second lowest in the world after Qatar.

It should be noted that, in the case of Spain, the port system is self-financing and does not rely on the State budget. The ports are not asking for 'favours' but rather require coherent policies and cross-sectoral coordination to enhance their capacity to stimulate economic activity and employment and, ultimately, to serve as instruments in the strategic interests of Spain and Europe.

8 Towards a European ports strategy: has the groundwork been properly laid?

The Draghi Report identifies transport and logistics as key drivers of competitiveness. The new European Commission, which took office in December 2024, is working on a ports strategy based in competitiveness and security within a framework of sustainable activities.

Climate change and our commitment to its reversal must be unanimous and without excuses. However, the definition of environmental policies and their practical implementation must be carried out sensibly and with a thorough analysis of their practical consequences, precisely in order to achieve their ultimate goal of protecting the environment.

Regulations cannot be imposed in isolation without properly consulting the port sector, as the practical consequences could be disastrous.

This raises the question of whether, in recent years, the EU has been aware of the true importance of its ports and whether the sector has been regulated and promoted in line with its needs.

The Green Deal and its legislative packages (Maritime ETS, FuelEU, AFIR) pose serious challenges to competitiveness regarding third countries. The risk of carbon and investment leakage is particularly acute in the Strait, where Morocco does not implement these regulations.

It is in this analysis and strategic planning that the European Mediterranean ports and the Strait of Gibraltar itself must play a leading role.

8.1 Background and objectives of the ETS

The inclusion of maritime transport in the EU Emissions Trading System (ETS) is a key measure in the Green Deal's 'Fit for 55' package, the main objective of which is to reduce greenhouse gas (GHG) emissions in the maritime sector. From 2024, shipping companies must cover 40 % of their emissions, with a gradual increase to 70 % in 2025 and 100 % in 2026. Although this measure aims to achieve decarbonisation, it has generated a series of negative impacts on the competitiveness of European ports, affecting supply chains and increasing dependence on third countries, which threatens the logistical sovereignty of Spain and the EU as a whole.

8.2 Negative impacts identified during the legislative phase

8.2.1 Competitive inequality between ports

The 'transparent' ports system was introduced as a measure to protect European ports from traffic being diverted to neighbouring ports (in third countries) not covered by the ETS, thereby preventing shipping companies from moving to ports outside the EU without assuming responsibility for emissions. However, with this partial and insufficient measure, only two ports have been identified as meeting the transparency requirements: Port Said and Tanger Med, which are located less than 300 miles from the EU and at which transhipment represents more than 65 % of maritime traffic. Although these ports do not represent a total exemption, as the emissions savings are limited because they are subject to a 50 % reporting requirement for emissions on non-European segments of shipping routes, calling at these 'transparent' ports is still considered to offer competitive advantages. Despite this measure, there remains an economic incentive for

shipping companies to avoid ETS costs by using these ports close to the EU, which promotes the diversion of traffic. Furthermore, the existence of other unlisted ports capable of handling transhipment traffic, such as some in North Africa and the UK, poses an additional risk of emissions evasion and a loss of connectivity in European ports.

8.2.2 Route reconfiguration and 'carbon leakage'

Shipping companies are adjusting their routes to minimise the costs associated with the ETS, which has resulted in an increase in port calls outside the EU, particularly in the UK, Morocco, Egypt and Tunisia. This re-routing is not only affecting the efficiency of the routes but is also increasing the distance travelled, thereby raising CO_2 emissions due to the longer routes, with a perverse outcome as it runs counter to the very spirit of European environmental legislation (the Green Deal).

8.2.3 Loss of investment in port infrastructure

The lack of a uniform regulatory framework in non-European ports has encouraged shipping companies to invest in infrastructure outside the EU, particularly in North African countries and the United Kingdom. Projects such as Damietta in Egypt or the growth of British ports, which now benefit from the ETS emissions exemption, are clear examples of how the EU is losing investment that should have been directed towards the modernisation of its ports. Another clear example is the investment by European terminal operators (global operators) themselves to develop operations outside Europe, as is the case with Nador West Med (Morocco), where investments by MSC and CMA CGM have been announced this year—investment that will no longer be directed towards in European ports. This trend not only reduces the competitiveness of European ports but also jeopardises Europe's leadership in terms of port infrastructure and its ability to compete in the global market.

8.2.4 oss of connectivity and vulnerability of supply chains

As shipping routes are being diverted to ports outside the EU, European ports are losing connectivity to key international markets. This not only increases export costs and affects the com-

petitiveness of European businesses but also compromises the security and control of the EU's supply chains. The outsourcing of trade routes to non-European ports creates greater vulnerability to geopolitical and economic crises, as Europe is forced to rely on infrastructure in third countries. This also a implies a loss of control over crucial logistics hubs, weakening the EU's strategic autonomy.

8.2.5 Combating illegal activities and organised crime

From the perspective of combating illegal activities and organised crime, it would make no sense to strengthen non-European hubs and, through subsequent distribution based on the hub-and-spoke model, increase the number of small and medium-sized European ports serving as entry points to the EU. An increased number of new entry points to the EU via less specialised ports, with fewer resources from the authorities available to combat illegal activities would undermine efforts to effectively combat drug trafficking and its associated operations.

8.2.6 Impact on Europe's logistical sovereignty

The relocation of logistics activities to ports outside the EU undermines Europe's logistical sovereignty. Growing dependence on ports in third countries not only weakens the EU's ability to manage its supply chains independently, but also jeopardises the region's economic security and stability, particularly in times of geopolitical crisis.

8.3 Inconsistency with other European policies

The ETS conflicts with other European policies aimed at strengthening the EU's infrastructure and competitiveness. The European Global Gateway Strategy, for example, aims to ensure the connectivity and resilience of the EU's strategic infrastructure. However, by encouraging the relocation of logistics activities to non-European ports, the ETS undermines this effort, promoting the outsourcing of logistics and increasing dependence on third countries.

Similarly, the EU's industrial strategy and the Digital Agenda for Europe advocate investment in advanced technological infrastructure and the promotion of strategic autonomy in key sec-

tors. However, the ETS is putting economic pressure on European ports, which may lead to a decline in investment in clean digital technology within Europe, favouring ports outside the EU that are not subject to the same regulations.

8.4 Letters from the European Transport Council and the Spanish Government's position

The Spanish Minister for Transport, Óscar Puente, has launched a key initiative to address the consequences of the ETS, in the form of letters from the European Transport Council, which were signed by fourteen countries, including Spain, Italy, Portugal, Greece, Malta, Croatia, Cyprus and other southern European Member States. These letters, sent to the European Commission, called for a moratorium on the implementation of the ETS or, at the least, an urgent review of its effects, given that existing policies have not adequately considered the impact of port activity relocating outside the EU. The concerns expressed in these letters highlight how the ETS is encouraging carbon leakage and negatively affecting the competitiveness of EU ports (particularly those on the southern Mediterranean coast), which not only undermines European logistics infrastructure but also jeopardises the stability of supply chains within the continent.

8.5 Proposals to improve legislation

8.5.1 Expanding the list of 'transparent' ports

The expansion of the list of non-European ports included in the ETS list of 'transparent' ports is essential to ensure that these ports are subject to the same emissions reporting rules as EU ports. This would ensure fairer competition and prevent the relocation of activities to unregulated ports.

8.5.2 Adjustment to emissions reports

Currently, the two non-EU ports listed as transparent are only required to report 50 % of the emissions generated on routes outside Europe and 50 % of those on routes towards Europe, whereas European ports must report 100 % of emissions on intra-European routes and 50 % on extra-European routes. The alignment of these requirements has been proposed to ensure greater fair-

ness in the allocation of environmental responsibilities, eliminating any undue competitive advantage for non-European ports and ensuring that all ports, regardless of their location, assume a fair share of the responsibility of emissions generated by maritime transport. In any case, although this measure could improve the current directive, the question of how to prevent the diversion of relay traffic (originating from and arriving at destinations outside Europe) remains, as such traffic only relies on European ports for transhipment operations, thereby optimising the shipping company's logistics; however, if this requires the payment of environmental charges, thereby increasing costs, they will carry out these operations in nearby non-European ports in order to continue offering better freight rates to their shippers; whilst emissions would not be minimised.

8.5.3 Development of a predictive model and the State Ports Authority's Carbon Observatory

Given the lack of a predictive approach to anticipate the risks of carbon leakage, it is crucial to establish a more robust mechanism to facilitate the early identification of these risks. In this regard, Puertos del Estado (the Spanish State Ports body), together with the ports of Algeciras, Barcelona and Valencia, has promoted the creation of a carbon leakage observatory, the aim of which is to monitor and provide data on shipping routes and evasive behaviour of ships. This observatory will act as a practical tool with a commercial and strategic vision (unlike the European Commission's reports), providing more detailed and specific data that will allow for a better assessment of the risks associated with the ETS. The initiative, backed by various port authorities, aims to strengthen our ability to anticipate and mitigate the negative effects of carbon leakage, contributing to more informed and proactive decision-making. In this way, Puertos del Estado will be able to compare findings with the European Commission, assess risks and propose corrective measures before problems escalate—unlike the situation to date—thereby ensuring the competitiveness and sustainability of the European maritime sector.

In short, the Emissions Trading System is having a negative impact on the competitiveness of European ports and on the EU's logistical autonomy. As activities are relocated to non-European ports, Europe is losing connectivity, control over its strategic infrastructure and logistical sovereignty. The measures adopted so far

are wholly insufficient and lack coherence with other European policies aimed at strengthening its infrastructure and global competitiveness. An urgent review of the ETS, with a more balanced and coherent approach that protects both the decarbonisation of the maritime sector and the competitiveness and security of the EU's supply chains, is required.

In this regard, the adoption of the International Maritime Organisation's (IMO) Net Zero Framework is highly desirable, as it will enable progress towards maritime decarbonisation in a comprehensive and effective manner, preserving the competitiveness of European ports and ensuring a level playing field at international level.

9 The need and opportunity to attract investment

European ports must be attractive to private investment, backed by public investment. Europe plans to invest 80 billion euros over ten years in connectivity via TEN-T and decarbonisation.

In 2024, the port of Algeciras Bay handled 104 million tonnes of total cargo, placing it fourth among the 1,200 commercial ports in the EU and first among European ports in the Mediterranean. It is regarded as a global and diversified port, although four traffic segments stand out: Strait traffic (*ro-ro*, passengers and vehicles on a passenger basis), industrial traffic, ship services (mainly bunkering) and containerised traffic. This traffic is deeply rooted in Algeciras, fifty years after operations began and with 114 million containers handled to date.

This background—along with its strategic location, advanced port infrastructure, and the coordination and digitaliation of operations, amongst other factors—means that, for the fourth consecutive year, it ranks as the top European port and the 20th globally in terms of efficiency, according to the Container Port Performance Index (CPPI) published by the World Bank and S&P Global Market Intelligence.

However, the potential of the port of Algeciras and the Campo de Gibraltar region itself cannot be fully realised due to its main obstacle: poor land access, particularly by rail. Its connection to Madrid and the north of the peninsula suffers from long-standing bottlenecks such as the Algeciras-Bobadilla (Antequera) railway, which is a conventional, non-electrified line with a route that runs through areas of steep gradients. The pace of its modernisation

needs to be accelerated in order to provide a competitive rail connection for both passengers and freight. The implementation of the rolling highway between Algeciras and Saragossa represents a key opportunity to achieve this.

Another significant challenge facing the port of Algeciras and the region itself is the coexistence in the Strait of different tax and customs regimes that are in direct competition with one another, such as Gibraltar and certain areas in northern Morocco, including Tanger Med. These areas of industrial development attract international companies and investment, particularly from Europe, thanks to their economic and tax incentives.

At the same time, the current situation regarding Gibraltar is not without controversy. After more than five years of negotiations, on 11 June 2025, the EU and the United Kingdom reached a historic agreement in principle on the status of Gibraltar, with the aim of guaranteeing legal certainty and stability for those living in the area and, in particular, for residents on both sides of the fence.

It is stated that the future agreement will not prejudice the respective legal positions of Spain and the United Kingdom regarding sovereignty and provides for the removal of all physical barriers and controls on people and goods moving between Spain and Gibraltar, whilst simultaneously preserving the Schengen area, the EU single market and the customs union.

In short, of the four fundamental freedoms underpinning the Treaty of Rome—which established the European Economic Community (EEC) in 1957—two of them (the free movement of persons and goods) would apply. The free movement of capital and services would not apply.

In any case, there are various issues and uncertainties regarding their application in practice. Regarding maritime and port matters, the port community of the Bay of Algeciras is calling for the reciprocity of the right to establish national maritime companies in Gibraltar; a mechanism that is not currently in place.

In turn, another significant issue concerns the potential for direct maritime services between Moroccan ports and Gibraltar. Such maritime connectivity with Morocco could pose a risk (in terms of passenger and ro-ro traffic) of the United Kingdom and Gibraltar ceding economic sovereignty and control over the Strait to the detriment of Spain and the EU itself, as well as leading to a decline

in activity and revenue for the surrounding Spanish ports, and in particular for the port of Algeciras.

Other environmental issues repeatedly highlighted by environmental groups—such as land reclamation projects on the eastern coast of Gibraltar, the discharge of untreated sewage, illegal bluefin tuna fishing, and the transfer of fuel between ships anchored in environmentally sensitive areas—are, amongst others, issues that require urgent attention and demand that compliance with European environmental legislation be duly taken into account.

10 From the global model to nearshoring: the Strait as a regional opportunity

Two distinct logistics chains converge in the Strait of Gibraltar: one centred on container transport, linked to east-west traffic, deep-sea shipping and long-distance routes (primarily intercontinental east-west traffic); and the other centred on ro-ro traffic, linked to north-south routes and short-sea shipping.

The Strait is home to a wide range of trade links between the six ports situated on both sides: Tarifa, Algeciras, Gibraltar, Ceuta, Tanger Med and Tanger Ville, resulting in relationships characterised by fierce competition (containers), full cooperation (ro-ro and passengers) and, to a lesser extent, complementarity (bunkering).

In the case of ro-ro traffic, the Strait acts as a genuine intercontinental bridge between Europe and Africa. The figures speak for themselves. Traffic volumes have grown steadily over the past two decades and are set to exceed 500,000 vehicles (lorries and trailers) by 2025. The forecast is to reach 800,000 units by 2030. Spain is Morocco's largest trading partner, a leading position it has consolidated in recent years, according to data from the EU's statistical office, Eurostat, which shows that Spain accounts for 38 % of EU exports to Morocco and 40 % of imports.

The port of Algeciras plays a very important role in the new European Neighbourhood Policy, which is committed to strengthening trade and investment relations with the Southern Neighbourhood and Africa, establishing markets for growth and production, as well as serving as a key hub for the import of goods and services and for the integration of the value chain.

The relocation of value chains (nearshoring) places the Strait at the heart of the Europe-Morocco-West Africa regional supply chain.

- Morocco has developed a national project spearheaded by Tanger Med and Nador West Med, attracting investment and traffic that was previously handled by ports in the western Mediterranean in general, and in Algeciras in particular.
- Spain needs to respond with a strategic vision, coordinating shared economic interests and ensuring that the northern region is not left at a disadvantage.

The creation of a special economic zone (SEZ) in the Campo de Gibraltar is the key to turning this situation into an opportunity.

11 A Special Economic Zone (SEZ) for the Campo de Gibraltar

An SEZ is a designated area within a country that operates under a specific regime of tax, customs, regulatory and administrative incentives, distinct from that applicable in the rest of the country. Its aim is to attract foreign and domestic investment, promote exports, encourage innovation and create high-quality jobs.

There are various models (free zones, integrated industrial zones, free ports), but they all have the following in common:

- Tax and customs incentives (tax reductions, VAT or duty exemptions, administrative simplification);
- Advanced logistics infrastructure connected to global networks;
- An in-house management body that centralises administrative procedures and provides security for investors;
- Sector-specific focus, targeting strategic industries (logistics, energy, automotive, digital, etc.).

Successful examples can be found in Shenzhen (China), Tanger Med (Morocco) and in EU countries such as Poland, Lithuania and Latvia.

As noted, the Campo de Gibraltar region combines a unique geo-strategic location—in the Strait of Gibraltar, through which more than 130,000 ships pass each year—with significant socio-economic challenges:

- A structurally high unemployment rate, at around 25%, more than double the Spanish average;

- Per capita income is 16 % below the national average;
- Reliance on a small number of large industries and a significant informal economy;
- Direct competition with Tanger Med, which, thanks to its industrial development zones, is attracting businesses and investment that might otherwise have set up on the northern shore of the Strait.

The lack of an SEZ puts the Campo de Gibraltar at a competitive disadvantage compared to neighbouring regions, resulting in a loss of port traffic, industrial investment and employment opportunities.

The model for the Campo de Gibraltar would be based on:

- Geographical scope: it would cover the eight municipalities in the region, centred on the Bay of Algeciras;
- Tax incentives: reductions in corporation tax, exemptions from customs duties and VAT on logistics operations, recruitment incentives and investment grants;
- Administrative simplification: a digital one-stop shop for business and employment procedures;
- Priority sectors: port and digital logistics, renewable energy and green hydrogen, the automotive sector and components, advanced metallurgy and chemical industries, and the blue economy;
- Governance: a dedicated management body involving public-private partnership, coordinated with the Regional Government of Andalusia, the Spanish Government and the European Commission.

The roadmap would involve two phases:

Phase 1 – Approval:

- Proposal to be drawn up by local stakeholders and the Chamber of Commerce.
- Approval by the Regional Government of Andalusia and the Spanish Government.
- Submission and final approval by the European Commission (DG COMP).

Phase 2 – Implementation:

- Establishment of the managing authority.
- Introduction of tax and logistical incentives.
- Development of critical infrastructure (railway corridor, logistics hubs, digitalisation).

It is expected that the SEZ will be operational within three years of the process beginning.

The establishment of the Special Economic Zone in the Campo de Gibraltar would have a transformative economic and social impact:

- Attracting foreign direct investment (FDI) and domestic investment through high value-added industrial and logistics projects;
- Diversification of production, reducing reliance on a few sectors;
- The creation of stable, skilled jobs, with initial estimates suggesting thousands of new roles in the first decade;
- Increased competitiveness of the Port of Algeciras compared to Tanger Med and Nador West Med, and a reduction on reliance on Gibraltar for work opportunities;
- Improving incomes and social cohesion by reducing structural unemployment;
- The region's international profile enhancement as a logistics, energy and industrial hub in southern Europe.

The creation of an SEZ in the Campo de Gibraltar is a strategic and necessary step towards transforming the region into a hub for investment, innovation and employment, capitalising on its geostrategic position on the Strait and avoiding the risk of being sidelined in favour of the southern shore.

The SEZ would enable structural challenges to be turned into opportunities: attracting investment, creating quality jobs and establishing the Campo de Gibraltar as a key economic driver for Andalusia, Spain and Europe.

12 The military significance of the port of Algeciras in its surrounding area



Figure 2. The Battle of Algeciras as seen from Isla Verde Fort. Author: Augusto Ferrer-Dalmau. Algeciras Bay Port Authority

The port of Algeciras, situated on the northern shore of Algeciras Bay opposite the Rock of Gibraltar, is of strategic importance that goes far beyond its commercial role. This significance manifests itself across multiple dimensions—geographical, geopolitical, historical, technological and security-related—and shapes both its existence and its role in national and European defence.

12.1 Strategic geography and the militarisation of the local area

The Strait of Gibraltar is a vital passageway between the Atlantic and the Mediterranean, as well as between Europe and Africa. According to recent studies, this position makes the area a key chokepoint.

In this context, the port of Algeciras is situated on the northern bank of this strategic waterway, making it a natural bridgehead for any military or maritime security operations in the area. The distance between the ports of Ceuta and Algeciras is just sixteen nautical miles, and their ports link serves as a genuine intercontinental maritime bridge between Europe and Africa.

The area around the Strait is heavily militarised on the Gibraltar side, notably featuring its naval base and the maintenance and repair facility for nuclear submarines. The port call by HMS Tireless and other similar submarines has drawn criticism from residents across the Campo de Gibraltar region.

Further evidence of the Strait's importance from a military perspective was the construction in 2008 of the Ksar Sghir naval base, strategically located in the same area as the commercial port of Tanger Med and designed to protect Morocco's northern coastline.

12.2 Regional rivalries and rising military spending

In the southern part of the Strait, military pressure is a reality. In fact, according to World Bank data, Algeria spent 8.2% of its GDP on military expenditure in 2023, one of the highest rates in the world. At the same time, Morocco has increased its budget spending, reaching 3.6%, according to the World Bank.

In this regard, and whilst exercising due caution, it should not be forgotten that the Kingdom of Morocco is involved in various territorial disputes with Spain. For half a century, ever since Spain withdrew from Western Sahara in 1976, this issue has been a constant factor shaping bilateral relations. Very recently, on 31 October 2025, the UN Security Council adopted Resolution 2797 by a vote of eleven in favour, none against and three abstentions—Algeria, an ally of the Polisario Front, abstained. It urges the parties to enter into negotiations 'on the basis of Morocco's autonomy proposal, with a view to reaching a definitive and mutually acceptable political solution that guarantees the self-determination of the people of Western Sahara'.

Certain demarcations regarding the waters of the Canary Islands, as well as the Spanish sovereignty over Ceuta and Melilla, the Rock of Gibraltar and the Chafarinas Islands, are territorial issues that also underpin bilateral relations and friendly, good-neighbourly ties.

12.3 A legacy of active defence

The strategic importance of the area is nothing new: on Isla Verde, opposite Algeciras, the Isla Verde Fort was built in the 18th century to control maritime access to the bay. In fact, even during

the Muslim period, the area served as a naval outpost. This continuity demonstrates that the port of Algeciras and its anchorages were established and developed with a strong defensive focus.

The naval battle of Algeciras in 1801 is a clear example of this. The French squadron under the Count of Linois, supported by the forts at Isla Verde and Santiago and the division of Spanish gunboats based at the Algeciras station and under the command of Captain Lodares, repelled the British attack led by the 1st Baron Saumarez in Algeciras Bay. These forts formed part of the system of fortifications that protected both the Strait and the Bay of Algeciras. This system included El Tolmo, San Diego, Punta Carnero, San García, Isla Verde, Santiago and the Torrealmirante battery. According to Carlos Gómez de Avellaneda, the official chronicler of Algeciras, the Franco-Spanish victory was a tactical success, but not a strategic one, as it did not alter the overall course of that war; nevertheless, Algeciras became a landmark in general maritime history, its name being known throughout the Western world for this reason.

The geopolitical importance of the region is equally evident in contemporary history through numerous events and circumstances which, such as the 1906 Algeciras Conference, laid the foundations for international events and alliances that shaped the course of the 20th century.

12.4 A new landscape of hybrid and cyber threats

In today's world, threats no longer come solely from surface vessels or conventional submarines. Control of the seabed has become a strategic asset: fibre-optic cables, gas pipelines, power lines and underwater sensors form the backbone of the new hybrid warfare. Between Spain and Africa—along the Strait—there is precisely such a network of critical infrastructure, which requires constant monitoring (Giersiepen García, 2024).

In this regard, the port of Algeciras, thanks to its location, infrastructure and maritime connectivity (and rail potential), lies at the heart of this extended defence system.

12.5 Land connectivity and integrated military logistics

The port's military significance is further enhanced when one considers its logistical role: with a suitable rail link, it could be

directly integrated with the Army's future logistics base (BLET) in Córdoba, becoming a key link between Europe, the African coast (the Autonomous Cities of Ceuta and Melilla) and ground forces. This would strengthen its role as a hub for mass mobility and logistics support, both for defence contingencies and for NATO or EU operations.

Against this backdrop of regional rearmament, the port of Algeciras is not merely a commercial port: it is set to become a strategic hub for Spain, the EU and NATO, from which to monitor, operate or respond to emerging challenges of all kinds.

According to the INCIPE Foundation, the threats facing Europe are many and varied, such as those originating in the Sahel: jihadist terrorism, organised crime and mass migration, exacerbated by poverty, climate change and political instability, presenting a humanitarian and governance challenge for European countries.

12.6 The interdependence between ports and defence, and strategic recommendations

1. Strengthening the port as a dual-purpose facility: maintaining its core commercial function, whilst enhancing its capacity to handle military logistics, troop movements, supplies and fleet maintenance.
2. Improvements to road and rail links in particular: a direct rail link to the Army's logistics base (BLET) and to the Trans-European Transport Network (TEN-T) to strengthen military logistics integration. The port of Algeciras is the southern terminus of two of the nine priority European corridors: the Atlantic and the Mediterranean. The central section of both corridors runs through the port, making it a dual priority. In fact, the Isla Verde Exterior rail-port terminal marks the starting point of both corridors.
3. Seabed surveillance: investing in sensors and patrols to protect submarine cables, pipelines and nodes in cooperation with allied countries.
4. Civil-military coordination: ensuring that port operations and development incorporate criteria relating to national security, resilience and contingency planning (including nuclear or sabotage scenarios).

5. Public communication and local credibility: in the wake of incidents such as those involving the submarine Tireless, it is important to explain to the public the strategic role of the port and the Strait itself, and to have emergency plans in place that are tailored to the local environment.

In short, Algeciras Bay, the Port of Algeciras and its surrounding logistics areas should be regarded as one of the strategic military hubs of southern Europe: due to its commercial traffic, its status as an energy hub (the leading port for supplying fuel to ships in the Mediterranean and home to a refinery, industrial and chemical complex in the bay), its geographical position, its infrastructure, its historical defence context and its growing role in 21st century hybrid and technological security. Strengthening it is not an option, but a strategic imperative to ensure Spain's sovereignty, mobility and preparedness in an increasingly complex and competitive environment that demands a clear and well-defined national vision.

13 Conclusion: a government policy for the Strait

The Strait of Gibraltar is a strategic asset that is unique in the world: the world's second-busiest shipping route by volume, a bridge between continents and the epicentre of significant geopolitical tensions.

Establishing a national policy for the Strait—with the port of Algeciras as the main instrument and the EEZ as the driving force behind economic transformation—is an urgent matter that cannot be put off.

Can Spain and the EU itself afford to lose their active role and leadership in the Strait of Gibraltar?

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List of acronyms

A2/AD	Anti-Acceso /Denegación de Área
AFIR	*Alternative Fuels Infrastructure Regulation (EU)*
AIE	Agencia Internacional de la Energía
AJEMA	Almirante Jefe de Estado Mayor de la Armada
ALMART	Almirante de Acción Marítima
AUV	Autonomous Underwater Vehicle
AWNIS:	*Allied Worldwide Navigation Warning System*. Sistema Aliado Mundial de Avisos a los Navegantes
BEST	*Barcelona European South Terminal*
BID	Banco Interamericano de Desarrollo
BRI	*Belt and Road Initiative*. Iniciativa de la Franja y la Ruta
BOE	Boletín Oficial del Estado
CCNN	Comandancias Navales
CEE	Comunidad Económica Europea

CER	*Critical Entities Resilience (EU Directive)*
CIMIC	Civil-Military Cooperation
CISE:	*Common Information Sharing Environment.* Entorno Común de compartición de Información
CMA CGM	*Compagnie Maritime d'Affrètement - Compagnie Générale Maritime*
CMF	*Combined Maritime Forces*. Fuerzas Marítimas Combinadas
CMP	*Coordinated Maritime Presences*. Presencias Marítimas Coordinadas
CNPIC	Centro Nacional para la Protección de las Infraestructuras Críticas
CNSM	Consejo Nacional de Seguridad Marítima
COVAM	Centro de Operaciones y Vigilancia de Acción Marítima
COSCO	*China Ocean Shipping Company*
CPTIRG	Comisión Permanente del Tramo Internacional del Río Guadiana
CSI	*U.S. Customs Container Security Initiative.* Iniciativa de seguridad de contenedores de Aduanas de EE. UU.
CSN	Consejo de Seguridad Nacional
DNE	*Deployable NCAGS Element*. Elemento NCAGS destacado
ECI	*European Critical Infrastructures*
EDA	*European Defence Agency*. Agencia Europea de Defensa
EMAD	Estado Mayor de la Defensa
EMSA	*European Maritime Safety Agency.* Agencia Europea de Seguridad Marítima
ENCOMAR	Entorno de Colaboración Marítima
ENISA	*European Union Agency for Cybersecurity.* Agencia de la UE para la Ciberseguridad

ENSM	Estrategia Nacional de Seguridad Marítima Española
EOD	*Explosive Ordance Disposal.* Desactivación de Explosivos
ESN	Estrategia de Seguridad Nacional
ETS (EU)	*EU Emission Trade System*. Sistema de Comercio de Emisiones
EU ETS	*European Union Emissions Trading System*
EU MSS	*European Union Maritime Security Strategy*
FAM	Fuerza de Acción Marítima
FCSE	Fuerzas y Cuerpos de Seguridad del Estado
FLOTEX	Ejercicios de la Flota
FMCM	Fuerza de Medidas Contra Minas
GEDE	Grupos Especialistas de Desactivado de Explosivos
GEI	Gases de Efecto Invernadero
GNL	Gas Natural Licuado
GoG	*Gulf of Guinea*. Golfo de Guinea
HNS	Host Nation Support
HRSAFD	*Hellenic Republic Asset Development Fund.* Fondo para el desarrollo de activos de la República Helénica
IA	Inteligencia Artificial
IFC	*Internacional Fusion Center*. Centro de Fusión de Información
IFC-IOR	*Information Fusion Center Indian Ocean Region*. Centro de Fusión de Información para el Océano Indico
IFC-LA	*Information Fusion Center Latin America*. Centro de Fusión de Información para Latino América
IMO	*Internacional Maritime Organizacion*. Organización Maritima Internacional (OMI)

INCIBE	Instituto Nacional de Ciberseguridad
JICA	*Japan International Cooperation Agency*. Agencia internacional de cooperación de Japón
IORIS	*Indo-Pacific Regional Information Sharing Platform*. Plataforma para la compartición de información de la región Indico-Pacífico
ISPS	*International Ship and Port Facility Security Code.* PBIP, Código Internacional para la Protección de los Buques y de las Instalaciones Portuarias
LCSI	*Liner Shipping Connectivity Index*. Índice de Conectividad de lkas Líneas de Transporte Marítimo
LNG	*Liquefied natural gas*. Gas natural licuado
LoLo	*Lift on - Lift off, loading and unloading by crane*. Carga y descarga de mercancías con grúa (por elevación)
LOPJ	Ley Orgánica del Poder Judicial
LRIT	*Long-Range Identification and Tracking* system. Sistema de identificación de largo alcance
MARSEC	*Maritime Security* (Ejercicios de Seguridad Marítima de la FAM)
MDA	*Maritime Domain Awareness*. Conocimiento del entorno marítimo (CEM)
MDAT-GoG	*Maritime Domain Awareness for Trade – Gulf of Guinea*. Conocimiento del Entorno Maritimo para el Comercio en el Golfo de Guinea
MICA-CENTRE	*Maritime Informacion, Cooperation and Awareness.* Información, Cooperación y Conocimiento
MITMA	Ministerio de Transportes, Movilidad y Agenda Urbana
MOC	*Maritime Operations Center*. Centro de Operaciones Marítimas
MOM	Mando Operativo Marítimo
MOPS	Mando de Operaciones

MSC	Mediterranean Shipping Company
MSCIO	*Maritime Security Center Indian Ocean*. Centro de Seguridad Marítima del Océano Indico
MSCHOA	*Maritime Security Center Horn of Africa.* Centro de Seguridad Marítima para el Cuerno de África
MSA	Maritime Situation Awareness
MSO	*Maritime Security Operations*. Operaciones de Seguridad Marítima. Referido al ámbito nacional
MTEU	*Million TEUs.* Millones de TEUs
NCAGS	*Naval Cooperation and Guidance for Shipping*. Sistema de Cooperación y Guía al Tráfico Mercante
OMI/IMO	Organización Marítima Internacional. *International Maritime Organization*
OTAN	Organización del Tratado del Atlántico Norte
PESCO	*Permanent Structured Cooperation*. Cooperación Estructurada Permanente
PCS	*Port Community Systems*
PFC	*Pacific Fusion Centre*. Centro de Fusión del Pacífico
PIANC	*World Association for Waterborne Transport Infrastructure*. Asociación mundial para la infraestructura del transporte marítimo y fluvial
PSI	*Proliferation Security Initiative*. Iniciativa de Seguridad de Proliferación
QDR	*Quadrennial Defense Review*
RMP	*Recognized Maritime Picture*
RoRo	*Roll on - Roll off, maritime transport for direct loading/unloading of wheeled cargo.* Carga y descarga de buques por rodadura
ROV	*Remotely Operated Vehicle*
TEN-T	Redes Transeuropeas de Transporte. *Trans-European Transport Network*

TEU	Contenedor: Unidad equivalente de 20 pies. *Container: Twenty-foot Equivalent Unit*
UNCLOS	*United Nations Convention on the Law of the Sea.* Convención de Naciones Unidas sobre el Derecho del Mar
SASEMAR	Sociedad de Salvamento y Seguridad Marítima
SIVICEMAR	Sistema Integrado de Vigilancia y Conocimiento del Entorno Marítimo
SOLAS	*International Convention for Safety of Life at Sea.* Convenio internacional para la seguridad de la vida humana en el mar
SPIC	Sistema de Protección de las Infraestructuras Críticas
SUA	*Suppression of Unlawful Acts*. Supresión de actos ilícitos. Referido al Convenio SUA y Protocolo SUA
TIRG	Tramo Internacional del Río Guadiana
UAV	*Unmaned Aerial Vehicle*. Vehículo aéreo no tripulado
UROV	Vehículos submarinos de operación remota. *Underwater Remotely Operated Vehicles*
USV	Vehículos marítimos de superficie no tripulados. *Unmanned Surface Vehicles*
UUBB	Unidades de Buceo
UBMCM	Unidad de Buceadores de Medidas Contra Minas
UE	*European Union*. Union Europea
UKMTO	*UK Maritime Trade Operations*
UNCLOS	United Nations Convention on the Law of the Sea
UNCTAD	Conferencia de las Naciones Unidas para el Comercio y el Desarrollo (Hoy ONU - Comercio y Desarrollo). *United Nations Conference on Trade and Development (today UN - Trade and Development)*

UKMTO	*United Kingdom Maritime Trade Operation.* Centro de Operaciones de Comercio Marítimo del Reino Unido
URSS	Unión de Repúblicas Socialistas Soviéticas
V-RMTC	*Virtual Regional Maritime Traffic Centre.* Centro Virtual Regional de Tráfico Marítimo
YARIS	*Younde Architecture Regional Information Sharing.* Compartición de información regional de la arquitectura de Yaundé

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SUBDIRECCIÓN GENERAL DE PUBLICACIONES Y PATRIMONIO CULTURAL