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SMM

SMM 2024

ALWAYS ONE STEP AHEAD

Source: HMC / Michael Zapf

With 2000 exhibitors from 70 countries, and aiming to welcome 40,000 professional visitors, the new edition of SMM, the major international shipbuilding exhibition held biennially in Hamburg, is already more ambitious than ever. But beyond the event's impressive numbers, SMM's value also lies in consistently staying ahead in analysing trends, challenges, and opportunities in a sector undergoing transformation. For 2024, key themes include new fuels, artificial intelligence, and the importance of attracting talent to the industry, showcased by new pavilions and thematic areas such as the "Future Fuel Area," the "AI Center," and the "Maritime Career Market."

Industrias Pesqueras joins the conversation with this special issue, highlighting once again Spanish industry's commitment to innovation and technology, particularly in oceanographic research vessels. In the following pages, we explore why shipyards in the Vigo estuary have become leaders in this segment, with companies like Armón and Freire leading the way, along with insights into ongoing construction projects at yards such as Nodosa, Cardama, Gondán, Zamakona and Murueta. With support from Spanish clusters Aclunaga, Asime, Foro Marítimo Vasco and Soermar, we also analyse Spain's international strategies.

Furthermore, we delve into the latest developments from some of the 61 Spanish companies participating in SMM this year. Companies like Ibercisa Deck Machinery, AAGE Hempel, Frizonia, Gabadi, Gefico, Grupo Emenasa, Peter Taboada, Silecmar, and Solé Advance are highlighted in the following pages.

Arsenio Domínguez, Secretary-General of the IMO, discusses the challenge of maritime decarbonisation in the featured interview of the month. Additionally, we explore the sector's need for a European industrial strategy with Christophe Tytgat, Secretary-General of SEA Europe, while Isabelle Ryckbost, Director of ESPO (European Sea Ports Organisation), explains the role of ports in the maritime economy transition. Finally, Claus Ulrich Selbach, Business Unit Director – Maritime and Technology Fairs at Hamburg Messe und Congress, explains why this is the most significant SMM yet.

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Claus Ulrich Selbach, Business Unit Director – Maritime and Technology Fairs at Hamburg Messe und Congress

"CLIMATE NEUTRALITY, DIGITAL CHANGES, RECRUITMENT OF YOUNG TALENT OR UNCERTAIN SUPPLY CHAINS: THE MARITIME INDUSTRY IS EXPERIENCING EXTREMELY CHALLENGING TIMES"

The figures, the chosen topics, the new areas, and the proposal for high-level conferences—all confirm that SMM 2024 is the most important international maritime industry fair. The event in Hamburg, true to its biennial schedule, will bring together more than 2,000 exhibitors from 70 countries and expects to attract the interest of over 40,000 professional visitors. New fuels, artificial intelligence, and the importance of attracting talent to the industry will be some of the key topics of the year. "We are the undisputed leading maritime trade fair in the world. The high quality of exhibitors across the entire value chain makes SMM unique," explains Claus Ulrich Selbach, Business Unit Director – Maritime and Technology Fairs at Hamburg Messe und Congress, who shares the key data for this edition with IP.

What are the key topics of the 2024 edition of SMM? What are we going to find in Hamburg and what new things are planned?
SMM will once again make Hamburg the central meeting place for maritime innovations and intensive networking this September. Our focus for 2024 is clearly on the decarbonisation and digitalisation of shipping. One significant innovation is that the previously fee-based conferences will, for the first time, take place on freely accessible Transition Stages in the exhibition halls. These open stages offer free access to high-calibre discussions and presentations to all participants. Another highlight is the "Future Fuels Area", where the potential applications of hydrogen and its derivatives in shipping will be presented. In the "AI Center", start-ups will showcase the pioneering solutions that artificial intelligence can offer the maritime industry.

SMM is a mandatory meeting point for the global shipbuilding sector every two years. What is the global situation of the industry and what challenges and opportunities does it face?
Climate neutrality by 2050, dynamic digital changes, the recruitment of young talent, and uncertain global supply chains: the maritime industry is experiencing extremely challenging times. The whole sector can only master the maritime transformation through close cooperation, especially in the development of green technologies and intelligent, networked ships. With SMM, we are creating the ideal platform for shipowners, suppliers, and shipyards. It provides them with a comprehensive overview of current trends, technological advances, and market dynamics.

Regarding decarbonisation, there is unanimity that it is a great challenge for the industry given the disparity of alternatives and the lack of mature solutions, but also a great opportunity. What future do you see for the industry?
Decarbonisation offers a historic opportunity to play a pioneering role in the global fight

against climate change. The decisive factor here will be making alternative fuels available in sufficient quantities and creating the corresponding infrastructure, for example, for green hydrogen, methanol, and ammonia. Wind power is also picking up speed, which applies to retrofit measures that reduce fuel consumption and thus increase efficiency.

Technology and digitalisation have been part of shipbuilding for years, but how could the expansion of AI improve shipbuilding processes?
Primarily by making design and production more efficient and enabling predictive maintenance. AI algorithms analyse large amounts of data to develop better designs and automate production, reducing errors and increasing efficiency. AI can also predict failures, thereby extending the service life of ship components.

SMM 2024 will have new spaces focused on attracting talent. What are the needs of the industry in terms of employment and what challenges does the lack of vocations to work in the industry pose?
The shortage of skilled labour affects all European markets. The "Maritime Career Market" and the "Career Forum" aim to address this problem by connecting young talent with industry leaders, showcasing exciting career opportunities and presenting the industry as innovative and future oriented. Sustainability is particularly important to young people. At the "Maritime Career Market", companies can demonstrate that the maritime industry has a lot of 'purpose' to offer with its green transformation.

SMM brings together the world's leading global manufacturers, including those that are direct competitors for the European industry such as China or Korea. What trends are you observing, from the point of view of the SMM organisation, in relation to how the activity is balanced between different countries and regions?
Without increasing cooperation across borders, the industry will not be able to achieve its goals. While the technology leaders on the supplier side are mainly from Europe, Asian countries such as China, Korea, and Japan are leading the way in shipbuilding. Cooperation between these countries is important for shipping companies worldwide so they can meet the major technological challenges of fleet renewal and refurbishment in a customised, timely, and cost-effective manner.

Finally, what could you tell us about the Spanish representation in 2024?

Spain is strongly represented at SMM with 61 companies and a 530-square-metre national pavilion, an increase of twelve percent compared to SMM 2022. Spanish exhibitors, such as wind specialists Bound4Blue, seal manufacturer Hawke, and the Galician metal industry association ASIME, will demonstrate their expertise in advanced ship design, sustainable technologies, and integrated maritime solutions. Their participation underlines Spain's commitment to contributing to global maritime progress and utilising the opportunities at SMM to expand its international reach and influence.

The key topics of the edition

WHAT WILL BE TALKED ABOUT AT SMM 2024?

GREEN TRANSITION: THE FUTURE FUEL AREA

The international maritime industry has begun a race against time whose goal is neutral emissions. Although the ultimate goal is clear, the challenge remains how to provide sufficient quantities of alternative fuels, such as green hydrogen, methanol or ammonia, while creating the necessary distribution infrastructure. Companies specialised in these clean technologies and their derivatives will present the latest market developments in the "Future Fuel Area", Hall 2.

A REVOLUTION UNDERWAY: IA

Seeing the rapidly growing importance of smart innovations, SMM has created a section specifically dedicated to Artificial Intelligence for the first time. At the AI Center (Hall B6), start-up companies will highlight AI-based technologies and projects for the maritime industry.

NEW TALENT: JOINING EFFORTS WITH THE INDUSTRY

The lack of young talent is one of the imminent challenges facing the maritime sector. In this sense, and to support the sector's hiring efforts, SMM 2024 launches the "Maritime Career Market", a new professional platform that combines training and job offers with networking events. In addition, young talents will be able to acquire practical knowledge about the professional maritime world in a new edition of the Career Forum.

Grupo Armón, Freire Shipyard and the auxiliary industry of Vigo position the Spanish industry as an international benchmark in the sector, with seven ships currently under construction.

OCEANOGRAPHIC VESSELS AND VIGO: A HISTORY OF LEADERSHIP

▲"David Packard", research vessel built at Freire Shipyard.

▲"Odón de Buen", research vessel built at Armon Shipyards.

IN LITTLE MORE THAN A DECADE, SPAIN HAS BECOME AN INTERNATIONAL BENCHMARK IN THE CONSTRUCTION OF STATE-OF-THE-ART OCEANOGRAPHIC VESSELS THANKS TO THE STRENGTH OF TWO LEADING SHIPYARDS, FREIRE SHIPYARD AND ARMÓN VIGO, LOCATED IN THE HEART OF THE VIGO ESTUARY, AND A PIONEERING AUXILIARY INDUSTRY THAT HAS RISEN TO THE CHALLENGE. SINCE 2006, BOTH SHIPYARDS HAVE DEVELOPED 26 OCEANOGRAPHIC VESSELS FOR PRIVATE AND PUBLIC RESEARCH ORGANISATIONS ACROSS FOUR CONTINENTS, SEVEN OF WHICH ARE CURRENTLY UNDER CONSTRUCTION. THE LIST IS LIKELY TO CONTINUE GROWING IN THE COMING MONTHS. WE ANALYSE THE KEY FACTORS BEHIND THIS PHENOMENON AS WELL AS THE CURRENT ORDER BOOKS OF THE MAIN SPANISH SHIPYARDS: NODOSA SHIPYARD, CARDAMA SHIPYARD, ZAMAKONA YARDS, GONDÁN SHIPBUILDERS, AND MURUETA.

In 2006, Freire Shipyard - the historic Vigo shipyard with nearly 130 years of activity - was commissioned to build the new 70.5-metre global multidisciplinary research vessel for the CSIC, the Spanish National Research Council. Named "Sarmiento de Gamboa," this project marked the beginning of a transformation period for the Spanish naval industry as it focused on specialising in state-of-the-art oceanographic vessels with high added value in terms of technology, innovation, and construction quality. The definitive turning point occurred in the second half of the 2010s, when Grupo Armón, through its facilities in Vigo, joined the race with the experience gained from the "Ramón Margalef" (2011) and "Ángeles Alvariño" (2012) for Spain's IEO.

Since then, both shipyards have maintained a fierce competition in the oceanographic segment, which has been key to positioning Spain as an international leader alongside Russia. Between them, with 13 vessels each, they have a cumulative record of constructing 26 oceanographic ships, seven of which are currently under development. Freire and Armón maintain a healthy rivalry, as their activities are complementary, and although they compete for new contracts, they are allies in consolidating the international image of the Spanish naval industry in this segment. Additionally, the successes of each shipyard enrich the Spanish sector as a whole and drive the development of an auxiliary industry that, thanks to the oceanographic market, has also strengthened its competitiveness and innovation.

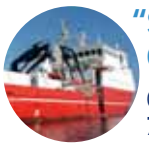
"It's not easy to pinpoint a single key factor; it's been a combination of things," explains Luis Santos, Production & Project Manager at Freire Shipyard, when asked how Spain has positioned itself in this market. "There was a turning point with the 'Sarmiento de Gamboa,' a vessel highly regarded in the scientific world, which coincided with a period when the offshore sector began to grow, with

many ships being built here in Vigo," he explains. The similarities between both types of vessels were crucial in attracting more oceanographic ships to the city's shipyards. Additionally, one must consider the city's fishing history, with ship owning and auxiliary companies specialised in supplying machinery and equipment for the fishing fleet, a segment closely linked to oceanographic vessels, Santos notes.

"The reality is that nowhere else in the world, whether in terms of countries or technology, is there anything comparable to what is being done here in Vigo. And it's not just about the shipyards, but the entire auxiliary industry that surrounds us," highlights Santiago Martín, director of Armón Vigo and Astilleros Ría de Vigo, the two production units of Grupo Armón in the southern Galician city. The two Armón shipyards in Vigo currently have six oceanographic vessels at various stages of construction.

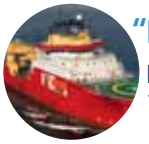
As we went to press, the "Kaharoa II" (36.10 metres) for New Zealand's National Institute of Water and Atmospheric Research (NIWA) had just been delivered. Already in the water is the "Borunn Bordardottir" (69.80 metres) for Iceland's Marine and Freshwater Research Institute (MFRI), with delivery scheduled for November 2025. A 45.95-metre research vessel commissioned by the Regional Government of the Azores (Portugal) is also set to be completed within the same timeframe. In the autumn of next year, the "Anna Weber-Van Bosse" (almost 80 metres) will be delivered to the Royal Netherlands Institute for Sea Research (NIOZ), prepared for future methanol propulsion. The latest addition to the list of references is an order from Northern Ireland's Agri-Food & Biosciences Institute (AFBI), which will be an updated twin of the "Tom Crean" that Armón Vigo built for Ireland's Marine Institute in 2022. There are prospects for new contracts in the short term, notes Santiago Martín. "We are keeping an eye on them," he

FREIRE'S OCEANOGRAPHIC VESSELS



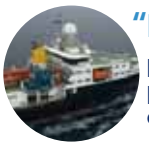
"Sarmiento de Gamboa" (2006)
CSIC, Spain
70.50 m

"Volstad Surveyor" (2010)
Volstad Shipping AS, Norway
85.30 m



"Polar King" (2010)
Rieber Shipping, Norway
110.00 m

"Janan RV" (2011)
Qatar university, Qatar
42.80 m

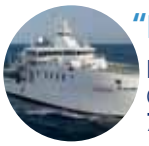


"R.R.S. Discovery" (2013)
Natural Environment Research Council, UK
99.70 m

"B.A.P. Carrasco" (2017)
Marina de Guerra del Perú
95.30 m

"Taqnia" (2017)
Taqnia Cyber, Saudi Arabia
43.20 m

"Almostakshif" (2019)
KISR (Kuwait Institute for Scientific Research), Kuwait
55.58 m



"RV Belgica" (2021)
Défense (Belgian Ministry of Defence), Belgium
71.40 m

"Jaywun" (2022)
Environment Agency-Abu Dhabi, UAE
47.10 m

"Falkor (too)" (2023)
Schmidt Ocean Institute, USA
110.60 m

"RV David Packard" (2024)
Monterey Bay Aquarium Research Institute (MBARI), USA
49.99 m

"C-735" (2025)
Ifremer, Institut Français de Recherche pour l'Exploitation de la Mer, France
40.30 m

"The reality is that nowhere else in the world, whether in terms of countries or technology, is there anything comparable to what is being done here in Vigo"

Santiago Martín
Armon Shipyards

says, acknowledging that the shipyard is participating in various international tenders.

However, the highlight in terms of oceanographic vessels in Armón's order book is the "Odón de Buen" for the Spanish Institute of Oceanography (IEO), a 100% Armón project that marks a new turning point for the shipyard and will be delivered at the end of this month, September. "It represents a qualitative and technological leap for us, and I believe there is great interest in the international scientific community. We can say that, more or less, it's a next generation vessel," points out the general director of Armón shipyards in Vigo. The vessel, measuring 84.30 metres and equipped with dual diesel-LNG propulsion, "is a key project for us, as it's our own product and we believe it will be a very significant reference," explains Martín.

Meanwhile, Freire Shipyard has just delivered the "RV David Packard" to the Monterey Bay Aquarium Research Institute (MBARI) in the United States. The vessel, with a length of 49.99 meters, can reach a speed of 12 knots and stands out for its capability to deploy and operate equipment such as ROVs (Remotely Operated Vehicles) and a deployable stabiliser system to reduce roll motion during both navigation and Dynamic Positioning operations.

In an earlier stage of development is the oceanographic vessel awarded by the French National Institute for Ocean Science (Ifremer), with delivery planned for 2025. It will have a total length of 40.30 meters and reduced draft. The vessel will be equipped to conduct various oceanographic disciplines in

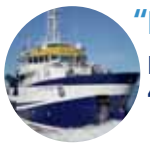
the coastal areas of the Atlantic. This oceanographic research vessel stands out for its wide range of energy-saving technologies and low-consumption solutions implemented, such as a diesel-electric propulsion system that combines three main variable-speed generators capable of operating with biodiesel.

A PROMISING FUTURE, WITH CHALLENGES TO OVERCOME

"We are talking about ships with a very high level of technology, which will allow us to enter into any type of business and is key to competing in the global market," explains Ricardo Martín from Armón, regarding the future prospects of this segment. "Even though it's a highly global market, we don't face competition from China or Asia in general because these are highly technological vessels," notes Luis Santos from Freire, emphasising the opportunities, particularly from the United States. "They are looking towards us," he acknowledges. The success of the "RV David Packard" for MBARI, where the shipowners drove legislative changes to unlock restrictions that required such vessels to be built domestically in the United States, allowing Freire to win the project, sets another significant precedent for Vigo's future. The accumulated experience and reputation of the auxiliary industry collaborating with both shipyards ultimately serve as a definitive endorsement. With more ships built, there are greater chances of securing international tenders. "In the end, the circle narrows. All of these factors add up to guarantees," Santos concludes.
In addition, Santiago Martín emphasises the strategic importance of closing

> "Even though it's a highly global market, we don't face competition from China or Asia in general because these are highly technological vessels"
>
> **Luis Santos**
> Freire Shipyard

ARMON'S OCEANOGRAPHIC VESSELS



"Ramón Margalef" (2011)
Instituto Español de Oceanografía (IEO), Spain
46.00 m

"Ángeles Alvariño" (2012)
Instituto Español de Oceanografía (IEO), Spain
46.00 m

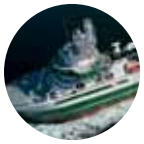
"BIPO" (2014)
Instituto Nacional de Pesca y Acuacultura (Inapesca), Mexico.
58.65 m

"ARC Roncador" (2016)
Colaboración con Cotecmar (Colombia), Dirección General Marítima de Colombia
45.90 m

"Víctor Angelescu" (2017)
Instituto Nacional de Investigación y Desarrollo Pesquero (Inidep), Argentina
52.90 m

"Svea" (2019)
Swedish University of Agricultural Sciences SLU, Sweden
69.50 m

"Mar Argentino
Instituto Nacional de Investigación y Desarrollo Pesquero (Inidep), Argentina
36.00 m



"Tom Crean" (2022)
Marine Institute, Ireland
52.80 m

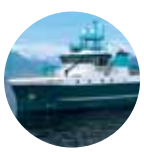
"Kaharoa II" (2024)
National Institute of Water and Atmospheric Research (NIWA), New Zealand
36.10 m

"Odón de Buen" (2024)
Instituto Español de Oceanografía (IEO), Spain
84.30 m

"Borunn Bordardottir"
(under construction)
Marine and Freshwater Research Institute (MFRI), Iceland
69.80 m

"Anna Weber-Van Bosse"
(under construction)
Royal Netherlands Institute for Sea Research (NIOZ)
79.97 m

"V149"
(under construction)
Autonomous Region of the Azores, Portugal
45.95 m



Under construction
Agri-Food and Biosciences Institute (ABFI), Northern Ireland
52.80 m

the circle of projects directly from the shipyard. That is, "having control over engineering is crucial because it provides us with knowledge and helps convince shipowners that we not only build but also design. It's fundamental," asserts the director of Armón Vigo. Despite the strengths of the industry, he does not hide his concern about the challenge posed by the shortage of professionals in the sector. "The competition in Europe is small, and people want to build here again. Therefore, if we can maintain our workforce and have the capacity to meet the demands of our clients, we will be able to endure even though our competitors in Asia are much cheaper," Martín points out.

Luis Santos from Freire believes that addressing the challenges posed by fleet decarbonisation is another open front for Spanish shipyards. "Regardless of the uncertainty about the future fuel, we must not fall behind. We need to continue innovating and being bold," he explains, emphasising that oceanographic vessels should be leading ships, compelled to stay one step ahead in achieving zero emissions goals.

BUILDING A BRAND BY COMPETITION

The competition between Grupo Armón and Freire Shipyard has raised the standards of the Spanish shipbuilding industry, particularly in the field of oceanographic vessels. Both shipyards acknowledge the presence of competition but emphasise that beyond rivalry, their common goal is to establish a distinct brand for marine research vessels built in Spain, specifically in Vigo. "We are two shipyards that have grown, creating a collective strength through synergies," explains Luis Santos. "The fact that Freire competes with us ensures that the entire auxiliary industry is well-prepared, both for us and for them. Clients who come to visit either of our shipyards know they will find capability here—it's not just about the ships we build, but also about what our competitors produce."

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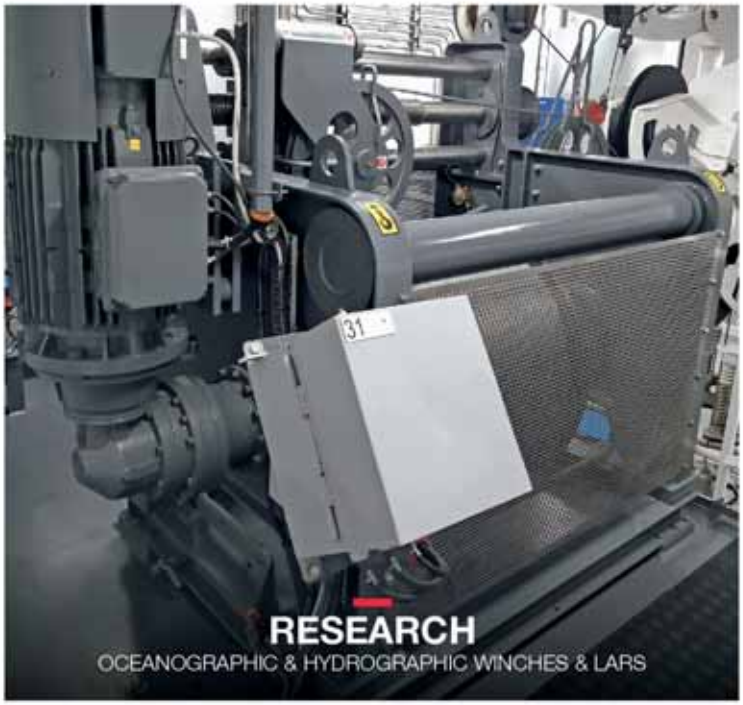

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HARBOUR TUG I ESCORT TUG (RENDER & RECOVERY) WINCHES

CIVIL
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Activity at Nodosa, Cardama, Gondán, Murueta, and Zamakona

BEYOND OCEANOGRAPHIC VESSELS: ANALYSIS OF THE ORDER BOOKS OF SPANISH SHIPYARDS

NODOSA SHIPYARD

Nodosa, based in Marín (Pontevedra), continues to enhance its reputation as a leading shipyard in renewing the fleet of joint ventures involving Spanish companies in the Falkland Islands. The Marín shipyard is advancing in the construction of two new freezer trawlers set to debut in the Southwest Atlantic fishing grounds during the first squid season of 2025: namely, "Prion" for the joint venture involving Pescapuerta, and "Argos Berbés" for Grupo Pereira, both returning to Nodosa after the success of "Falcon" and "Argos Cíes," respectively. Both vessels (hulls 305 and 306 of the shipyard) will be delivered before the end of the year. As Nodosa enters the final construction phase of both vessels, it has commenced work on the "Voyager", a 79-meter trawler for Talley's Limited of New Zealand, showcasing the level of internationalisation achieved by the Marin shipyard.

CARDAMA SHIPYARD

The Vigo-based shipyard is awaiting the activation of a contract with the Australian Pelamis Group for the construction of two longliners, each measuring 68.5 metres in length and 1500 GT, intended for tuna fishing. These vessels will be powered by a diesel-electric propulsion system, driving two fixed-pitch propeller shaft lines. Additionally, Cardama has several pending contracts, including two offshore patrol vessels (OPVs) for the National Navy of Uruguay, awarded to Cardama by the Uruguayan Ministry of Defence. These patrol vessels, intended for fisheries control and surveillance, were signed last December for €82.3 million. The twin vessels will measure 86.75 metres in length, 12.20 metres in beam, and have a draft of 3.60 metres.

ZAMAKONA

The Basque shipyard, with facilities in Bilbao and Pasaia, recently announced two new vessels for fish feed transportation for the Norwegian shipping company Eidsvaag AS. These ships, to be delivered in 2026, will feature diesel-electric propulsion systems with large battery packs (860 kW) and dual-fuel engines capable of running on biodiesel if required. Designed by Kongsberg Marine, the units will be 71.10 meters in length and 17.60 meters in beam. They will achieve speeds of up to 13.5 knots and have a cargo capacity of 2000 metric tons.

MURUETA

Murueta Shipyard, located in Udaibai (Biscay), is making progress on the construction of a new shrimp freezer trawler for the Greenlandic shipowner Royal Greenland, a company owned by the Government of Greenland. This vessel, designated as hull number 329 at the shipyard, will be the fifth unit built for the same shipowner group. It is designed with a high degree of sustainability, significantly contributing to reducing environmental footprint while providing superior safety and comfort standards for the crew on board. Furthermore, the shipyard is progressing with the fleet renewal project for the business pool MAAS (Murueta Atlantico Alcudia Shipping), based in Bilbao and comprised of Naviera Murueta, Transportes Marítimos Alcudia, and Urola Shipping. This order consists of five units, with two already completed.

GONDAN

Gondan Shipbuilders is advancing in its strategic partnership with Norwegian Edda Wind for the construction of Commissioning Service Operation Vessels (CSOVs) for offshore wind farms. Before this issue went to press, Gondan was simultaneously working on the last three units of a total order of six CSOVs. Besides, shipyard announced the construction of the world's first electric Support Operation Vessel (eSOV) with zero emissions, commissioned by British Bibby Marine. With delivery scheduled for 2026, it will be equipped with an advanced battery system and engines adapted for the use of methanol as fuel, ensuring emission-free operation. ●

SP SMM 2024
Interview

Arsenio Domínguez Velasco, Secretary General of the International Maritime Organization (IMO)

"RELEVANT DECISIONS FOR THE FUTURE NEED TO BE TAKEN NOW"

IS THE GOAL OF ACHIEVING NET-ZERO EMISSIONS FOR MARITIME TRANSPORT BY 2050 FEASIBLE? WILL THE TARGETS BE REVIEWED? ARE THE IMPLICATIONS FOR SHIPOWNERS TAKEN INTO ACCOUNT? THE HEAD OF THE IMO, THE UN AGENCY RESPONSIBLE FOR MARITIME SAFETY AND MARINE POLLUTION PREVENTION, RESPONDS TO THESE QUESTIONS POSED BY INDUSTRIAS PESQUERAS AND IDENTIFIES THE CHALLENGES ARISING FROM GEOPOLITICAL TENSIONS AS A PRIORITY.

Panamanian Arsenio Domínguez Velasco began his term as Secretary General of the IMO (International Maritime Organization), the UN agency responsible for the safety and protection of navigation and the prevention of marine pollution from ships, at the beginning of the year. The IMO, headquartered in London, has embarked on a new cycle marked by challenges for crew safety and international trade posed by geopolitical tensions in the Red Sea and the challenge of decarbonising the sector. "The main challenge is to continue working for safe maritime transport in the face of ongoing geopolitical tensions," explains Domínguez in this interview with IP, where we discuss the key areas that will guide the organization's actions in the coming years. "I see my term as Secretary General as an era of progress for the IMO in four key areas: our work to fulfil the IMO's mandate, our support for Member States, our public image, and our relationships with those working in the maritime sector, including seafarers and stakeholders," states the Secretary General of the IMO, who identifies decarbonisation as the "main challenge" for the sector.

Prior to your appointment as IMO Secretary-General, you were Director of Marine Environment Division at IMO. The environment and sustainability, in terms of marine pollution prevention, is one of the key issues for the shipping industry. What progress has been made in terms of marine pollution prevention, and what still needs to be done?

IMO has made a significant impact when you look for marine pollution protection in the last years and decades. 2023 marked 50 years since the MARPOL Convention - the main international convention covering prevention of pollution of the marine environment by ships from operational or accidental causes - was adopted, so we have had five decades of regulations focusing on protecting the marine environment. We have seen a dramatic fall in the number of oil spills from tankers, for example. And the overall ship casualty rate continues to fall – 300 ships lost annually in the 1970s compared to figures of around 30 to 40 annually now.

The MARPOL Convention includes regulations aimed at preventing and minimising pollution from ships - both accidental pollution and that from routine operations - and currently includes six Annexes. Special Areas with stricter controls on operational discharges are included in most Annexes. I can highlight some specific steps taken through mandatory rules under MARPOL: the limit on sulphur

content which took effect from 2020, and reducing of carbon intensity of ships in amendments to MARPOL Annex VI preventing air pollution from ships, effective prevention of oil spills under MARPOL Annex I; safe packaging preventing pollution under MARPOL Annex III; and eliminating marine litter under MARPOL Annex V.

Over the years, the scope of MARPOL has been extended in order to address new challenges that have emerged for international shipping and in response to the changing expectations of global society – such as the demands for clean air and climate action.

The ships of the future must conform to the needs of society, industry and global trade and must be operated within a framework that promotes green technology and goes beyond mere compliance with statutory requirements.

IMO has shown time and time again that it is ready to adapt and improve regulations to meet any new challenges posed by the evolution of maritime trade and the planet's need for greater protection for life on earth and in the oceans.

All in all, decarbonisation of shipping is the big issue on the industry's agenda. IMO adopted a new Strategy a year ago. The objective is to achieve net-zero emissions by 2050, or at least a commitment to achieve it. Is the goal too ambitious, or might the ambiguity weigh down the results?

"We need "early movers" in the industry as well as forward-looking policy makers to take the necessary risks and secure the right investments that will stimulate long-term solutions for the sector"

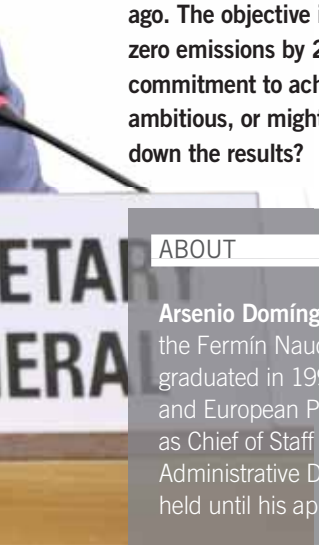
The goal is ambitious but achievable with the efforts of all Members States. They collectively adopted the 2023 IMO Strategy on the Reduction of GHG Emissions from Ships, which sets a clear course to net-zero GHG emissions from international shipping by or around, i.e. close to 2050. IMO is actively working on transposing the commitments into mandatory requirements that apply to individual ships from all flags to ensure that the levels of ambition are effectively achieved in line with the agreed timelines.

Mid-term GHG reduction measures include a global fuel standard regulating the phased reduction of marine fuel's GHG intensity; and a pricing mechanism for GHG emissions from ships.

Proposals for how exactly these measures would look are currently being discussed by Member States in IMO's Marine Environment Protection Committee (MEPC). A comprehensive assessment is currently being undertaken to evaluate the potential impact of the proposed measures on States, especially on developing economies, and on the global fleets. The results are due later this year. We are on track to adopt these mid-term GHG reduction measures in autumn 2025, as foreseen in the 2023 GHG Strategy.

What do you see as the key matters in this roadmap? Do you envisage a possible update in the coming years?
The 2023 IMO Strategy on GHG sets several levels of ambition. The main objective is to peak GHG emissions from international shipping as soon as possible and to reach net-zero GHG emissions by or around, i.e. close to, 2050, taking into account different national circumstances, whilst pursuing efforts towards phasing them out as called for in the Vision consistent with the long-term temperature goal set out in Article 2 of the Paris Agreement.

To achieve this goal, the 2023 IMO GHG Strategy also introduces indicative checkpoints to reach net-zero GHG emissions from international shipping,



ABOUT

Arsenio Domínguez Velasco was born in the Republic of Panama in 1970. In 1988, he earned a Bachelor of Science from the Fermín Naudeu Institute of Panama before studying Naval Architecture at the University of Veracruz (Mexico), where he graduated in 1995. He also holds an MBA from the University of Hull and a Certificate of Higher Education in International Law and European Politics from Birkbeck, University of London, both in the United Kingdom. In 2017, he joined the IMO Secretariat as Chief of Staff to the previous Secretary General, Kitack Lim. In 2020, he was appointed Director of the Organization's Administrative Division, and two years later, he took on the role of Director of the IMO Marine Environment Division, a position he held until his appointment as the 10th Secretary General of the organisation.

namely: to reduce the total annual GHG emissions from international shipping by at least 20%, striving for 30%, by 2030, compared to 2008; and to reduce the total annual GHG emissions from international shipping by at least 70%, striving for 80%, by 2040, compared to 2008. The Strategy itself sets out that it will be subject to a five-yearly review with the first review due in 2028.

One key measure is the possibility of establishing an economic mechanism to incentivise the transition to net-zero emissions. What would this consist of? Should we reward those who take the lead in decarbonisation?

Indeed, the pricing mechanism for GHG emissions from ships is part of the mid-term GHG reduction measures foreseen by the 2023 IMO GHG Strategy, together with a global fuel standard regulating the phased reduction of marine fuel's GHG intensity.

Currently, Member States are discussing various proposals for such measures and the details of how they would look. To support Member States' decision-making, a comprehensive assessment is currently being conducted, with the goal to assess the potential impact of the proposed measures on States, especially on developing economies, and on global fleets. The results of the assessment will be made available ahead of the next MEPC session, which will take place from 30 September to 4 October 2024.

A future pricing mechanism will incentivise and favour those who invest in new fuels and new technologies. We need "early movers" in the industry as well as forward-looking policy makers to take the necessary risks and secure the right investments that will stimulate long-term solutions for the sector. I am encouraged to see that the industry is ready to embrace the journey to net zero shipping and I appreciate the ones that open the path towards decarbonisation of the industry. While the mid-term measures should effectively promote the energy transition of shipping and provide the needed incentives, Member States agreed in the GHG Strategy that the IMO measures should also contribute to a level playing field and a just and equitable transition.

In this regard, what is the challenge of shipping's decarbonisation for ship owners

and what progress is being made? Are some regions or countries more advanced, and others lagging behind? Could there be a two-speed decarbonisation depending on regional efforts and commitments (e.g., Europe vs. Asia)?

Ship owners will need to make commercial decisions in relation to the ordering and operation of ships with a view to the transition to a decarbonised future. This is of particular importance when we take into account the long design life of ships of about 25 years, which means that relevant decisions for the future need to be taken now. Training of seafarers is crucial. Challenges might include the economic costs of using alternative fuels and their availability, the lack of infrastructure for the storage and transport of those fuels, and the lack of resources, especially of small ship owners, to accommodate the transition to net-zero.

> "Ship owners will need to make commercial decisions in relation to the ordering and operation of ships with a view to the transition to a decarbonised future"

However, the regulatory framework is designed to provide sufficient time for the shipping industry to implement the coming changes and be ready for the net zero emissions goal. The regulations can assist in reducing uncertainties and help investment decisions.

The regulatory framework being developed at IMO applies globally, and the IMO GHG Strategy identifies that due account should be taken to ensure a just and equitable transition that leaves no country behind, including supportive measures.

Different Member States face particular conditions that may influence the speed at which they implement the regulations. However, IMO provides technical cooperation assistance through long-term projects to help countries, including developing countries and in particular Small Island

Developing States (SIDS) and Least Developed Countries (LDCs), to achieve shipping's transition towards a low carbon future.

LNG, hydrogen, methanol, electric batteries, rigid sail propulsion... the industry is making progress in the development and implementation of various solutions; however, it is necessary to reach technological maturity or improving port facilities. How do you see this challenge from IMO's perspective? What technology or alternative fuel will eventually prevail?
The use of alternative marine fuels and new propulsion technologies is the future of shipping. Although it is early days in terms of widespread use and will need future regulatory work, IMO is already studying and assessing these new types of fuels and propulsion in terms of sustainability, readiness, availability, safety, etc. to effectively integrate them within the regulatory framework.

It is anticipated that it will be a mix use of fuels and technology solutions and the final selection depends on several elements, such as availability and cost, technological progress and different trade routes. IMO has been working with UNCTAD and other UN Agencies to promote the use of alternative fuels and their production, including with renewable energy.

Inevitably, the decarbonisation of the global shipping industry will require new zero and near-zero emission fuels. This presents a great opportunity for several developing countries because of geographic locations and their access to abundant renewable sources of energy. IMO has been raising awareness and working with developing countries to explore opportunities on new technologies and renewable energy. We have developed an IMO Future Fuels and Technology website - futurefuels.

"Climate change is affecting us all and all industries, including the shipping industry and infrastructures such as the Panama Canal"

imo.org, which provides a wealth of information from a number of data providers on alternative fuels, the state of play of the market and other useful information.

Is it necessary to encourage countries to invest in R&D or should it be an initiative of private companies?
The importance of R&D is recognized in the IMO GHG Strategy. Countries and the industry are encouraged to invest in R&D as it benefits the whole industry. IMO is supporting this drive by creating public private partnerships, such as the Global Industry Alliance for low carbon shipping (GIA) which are looking into specific areas, and there is room for all types of research. In addition, IMO also organises an annual Maritime Innovation Forum where latest developments in this area are showcased. The Strategy also highlights the importance of facilitating information sharing, technology transfer, capacity-building and technical cooperation. I invite anyone undertaking research to share the results with IMO through relevant Member States or NGOs in consultative status.

After the pandemic we are still living in unstable times for shipping. Also, after the war in Ukraine or the tensions in the Red Sea. How does IMO see this situation and what measures is implementing? What impacts are being reported and what are the implications for shipping?
In May 2024 IMO Member States adopted a resolution that called for an immediate end to ongoing attacks on ships and seafarers transiting through the Red Sea and Gulf of Aden. IMO's Member States unequivocally condemned the attacks as "illegal and unjustifiable", posing a direct threat to the freedom of navigation in one of the world's most critical waterways, while causing major disruptions to regional and global trade. The maritime industry sustains the supply chains that are the lifeline of nations and populations around the world – and commercial ships trading essential supplies should be free to navigate, unhindered by geopolitical tensions and the innocent seafarers operating them should be able to perform their duties in safety.

As Secretary-General, I have continuously, since I started my mandate, called on all governments and relevant organisations to provide maximum assistance to seafarers affected and to spare no effort in finding a resolution to this crisis.

We will continue dialogues with governments, partners, the UN and its agencies to share information, find solutions and provide assistance, as needed. IMO is providing long-term support to build the capacity of regional and national bodies to strengthen maritime security in the Red Sea, through legislation, maritime security strategies and an information-sharing network.

The attacks in the Red Sea are categorically unacceptable and pose serious threats to global maritime security, as well as the security and maritime trade for the coastal states in the region. The incidents have far-

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reaching economic implications, posing a direct threat to global supply chains. Prolonged disruptions in container shipping could lead to delayed deliveries, high costs, inflation and last but not least increased emissions. Energy security and food security could potentially be affected due to increased prices.

However, despite its vulnerability to geopolitical tensions, shipping as a sector has shown its resilience over time to various challenges. I trust that shipping organisations and Member states alike will come together in the relevant IMO fora to seek collaboration and look for solutions together.

We are also seeing the impact of climate change on shipping due to the navigability problems of the Panama Canal due to drought. What are the implications? What other threats is shipping facing due to climate change?
Climate change is affecting us all and all industries, including the shipping industry and infrastructures such as the Panama Canal. An analysis by UN Trade and Development has estimated that "total transits through the canal plummeted by 49% in January and 42% by April 2024, compared to the peak in December 2021", which presents a worrying disruption of global trade shipping routes.

IMO has continuously been active in international fora and events, such as the SIDS Forum held in May in Antigua and Barbuda; and the Global Supply Chain Forum held in Barbados, to discuss globally with other UN Agencies and stakeholders how to mitigate climate change and work towards the energy transition.

Other issues impacting the shipping industry due to climate change include phenomena such as extreme maritime weather, that puts seafarers and ships at sea at risk.

> "Shipping will continue to be the main form of transporting goods globally and continue to be the most sustainable"

IMO is taking this issue seriously and that is why we are organising the 2nd WMO-IMO Symposium focus on Extreme Maritime Weather scheduled to take place from 23 to 26 September 2024, so we can study some of these issues in depth.

The Symposium aims to discuss possible solutions to minimise the risks created by extreme maritime weather events – those which are dangerous to any ship at sea and a threat to life, property and the marine environment, and the economic impacts to the global blue economy.

The High Seas Treaty (BBNJ) is in the process of ratification to achieve its entry into force. What are the implications for shipping and what is IMO's assessment of the treaty?
IMO welcomed the adoption of this landmark new oceans treaty to protect marine biodiversity on the high seas on 19 June 2023.

IMO was present throughout the negotiations of the BBNJ treaty and has actively cooperated with the UN, in particular with Division for Ocean Affairs and the Law of the Sea (DOALOS) of the Office of Legal Affairs of the United Nations; the International Seabed Authority (ISA) and with other specialised agencies like the Food and Agriculture Organization of the United Nations (FAO), Intergovernmental Oceanographic Commission of UNESCO (IOC) and the International Labour Organization (ILO).

The BBNJ treaty is a key global regulatory framework that complements IMO instruments protecting the oceans. IMO regulations are enforced through a well-established system of flag, coastal and port State control. Many IMO measures actively contribute to the conservation of marine biological diversity in areas beyond national jurisdiction, including the International Convention for the Prevention of Pollution by Ships (MARPOL) and the International Ballast Water Management Convention – which aims to prevent the transfer of potentially invasive aquatic species – as well as the London Convention and Protocol regulating the dumping of wastes at sea.

Finally, the pandemic highlighted the key role of shipping in international trade. What is the message for the future? What is the future role of shipping?
The message for the future is that shipping will be greener and more inclusive with a focus on decarbonisation, automation, digitalisation, and MASS technology. People will continue to be at the core of the industry.

Shipping will continue to be the main form of transporting goods globally and continue to be the most sustainable. We will continue the work on the IMO GHG Strategy to reduce emissions and work to improve seafarers' working environment.

Shipping will continue to deliver world trade for the benefit of all. It is imperative to ensure it does this sustainably, and with a commitment to diversity and inclusion.

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Ivan Arias, Technical Director of Ibercisa Deck Machinery

"IBERCISA MANAGES THE ENTIRE PROCESS AT OUR FACILITIES, FROM THE FIRST CONTACT WITH THE CUSTOMER TO THE COMMISSIONING OF THE EQUIPMENT AND SUBSEQUENT TECHNICAL SUPPORT"

WITH OVER 50 YEARS OF EXPERIENCE IN THE DESIGN AND MANUFACTURING OF MARITIME EQUIPMENT, IBERCISA DECK MACHINERY IS A LEADING COMPANY WITH A BROAD PORTFOLIO OF REFERENCES ACROSS ALL FLEET SEGMENTS. IN RECENT YEARS, ONBOARD CONNECTIVITY HAS DRIVEN THE COMPANY'S PROJECTS, AND ITS COMMITMENT TO ELECTRIC DRIVE SYSTEMS HAS POSITIONED IT AMONG THE WORLD LEADERS IN ITS SEGMENT. IVAN ARIAS, THE COMPANY'S TECHNICAL DIRECTOR, HIGHLIGHTS REMOTE CONTROL AS ONE OF THE KEY TECHNOLOGICAL DEVELOPMENTS. THE COMPANY DESIGNS, MANUFACTURES, AND SUPPLIES EQUIPMENT, IN ADDITION TO HAVING A SIGNIFICANT TECHNICAL SUPPORT NETWORK. CONTROL OF THE WHOLE PROCESS IS ITS KEY STRENGTH.

Ibercisa is active in various fleet segments. Which one would you highlight as the main technological challenge at the moment?
I would like to start with a recurring problem. Generally, the performance requirements for equipment are increasing, which logically means larger equipment. However, the space available is the same or even less. Additionally, the demand for electric drive equipment is dominant—it is more efficient, has better control, and provides remote access—but it also needs extra space that can be difficult to find. Moreover, the increase in certain marine activities, such as oceanography or mining, requires increasingly complex equipment with more sensors and technology that must be incorporated into the equipment. Thus, the lack of space onboard requires us to seek complex solutions.

What is the "novelty" that represents the greatest technological leap (digitisation, AI, etc.)?
We continue our developments in those areas; we must be prepared and understand the advantages they can offer us. We have already developed several projects in unmanned systems, particularly in the towing sector. As for AI, which is currently very trendy, we use it internally to improve certain processes, but as of yet we can't speak of a revolutionary solution based on this technology.

In general, what are the main new developments?
Undoubtedly, energy management. Our Ulises system allows us to integrate the main energy consumers of a ship and manage it efficiently.

We are constantly making small improvements that we integrate into the winches we design and manufacture every day. It is a continuous improvement process, and we apply the know-how from different sectors and clients to all machines. This is the advantage of carrying out bespoke developments.

Of all these sectors – tugboats, offshore, fishing, merchant marine, research, navy – what are the main new developments?
It's hard to say, really. In many cases, the client and the application requirements drive the development, especially when we have clients demanding high technology, such as Svitzer in the towing sector. Perhaps the oceanography sector is one of the most demanding technologically, but as I mentioned earlier, we work to share developments with other sectors so that all of them evolve in parallel and can benefit from these advantages. A good example is the constant improvement in our winches with Active Heave Compensation (AHC).

In addition to Svitzer, Ibercisa's client portfolio includes major operators such as Boluda in the towing sector and research centers from countries like Spain, Iceland, and New Zealand. Where would you say Ibercisa ranks in terms of its offerings and technological developments?
The reality is that in certain segments, we are a benchmark. For example, a few weeks ago, the ERVO meeting was held in Vigo, attended by the main oceanography operators in Europe, and we can say that we are one of the leading suppliers of winches for this application. In our projects, we compete with very strong companies, with significant engineering capacity on a global level. And here we are, significantly increasing our global references.

> "With increased interaction with the user, we can understand our winches in the field much better, as well as the needs of each customer, as not everyone works the same way"

Which equipment would you highlight as "essential," those from which there is no turning back and whose contribution is indispensable on board?
Without a doubt, the ability to connect remotely with the system installed on the ship. Being able to provide remote assistance from our facilities, helping the operator with any questions or issues. For me, this is a fundamental point in improving the user experience and one of the technological innovations that all ships should have on board.

How has the development of remote access changed the company's operations?
In short, it allows us to provide better service to the customer. With increased interaction with the user, we can understand our winches in the field much better, as well as the needs of each customer, as not everyone works the same way. Additionally, it enables us to keep a record of operations and understand how the winch has been working, which can then be analysed for preventive maintenance, planning downtime, and avoiding the need to bring the ship into port to resolve issues. In other words, the digitalisation of data allows the customer to know in real-time how their vessel is operating on the other side of the Atlantic.

Another aspect on the rise is the decarbonisation of the maritime sector. How does Ibercisa's equipment contribute to the process of reducing emissions?
For several years now we have focused on energy management to make its use more efficient. Our equipment is designed with this in mind, studying each operation and the customer's needs on a case-by-case basis and designing the equipment for that specific application. From this perspective, we improve the way of working and efficiency, seeking synergies with other equipment on board.

How is a winch developed at Ibercisa, from concept to completion?
We always strive to maintain a close collaboration with the client. It's important to listen to their needs and ensure that both their request and our solution fit together in the best possible way. One of our strengths lies in overseeing the entire process within our facilities, from the initial contact with the client to the equipment's commissioning and subsequent technical support. We design, calculate, and manufacture everything we produce, ensuring thorough control over our equipment and solutions. I identify this as one of our main strengths. ●

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GEFICO

The ultimate desalination technologies for the maritime industry

Founded in 1979 and headquartered in A Coruña, Spain, Gefico is one of the few companies in the world that designs and manufactures solutions for seawater desalination using the three main technologies on the market: reverse osmosis; thermal evaporation (traditional evaporators; and Vacuum Vapor Compression Distillation.

This last technology is frequently used in projects where there is no heat source such as engine jacket water and where it is also necessary to generate high quality fresh water –technical water with very low salinity– using only electrical energy.

This kind of equipment is especially demanded in offshore projects, where reliability and extremely low maintenance requirements are critical. Unlike a reverse osmosis plant, the maintenance and consumables of this type of equipment is significantly lower, therefore offering a very reduced OPEX. The development of this technology has been one of the Gefico main milestones in recent years and is already delivering results. Gefico is currently manufacturing a mechanical vapor compression distillation equipment with a distilled water production capacity of 30 m³/day for an oil platform in Africa, which will be delivered to the customer in the coming months.

In addition to freshwater generators, Gefico also has a wide range of pre-treatments (filtration-dosing) and post-treatments (disinfection-remineralization) equipment to condition the water for the different uses required by customers.

PETER TABOADA

The desalination expert

Since its birth in 1979, Peter Taboada, based in Vigo (Spain) has been committed to the research and development of innovative solutions for water treatment in the marine sector.

Specialized in the desalination by reverse osmosis, the company offers a wide range of standard equipment with productions from 1,000 to 250,000 liters of drinking water per day, to large plants designed and manufactured according to the needs of their customers.

Thanks to continuous improvement and the experience accumulated over more than 40 years, Peter Taboada can boast of having positioned itself as a "world reference" in the manufacture of desalination plants for all types of vessels: cruise ships, military vessels, submarines, fishing boats, platforms, etc.

One of the lates successful examples of Peter Taboada's specialization in large desalination plants is the supply of solutions for ships dedicated to the transport and treatment of live salmon. The biggest desalination plant on board a vessel is currently being installed and will produce 15,000 m^3 of fresh water per day. This desalination plant joins the ones they have manufactured for this sector in recent years (3,000 and 5,000 m^3/day) and the new ones they are already working on to produce 10,000 m^3 of fresh water per day.

In addition to desalination, Peter Taboada has developed patents such as the "Petion" (MGPS), equipment designed to prevent corrosion and scaling in seawater piping on ships.

Thanks to "the effort and involvement" of the entire Peter Taboada team, there are now more than 7,000 customers from all over the world "who continue to rely on our products", says the company.

MAIN SOLUTIONS

Pioneering innovation in maritime technology

Main Solutions (Marine Integrated Solutions) a Grupo Emenasa company, continues to set the bar in control systems, automation, and electric propulsion within the maritime sector. Founded in 1998 to provide technical support for Emenasa's electrical installations, Main Solutions has grown into a leading force in electrical engineering.

With a dedicated team of 20 highly skilled engineers, Main Solutions specializes in designing, programming, and commissioning advanced solutions for the maritime industry. Their commitment to innovation is evident in their latest developments.

Recently, the company has introduced an advanced drive system for fishing winches, utilizing frequency converters to optimize performance. This technology has proven essential in enhancing the operational efficiency of fishing vessels, allowing for smoother and more productive operations. Another notable advancement is their automatic control system for fishing winches ("Main Trawl"), which brings unprecedented precision and automation to fishing operations. This innovation not only simplifies the process but also enhances safety by reducing the need for manual intervention.

Main Solutions has also developed a comprehensive monitoring system that enables real-time tracking of various onboard processes. This system facilitates continuous data analysis, ensuring "optimal performance and early detection of potential issues", says the company.

In terms of navigation, Main Solutions has perfected its steering control system, offering precise and reliable maneuverability. Additionally, their thruster control system ensures superior control and safer navigation.

These innovations underscore its commitment to advancing technology in the maritime sector. The company not only improves operational efficiency but also contributes to safer and more sustainable maritime practices. As the company continues to grow and evolve, their dedication to pushing the boundaries of maritime innovation "remains steadfast".

Juan Riva, CEO Suardíaz Group

"MARITIME TRANSPORT'S TRUE STRENGTH IS THAT IT IS THE MOST ENERGY-EFFICIENT"

Suardíaz Group, with over 75 years of history and a national and international presence through its more than 30 offices in Spain, France, the United Kingdom, Morocco, Mexico, and Peru, continues to grow and tackle the ongoing challenges facing the maritime sector. Juan Riva, President of Suardíaz Group, discusses key aspects such as decarbonization and geopolitical conflicts with Industrias Pesqueras, making a clear case for maritime transport and the need for collaboration among all operators.

"A global decarbonisation standard applicable to the entire world fleet should be the goal"

The President of the Group acknowledges that uncertainty over fuels and technologies to achieve the decarbonization goals set by the International Maritime Organization (IMO) and the European Union is one of the current challenges. To address this, he advocates that "administrations, shippers, and all those involved in transport chains work together with the maritime sector in the energy transition, defining the necessary support measures needed, with a cooperative approach that drives investments."

Juan Riva believes that in maritime transport, a global business, a "level playing field" must be ensured where all shipowners adhere to the same standards, a principle that should extend to decarbonisation. "A global standard applicable to the entire world fleet should be the goal, as it would lead to greater emissions reductions and ensure that the costs for all shipping companies and for imports and exports across all countries are similarly affected, without harming the competitiveness of European industrial companies against their international competitors," says the President of Suardíaz Group. The company is working on multiple fronts: implementing technical improvements to the current fleet, optimizing routes in collaboration with clients, using biofuels, and incorporating new vessels.

LOGISTICAL STORMS

Currently, the logistics sector is in a turbulent phase marked by several hotspots such as the Red Sea situation, logistical storms that "have a significant impact on the market," acknowledges Juan Riva, and which "also affect future plans, though not necessarily in a negative way." In this regard, the President of Suardíaz Group sees "good opportunities to meet new customer needs, and we are investing to have greater and cleaner capacity, to provide the service they demand."

In fact, there are significant projects on the table. "The balance is very positive; we have just added a new ship to the fleet, another will be added in the near future, and two new constructions are also underway," explains Juan Riva, who adds that new investments are being made in warehouses and port terminals, "diversifying our service portfolio and entering new sectors. In fact, we are the first Spanish shipowner to incorporate vessels for offshore wind farm supply." Regarding new routes, "they are performing well, volumes are growing as expected, and new clients are coming on board," concludes the President of Suardíaz Group.

FRIZONIA

An expanding range of HVAC solutions

Frizonia, the Spanish company specializing in the design, engineering, supply, installation, commissioning and after-sales service of HVAC, refrigeration and NBC systems for the maritime, defense, offshore and industrial sectors, is developing new production ranges for its products in order to adapt to the new projects being developed in the shipbuilding sector. In this sense, among the improvements introduced on the different equipment such as fan coils, unit coolers, sea water fan coils or NBC filters, among others, the MIL-DLT-901E shock certification has been obtained, guaranteeing its operation in the most extreme conditions.

Frizonia has also extended its range of products by including the Variable Volume Box (BOX VAV) and the Variable Air Volume Cabin Terminal Units (Cabin Units Vav) in its brochure, whose original design idea has been developed directly to improve energy savings in accommodation spaces. The flow rate of the BOX VAV ranges from 200 m^3/h to 2500 m^3/h, while the flow rate of the Cabin Units Vav ranges from 120 m^3/h to 500 m^3/h. These new units are already integrated in some of the latest projects that Frizonia is currently working on.

Thanks to the development of new units and the extension of the production range of existing units, Frizonia is present in some of the latest projects of the Spanish, Colombian, Moroccan and Chilean Navies.

AAGE HEMPEL GROUP

Navigating excellence: setting the course in maritime services

In the bustling world of maritime operations, where every second counts and precision is paramount, Aage Hempel Group emerges as a beacon of efficiency and excellence in service. With a global network of highly specialized technicians, certified by industry-leading brands in navigation, communication, and safety, the company stands “at the forefront of providing top-tier services to vessels worldwide”.

From repair and maintenance to project management, Aage Hempel Group covers a broad spectrum of maritime needs. Whether it’s navigating the depths of the deep sea, servicing offshore rigs, addressing the requirements of the fishing sector and mega yachts, or providing solutions for the strategic defense sector, the company’s expertise is trusted by major brands, international classification societies, and a multitude of clients worldwide. In response to the critical imperative for prompt and efficient issue resolution from the industry, the company also offers remote services led by its specialized technicians through their technical office. This proactive approach not only reduces downtime but also optimizes operational efficiency, frequently resolving challenges before the vessel even reaches port.

With a presence in 21 countries and 56 offices strategically positioned along all maritime routes, Aage Hempel Group guarantees “excellence in service anytime, anywhere”. This extensive network ensures a swift response to client needs, solidifying the company’s reputation for efficiency and quality on a global scale.

With a presence in 21 countries and 56 offices strategically positioned along all maritime routes, Aage Hempel Group guarantees “excellence in service anytime, anywhere”

At the heart of Aage Hempel Group lies a commitment to innovation. Continuously integrating the latest technological advancements into its services, the company partners with industry leaders like Starlink to offer cutting-edge communication solutions. These advancements enhance safety and efficiency, ensuring maritime operations stay ahead of the curve.

Beyond their technical prowess, Aage Hempel Group’s success is rooted in its people. Their highly trained technicians, equipped with the latest knowledge and expertise, are the backbone of the company’s operations. Through rigorous training and certification, these professionals stand ready to tackle any challenge, ensuring that every vessel, from new builds to seasoned shipowners, receives tailored solutions that exceed expectations.

As Aage Hempel Group prepares to showcase its services at hall B6, 435 during the 2024 SMM trade show, the anticipation is palpable. “This prestigious event not only provides a platform to exhibit our capabilities but also offers a unique opportunity to engage with industry leaders, exchange insights, and forge new partnerships. Aage Hempel Group’s presence at SMM reinforces our reputation as a trusted partner in the maritime sector”, says.

Aage Hempel Group stands tall as a beacon of reliability and excellence. With a steadfast commitment to quality, a global network of expertise, and a pioneering spirit that drives them forward, they continue to set the course for maritime services worldwide. Their unwavering dedication to innovation and customer satisfaction ensures that they remain at the forefront of the industry, ready to meet the evolving needs of their clients with precision and excellence. As they sail into the future, Aage Hempel Group remains steadfast in their mission to provide unparalleled service and solutions that propel the maritime industry forward. ●

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Naval doors

Crafting Your Marine Door Solutions

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UCALSA

Custom metal solutions

GABADI

Celebrating 35 years breaking barriers

Founded in 1989, Gabadi is dedicated to two sectors. Firstly, the outfitting of ships. Gabadi holds the most extensive military outfitting experience worldwide among Spanish companies, with projects in Canada, the USA, Ecuador, Chile, and Australia, among others. Secondly, Gabadi is active in the energy sector, specializing in the construction and repair of cryogenic tanks for transporting LNG, as well as other substances such as ammonia, argon, and currently hydrogen. In 2014, the company became the first non-shipyard entity to obtain TALA and TSA certifications for the repair and construction of membrane tanks with global validity.

In 2015, Gabadi began its international expansion with offices in China, Singapore, and Canada. Today, their projects span more than seven countries. In 2021, this growing company completed the construction of six of the world's largest containers using LNG as fuel.

Notable projects include participation in major endeavors in Spain, such as the F110 Frigates and the S80 Submarines, which are among Spain's most technologically challenging projects in this sector. Additionally, Gabadi was awarded a project valued at over €24 million for the Dune Project at CERN (the European Organization for Nuclear Research); participated in the Ritz Carlton project for constructing all bathrooms at the Chantiers de l'Atlantique shipyard; and is involved in the construction of the CSIC's most advanced oceanographic vessel currently being built at Armon, Vigo (Spain).

Moreover, in recent years, Gabadi has constructed fuel tanks capable of holding 18 million liters of LNG-type fuel for nine of the world's largest container ships; patented a containerized fitting system, with the first project delivered within six months in Mexico for McDermott; and became the first company in the world to install a cryogenic membrane tank at 2 bars of pressure, which has been used to optimize boil-off gas. ●

In recent years, Gabadi has constructed fuel tanks capable of holding 18 million liters of LNG-type fuel for nine of the world's largest container ships

SILECMAR

Navigation route optimizer

For nearly 20 years, Silecmar has collected real data from almost 400 vessels worldwide. Acquiring precise navigation speed, routing, fuel consumption data, engine performance, torsion, and propeller information has delivered and extended the field to develop its own data models. Feeding the models from public or semi-public organizations (e.g., ECMWF or satellite imagery) and new modeling paradigms based on data and AI developed by huge tech companies, they have developed voyage optimization for ships not as a theoretical mathematical problem but through extensive and continuous feedback with experienced seafarers combined with that data.

Many routing solutions propose with the same waypoints and navigation mapping for all vessels alike. Silecmar, in cooperation with naval architects, provides exact hull geometry and real-time data from the reading of the draught, heel, and trim onboard installed sensors, offering comprehensive vessel modeling and giving exact and valuable information regarding the vessel's behavior in terms of fuel consumption (speed-consumption tables), reaction to weather factors (over/under consumption and ship motion risk assessment), fishing maneuvering with the ASSYSTROL, PMS, energy-saving device management, and impact of hull and propeller fouling/maintenance.

The solution shows the skipper and captain as well as the personnel accessing from the Silecmar Fleet Monitoring System (SFMS) the best route, predicting weather changes and optimal engine regime. A huge leap forward in energy efficiency, carbon footprint reduction, safety at sea, and vessel maintenance. ●

Silecmar provides exact hull geometry and real-time data from the reading of the draught, heel, and trim onboard installed sensors

SOLÉ ADVANCE

The Spanish marine engines and generators specialist premieres at SMM

Solé Advance will be present at this year's SMM Hamburg, making its debut at this prominent event by exhibiting for the first time at stand 327 in Hall A3. This Spanish marine engine and generator manufacturer reaffirms its international presence at one of Europe's leading nautical trade shows.

At Solé's booth, the professional visitor will find the 85 GTC generator, designed for parallel operation, and the 68 GT with Type Approval certification (TAC) by DNV. Solé Advance generators are engineered to constant energy demands on board, available in three RPM ranges (3000, 1500, and 1800), with powers up to 180 kVA.

Available equipped with soundproof cabin, electronic regulation, and DNV certification, Solé Advance generators stand out for their compact design, efficiency, and minimal noise emissions, making them ideal for demanding professional applications in maritime environments. The quality and safety of Solé marine generators are supported by DNV's Type Approval certification, available across the range.

Sole invites SMM visitors to discover more about its proposal, aiming to "become your trusted partner at sea, delivering reliability and performance". ●

SP SMM 2024
Interview

Christophe Tytgat, Secretary-General of SEA Europe

"IN THIS UNSTABLE WORLD, REINFORCING AS WELL AS REGAINING INDUSTRIAL CAPACITY IN EUROPE IS A KEY FACTOR OF STABILITY"

SEA EUROPE – THE SHIPYARDS' AND MARITIME EQUIPMENT ASSOCIATION OF EUROPE – DEFENDS THE INTERESTS OF THE SHIPYARDS AND MARITIME EQUIPMENT INDUSTRIES FROM EUROPE, NORWAY, AND TURKEY, IN THE EUROPEAN UNION AND INTERNATIONALLY. THIS YEAR, SEA EUROPE HAS ISSUED A REPORT CALLED "SETTING SAIL TO BUILD 10,000 SUSTAINABLE AND DIGITALISED VESSELS IN EUROPE BY 2035", WITH THE AIM OF PROMOTING THE SECTOR AND GAINING COMPETITIVENESS IN RELATION TO OTHER COUNTRIES SUCH AS CHINA. CHRISTOPHE TYTGAT, THE SECRETARY-GENERAL OF SEA EUROPE, ANSWERS INDUSTRIAS PESQUERAS'S QUESTION ABOUT THIS STRATEGY.

What was the origin of the definition of this strategy reflected in the report?
During the European Shipping Summit last September, a senior EU official asked very bluntly how strategic is shipbuilding on a scale ranging from the military to a candy shop. This question was an eye-opener for the SEA Europe community: while the strategic nature of shipbuilding was obvious to us, we realised it was not for policymakers. Hence, we undertook an in-depth reflection to re-define our identity as an industry in a changing world and engage with policymakers and other maritime stakeholders with a clear ambition and concrete policy recommendations.

The world has fundamentally changed in the last five years, hence we had to change our narrative, stay away from complaining about the global shipbuilding market developments and start considering our own strengths. The pandemic, the war in Ukraine, the systemic US/China rivalry, and the rise of trade protectionism demonstrate that today's world is characterised by geopolitical threats, putting Europe's resilience, strategic autonomy, and economic security at risk. In this unstable world, reinforcing as well as regaining industrial capacity in Europe is a key factor of stability. Since Europe's trade and shipping industry have become too dependent on Asian shipbuilding over the past decades, shipbuilding has become an economic security risk for Europe. Therefore, de-risking shipbuilding and its supply chain is vital for Europe's strategic autonomy. Such a de-risking policy is not simply a matter of markets. It is above all a geopolitical consideration, and it is very clear that Europe's competitors in Asia approach trade and shipbuilding as such.

ABOUT

On 1 March 2016, Christophe Tytgat was appointed as Secretary General, both of SEA Europe – the Shipyards' and Maritime Equipment Association of Europe – and CESA. As Secretary General, Christophe has been a board member of the research association "Vessels for the Future" and the "Waterborne Technology Platform". As of the 1st of January 2021 he is a delegate in the "Consultative Commission on Industrial Change" of the European Economic and Social Committee. Before joining SEA Europe/ CESA, Christophe worked for about 15 years in various positions in the European Community Shipowners' Associations (ECSA), and before that he worked for about three years in the Belgian federal administration, first with the Foreign Affairs Office and then with the Maritime Transport Administration. Christophe holds degrees in Law, International Relations, and East-European Studies from the University of Leuven and in International and European Law from the University of Brussels..

In your report you talk about recovering and promoting the production capacity of the European industry towards more technological sectors, in which the price is not the determining factor. What aspects do you consider should be prioritised in European production?

Presently, European shipping controls 40% of the world fleet. However, European shipowners order for 90% in Asia, mainly because of significant price differences between Asian and European shipyards. Hence, the challenge for the European shipbuilding industry is to regain orders from shipowners, including European shipowners. To this end, the European maritime technology industry – comprising shipyards and maritime equipment manufacturers in Europe and represented by SEA Europe – has formulated a clear three-fold ambition: 1) Consolidate its global leadership in complex shipbuilding (including cruise) and maritime equipment manufacturing, 2) Regain strategic ship types for the European Blue Economy, for example in shortsea shipping, passenger transport and fisheries, 3) Conquer emerging markets such as offshore renewable energy and carriers of alternative fuels.

The sustainable and digital transitions of waterborne transport and the Blue Economy are major opportunities for the European maritime technology industry to outperform its international competitors on quality, efficiency, and safety. Therefore, European shipyards and maritime equipment manufacturers have expressed a clear ambition to supply 10,000 sustainable and digitalized vessels by 2035. To achieve this objective, the maritime technology industry aims to invest more than €10 billion in highly efficient, automated, and sustainable production facilities, as well as recruit and re/upskill a total of 500,000 qualified workers.

Competing with Asian countries is complicated both in terms of cost and financing. In the report they address financial aspects, how could they be improved in the EU to take advantage of Asia?

"European shipyards and maritime equipment manufacturers have expressed a clear ambition to supply 10,000 sustainable and digitalised vessels by 2035"

European shipyards still have the know-how to build any ship type. However, distorted market dynamics from Asia mean that global competition currently hinges on injurious pricing practices. Given the unlikelihood of achieving a global level playing field soon, the EU should consider narrowing the artificial price gap between European and Asian shipyards by implementing positive measures, in particular, the following two recommended by SEA Europe:

Introduce "made in Europe" requirements and non-price criteria in strategic public procurement markets, for example for patrol vessels, ferries, research vessels, offshore platforms. These markets financed by taxpayers' money should to a large extent be a captive demand for the European maritime technology industry.

Provide financial incentives for shipowners to build and retrofit vessels in Europe. These incentives should reduce the price gap between European and Asian shipyards, especially through tax benefits framed by a European scheme. We can find inspiration in existing effective schemes such as tax lease systems and accelerated depreciation. However, we must seek a uniform implementation within the EU internal market to avoid competitive distortions between Member States.

By implementing these incentives in the strategic sectors of the European Blue Economy, especially cabotage, shortsea shipping, passenger transport, fishing, aquaculture, offshore renewable energy, and carriers of sustainable alternative fuels, we can bolster the competitiveness of the European shipbuilding industry, make European maritime equipment manufacturers less dependent on Asia, and provide financial advantages to European shipowners. It would be a triple-win solution.

European industry needs specialised labour and currently the industry faces a problem of lack of labour. How should this gap be covered? Is it a problem that affects all of Europe equally?

An innovative sector like the maritime technology industry needs highly skilled people. With the green and digital transitions ahead, new types of skills will be essential for the industry, whilst the existing workforce will need to be upskilled or reskilled. However, it is anticipated that an important part of the current workers will retire in the coming years and therefore the industry is facing a considerable skills challenge and possibly even a skills shortage that needs to be addressed quickly. This problem is not unique to the maritime technology industry as other industries have a similar challenge. Hence, there will be competition for talent amongst industries in Europe, which makes the situation of the maritime technology industry even more challenging.

Therefore, securing a skilled workforce is one of the pillars of SEA Europe's call for a maritime industrial strategy. In concrete terms, we need to accelerate investments in training programs, overcome obstacles in terms of recognition of qualifications and certification across Europe, and support the industry with communication campaigns that promote its green and innovative image to attract workers, including young people and women.

When prioritising technology on ships, what aspects must be considered (digitalisation, decarbonisation, equipment integration, ...)?
European shipyards are determined to reinforce their industrial capabilities, not only to safeguard existing technological leadership but also to regain strategic markets for Europe, whilst tapping into new emerging markets. This entails significant investments in cutting-edge technologies and the optimization of production processes to drive down costs and increase efficiency. European shipyards must leverage their strengths in complex shipbuilding, design, quality, high environmental standards, and advanced maritime equipment and systems.

To this end, the strategy presented by SEA Europe on behalf of the European maritime technology industry puts forward the intention to invest more than €10 billion in highly efficient, automated, and sustainable production facilities. Not only do we have to design the ship of the future, but we also have to pave the way for the shipyard of the future.

But do not be mistaken. Our competitors in Asia also have high ambitions, including for sustainable and digitalized shipping, and are therefore investing massively to win the race for global maritime technology leadership, for economic reasons as well geopolitical ones. Hence, Europe needs to do more to scale up sustainable and digital technologies. To this end, the EU should increase its financial support for investment in research, development, innovation, and infrastructure, through several channels: a dedicated Maritime Technology Fund, a ring-fencing for maritime investment in all relevant generalist funding programmes, and guarantees from the European Investment Bank.

How should the European naval industry act to be able to face the challenges raised in the report?
SEA Europe's ambition is to work together with EU policymakers and all interested partners from the Blue Economy and waterborne transport community towards common objectives. Doing business together in a stable and predictable environment will ultimately serve Europe's strategic interests.

For this purpose, SEA Europe is calling for the establishment of an Industrial Alliance for Blue Economy Value Chains. It will promote collaboration among various stakeholders in the Blue Economy, including shipyards,

maritime equipment manufacturers, shipping companies, offshore energy operators, fishers, aquaculture farmers, and coastal tourism operators. By working together, we will foster innovation and the adoption of new technologies, promote project financing, attract investment, and advocate for supportive regulations in collaboration with policymakers.

Which naval segment is most aware of the importance of technology versus cost (oceanographic, fishing, merchant...)?
All ship types have become (or are becoming) extremely complex and equipped with advanced technology. For example, today's fishing vessels are full of technology for their navigation, safety, and avoidance of unwanted catches. At a much different scale, cruise ships are incredibly complex, and the knowledge gained from building them not only drives progress in shipbuilding as a whole but also pushes the boundaries of innovation, including in military shipbuilding.

"The sustainable and digital transitions of waterborne transport and the Blue Economy are major opportunities for the European maritime technology industry to outperform its international competitors on quality, efficiency, and safety"

In this respect, it is very important to keep in mind that all shipbuilding supply chains are closely connected, not only across commercial segments, but also between commercial and military shipbuilding. Because military orders mainly come from governments, the shipbuilding industry needs to maintain its capacities, jobs, supply chains, and know-how with a critical mass of commercial orders. This is different from the US, where a lack of competitive commercial shipbuilding stemming from protectionist policies (such as the Jones Act) has made the US Navy expensive for taxpayers and hindered by outdated designs and production delays. ●

The Spanish sector reaffirms its strategy to compete in international markets

SPANISH INDUSTRY THAT MAKES A DIFFERENCE

TECHNOLOGICAL INNOVATION AND SUSTAINABILITY, ADDED VALUE, AND QUALITY. THESE ARE THE THREE PILLARS DRIVING THE SPANISH NAVAL INDUSTRY – A SEAMLESS ALLIANCE COMPRISING SHIPYARDS AND AUXILIARY INDUSTRY – AS IT COMPETES IN THE INTERNATIONAL SHIPBUILDING MARKET. IP DISCUSSES WITH ACLUNAGA, ASIME, FMV, AND SOERMAR, FOUR OF THE MOST REPRESENTATIVE SECTOR CLUSTERS IN THE SPANISH INDUSTRY, THE KEYS TO SPANISH KNOW-HOW AND THE OPPORTUNITIES PRESENTED BY DECARBONISATION AND OFFSHORE WIND ENERGY.

The order book of the Spanish naval industry confirms its international vocation. Nine out of twelve contracts in 2023 were commissioned by foreign shipowners. According to the annual report of the Government of Spain, international clients accounted for ownership of 36 out of the 48 projects in the Spanish naval industry's order book. In Gross Tonnage (GT), 62% of the construction capacity corresponds to projects for the international market. Nevertheless, competing in the global market is increasingly complex, and Spain, and by extension Europe, cannot compete on price alone. The key for Spain, especially considering the challenges of the global market and the complex international geopolitical landscape, continues to be differentiation through added value, innovation, and new technologies, with the additional incentive of quality and sustainability guarantees offered by the sector.

"The Spanish shipbuilding industry is recognised at a European level for its expertise and its capacity for the innovation and management of highly complex technological projects. However, on a global scale, Europe has been losing market share to Asia for over 20 years," laments Sarai Blanc, Director of the Basque Maritime Forum, the industrial cluster for the Basque Country's maritime sector. She points out that countries which heavily subsidise their shipbuilding industry to lower prices by as much as 30 to 40% dominate the market for large cargo ships, without the same social or environmental guarantees. "Given this situation, Spanish and European shipyards

Eva Novoa
General Director
Fundación Centro Tecnológico Soermar

Sarai Blanc
Managing Director Foro Marítimo Vasco (FMV)

Óscar Gómez
Managing Director Asociación Clúster del Naval Gallego, Aclunaga

Enrique Mallón
Secretary-General Asociación de Industrias del Metal y Tecnologías Asociadas de Galicia, Asime

can only compete in niche markets of higher technological complexity," says Blanc.

"Spain is a niche within a niche that must continue to differentiate itself in terms of added value," says Óscar Gómez, manager of Aclunaga, the Galician cluster. "Europe is already a tiny part of global shipbuilding and does not have the capacity it had a few years ago. And in turn, Spain is a small market niche within the EU. We need to be aware of the numbers," asserts Óscar Gómez of Aclunaga. He argues that to compete in the international market, the primary requirement is to keep facilities active and diversify specialisation segments beyond oceanographic and fishing vessels. "If large ferries make a comeback, we will have many more opportunities," he explains, also referencing the potential of companies specialised in outfitting.

Eva Novoa, General Director of the Fundación Centro Tecnológico Soermar, advocates that the international strategy of the Spanish maritime industry should leverage the application of new technologies (efficiency, hydrodynamics, noise and vibration reduction, ICT, etc.) aimed at improving the types of ships in the market niches where Spain excels. "There is no other choice but to compete and be competitive."

"We cannot compete with Asian powers on prices or labour costs, but we can do so through innovation, the added value of our services, and hyper-specialisation in new areas," points out Enrique Mallón of Asime. "At the European level, there are many other countries with large shipyards, but they face serious difficulties in carrying out some of their work because they do not have such a solid and close-knit auxiliary industry as ours. Our great added value is the know-how of our industry and the advantage of having the entire value chain, from shipyards to auxiliary industry, working hand-in-hand in the same territory. This gives us agility, reduces costs, and makes us more competitive; it is a value that we cannot afford to lose," says the Secretary General of Asime, the Association of Metal Industries and Associated Technologies of Galicia.

DECARBONISATION AND OFFSHORE WIND, THE GREAT OPPORTUNITIES

In this context, and despite the challenges of innovation in the first case, or production capacity and regulation in the second, the four representatives of the Spanish shipbuilding industry agree that decarbonisation and offshore wind currently represent the greatest opportunities for the sector.

"It's an unprecedented challenge," says Mallón regarding the decarbonisation of the fleet, while pointing to hydrogen as the "most viable" alternative today. His opinion contrasts with Aclunaga's stance, which advocates LNG as the optimal solution. "The indecision about the most suitable means for the future doesn't help at all," notes Óscar Gómez, criticising the EU for setting targets before providing answers, leaving it to private shipowners to decide which alternative to choose. For Eva Novoa from Soermar, taking advantage of this opportunity both in new construction and repair also involves "advising shipowners on optimal solutions that are applicable to new vessels being built, and effective solutions that can be applied to vessels in service. Measures for the decarbonisation of the maritime sector are not single solutions; they are combinations of solutions that are applicable and adaptable to the vessel, the navigation, and of course, the ports they are heading to," she states. "Decarbonisation is a challenge that must become an opportunity for the entire maritime sector. Engineering firms, shipyards, and equipment manufacturers are making significant R&D investment efforts to develop less polluting propulsion systems with alternative fuels and electrification, or to improve the performance and energy efficiency of vessels," adds Sarai Blanc from the Basque Maritime Forum.

Unlocking the potential of offshore wind has both external implications –regulation– and internal ones –the sector's production capacity. Driven by the objectives of decarbonising the economy, the deployment of offshore wind presents significant opportunities for the shipbuilding sector, not only in the manufacturing of components but also in their installation and maintenance on offshore vessels, an area where Spain also excels. "There are many opportunities, but in this matter, we depend on the decisions of major operators like Iberdrola or Navantia's construction divisions. It's an immense market, and in fact, we are struggling to keep up because the offerings are not as abundant as we would like. The facilities cannot meet all the existing demand," says Óscar Gómez from Aclunaga, who suggests that the promotion of strategic alliances between shipyards could be a first step.

Asime, meanwhile, has prioritised offshore wind. Evidence of this is the creation of the Galician Offshore Energy Group (GOE-Asime), currently comprising over 40 companies, technology centres, and port authorities. "We currently have about 3,000 people in Galicia working directly in offshore wind, a figure that could reach up to 12,000 direct jobs in the next 10 years, creating a ripple effect for 200 companies," says Enrique Mallón. "Spain has great potential to export technology and knowledge on marine energy utilisation," notes Eva Novoa, confident that Spanish shipyards "are ready" to build the support and maintenance vessels for these wind farms, while the "very powerful" component industry will also rise to the occasion. "It's clear that we are an industry with much to contribute," she asserts.

Twin NavAux Project

DIGITAL TWIN REVOLUTIONISING TECHNOLOGY DESIGN

José L. de Nicolás Sánchez
TWIN NAVAUX PROJECT COORDINATOR

Since it is still a novel concept, the definition of a Digital Twin is not unique and not yet standardised. Generally, each company tailors it to their own capabilities and offerings.

The Twin NavAux team considers a digital twin to be a computerised replica of a real piece of equipment or system that, through the integration of various disruptive technologies, allows for improved management of that equipment or system from its design through to its operation.

The digital twin is constantly connected to the real asset it represents, collecting all types of data from its sensors and actuators. This data is subsequently analysed to obtain relevant information for decision-making. This decision-making can be well-founded, provided that we have previously been able to model or simulate the equipment or system accurately. To achieve this, we must perfectly (mathematically) define all its components and the interrelationships between them.

As an example of its usefulness, one of the tasks we can influence with a digital twin is equipment maintenance. In this regard, the digital twin goes a step beyond predictive maintenance. It not only allows for the prediction of failures but also enables the study of possible scenarios that have not yet occurred in the life of the equipment or system. This can lead to decisions that extend the life of the equipment beyond what was initially expected.

What makes the digital twin even greater is that it is created for each specific piece of equipment or system. When we purchase an onboard crane, the manufacturer provides maintenance instructions, but this equipment will experience very different conditions in the North Sea compared to the Pacific waters, and its useful life will vary.

Being able to exactly know the health status of our equipment will allow us to prevent it from breaking down due to lack of timely maintenance, but it will also prevent economic inefficiencies and unnecessary downtime by replacing components before they reach the end of their actual useful life.

CAPABILITIES OF THE DIGITAL TWIN

A digital twin can operate at various stages of equipment or service:

- **In design and engineering,** it allows for virtual simulations to evaluate different concepts and configurations: hull configurations, propulsion systems, loading conditions, for example. This helps identify inefficiencies or potential problems and optimise the design before starting its fabrication.

- **In manufacturing and construction,** it allows monitoring of progress and quality of production in real-time. Additionally, digital twins can be used to perform virtual assembly simulations and tests, ensuring the integrity and efficiency of the process.

- **In operation and maintenance,** they allow continuous monitoring of the vessel or equipment's performance, predicting potential failures and reducing the risk of unplanned downtime, thereby optimizing operation and maintenance.

- **In training, they are also useful for training crews and simulating,** for example, emergency scenarios, even those difficult to reproduce in reality without damaging equipment or facilities. This results in better prepared and safer crews.

- **In environmental impact,** it allows identifying opportunities to save fuel, optimise maritime routes, or reduce pollutant emissions.

TECHNOLOGIES INVOLVED

As mentioned, the digital twin integrates a series of disruptive technologies: 1D modelling and simulation, Internet of Things (IoT), big data, cloud computing, artificial intelligence (AI), and machine learning (ML).

A process for creating and deploying an intelligent digital twin could be as follows:

- Characterise the equipment or system.

- Develop a 1D simulation of the equipment or system and validate it with real data.

- Connect the digital twin and the equipment or system it represents bidirectionally through IoT.

- Start collecting real-time data from the equipment or system, supplemented by historical data.

- Manage this data using big data, either locally or in the cloud.

- Obtain improvement recommendations using artificial intelligence or machine learning.

- Implement corrective or preventive measures proposed by the digital twin on the equipment or services being studied.

As a complement to the digital twin, we can mention augmented reality and the metaverse technologies. The first allows for the development of tasks such as maintenance tasks indicated by the product digital twin. The second, which is still in a very early stage, allows for working with 3D digital twins in the cloud, accessible from anywhere and at any time, with high performance in both computing and visual aspects.

TWIN NAVAUX PROJECT

In line with the above, in the Twin NavAux project – "Boosting the use of Digital Twins in the Naval Auxiliary Industry of Galicia and Northern Portugal," administration, knowledge centres, and industry have partnered up.
This project is co-financed by the European Union through the Interreg VI-A Spain-Portugal POCTEP 2021–2027 Program, and its objective is to establish the technological conditions and necessary staff training to promote the widespread adoption of digital twin models for products in the naval sector.

The main beneficiary is the Axencia Galega de Innovación of the Xunta de Galicia, and participating beneficiaries include the Asociación Clúster do Naval Gallego (ACLUNAGA), University of A Coruña (UDC), Centro de Apoio Tecnológico à Indústria Metalomecânica (CATIM), Universidade Portucalense Infante Dom Henrique, and three emblematic companies in the naval sector: Ibercisa Deck Machinery SA, Industrias Ferri SA, and Electro Rayma S.L.

Isabelle Ryckbost, Secretary General of the European Sea Ports Organisation (ESPO)

"PORTS ARE FACILITATORS OF EUROPE'S AMBITIONS AND ARE PART OF THE SOLUTION"

The European Sea Ports Organisation (ESPO) has prepared the Port Investment Study 2024, which provides an analysis of the investment needs and challenges faced by European ports. The study delves into the changing role of European ports, their evolving investment requirements, and the barriers they encounter in turning investment projects into reality.

This study reveals that the investment needs of European port management organisations amount to €80 billion up to 2034, and highlights that investments in sustainability and energy transition are becoming the second most important investment category for port authorities. Isabelle Ryckbost, Secretary General of ESPO, acknowledges that "the world is in transition. And so are ports. As multimodal nodes, hubs of energy, clusters of industry and blue economy, ports are in the middle of all game changers and current challenges. The new geo-economic and geo-political context obliges ports to adapt. At the same time, ports can be part of the solution and will play a crucial role in getting Europe's economy and society through the energy transition." In this regard, she advocates for policies that support and help ports face these challenges. "For ESPO, it is important that policy recognises the complex and multifaceted role of ports nowadays and understands that ports have to take on more responsibilities than before, many of which are public responsibilities," she notes.

One of these challenges is decarbonisation. In this regard, the ambitious policies of the European Union could put ports at risk due to the differences in the application of regulations. Isabelle Ryckbost, Secretary General of ESPO, clarifies: "Let us be clear, we should not put into question the net zero ambitions of Europe. The only option is to move forward towards a decarbonised economy and society. This being said it is important to achieve these ambitions in the most efficient way. There is no time and no money to lose". In this regard, she reminds us that "we have to realise that ports cannot move while their customers, the shipping lines, can move. They operate in a global environment and can look for the best offer. To give an example, the limited scope of the EU-ETS maritime puts certain EU ports in an uncompetitive position toward their non-EU neighbours. While this could be a political choice, it will, in reality, not lead to the desired results in terms of emission reduction. Business risks to move out while the carbon will remain, or even get worse if the rerouting of the shipping lines makes the voyages longer".

In this regard, she reminds us that ports in Europe have expanded their roles. From being multimodal hubs in the supply chain connecting the sea with the interior, they are becoming centres and facilitators of sustainable energy, clusters of industry and circular economy, as well as important pillars of geopolitical and geoeconomic resilience. Additionally, ports have their own strengths in decarbonisation. "Europe is setting the bar high when it comes to decarbonisation. To reach its strict ambitions, Europe needs to develop new solutions, new energies, new technologies, new infrastructure. With the Net Zero Industry Plan, Europe is looking at ways to support and boost the industries needed to make decarbonisation a reality. If this plan succeeds, we might become frontrunners and leaders in certain technologies, which could be beneficial for Europe and also for the ports. Moreover, while ports in Europe have been and are essential for the supply of traditional energies, they will be as important, and maybe even more important, for the supply of new sources of energy. Without ports, there is no energy, no energy transition. So also in a decarbonised Europe, ports will play a crucial role", Isabelle Ryckbost points out.

The study shows that, alongside investments in the development of basic port infrastructure and its maintenance, port management organisations are increasingly

investing to take on strategic and social responsibilities and to achieve Europe's ambitions. This often involves projects with high social value but slow, low, and risky returns on investment. ESPO calls on policymakers to recognise the strategic importance of European ports and to provide a robust support framework that addresses the investment challenges they face. At the same time, the European Union aims to limit foreign investments in strategic infrastructures such as ports. "Ports are indeed strategic assets and need to be supported as such. We are, in that respect, supportive of a more harmonised approach towards screening of foreign investments in critical infrastructure such as ports. We should, however, not treat ports differently than other critical infrastructures. We also believe that the screening policy should be done in an efficient way, avoiding to create long time uncertainty for investors, who, let's not forget, in most cases come with good intentions. So we need a balanced approach, where risky investments are being screened, but avoiding a policy that makes ports unattractive for investments. Ports are heavy assets, do more than before and must be able to count on investments, both from the EU and from non-EU companies. The new geo-economic and geo-political context obliges governments to be more prudent, but we should further embrace the open investment climate Europe has. Finally, we believe that if ports are seen as strategic assets, Europe should embrace and support them in a more general way and invest in them", says the ESPO Secretary General.

Also in this report, ESPO wants to highlight the importance of ports, not only for their economic value but also for their strategic

"Europe is setting the bar high when it comes to decarbonisation. To reach its strict ambitions, Europe needs to develop new solutions, new energies, new technologies, new infrastructure"

value, especially in recent years. Isabelle Ryckbost echoes a quote from Winston Churchill: "Never waste a good crisis". "I think the subsequent crises Europe and the world have been going through in the past years have put forward the critical and essential role of ports. During the COVID pandemic, ports played a crucial role in maintaining supply chains. With the Russian invasion of Ukraine, ports again came into the picture for ensuring the security of the supply of energy, and for facilitating the solidarity lanes with Ukraine. Also, in terms of enhancing the military preparedness, ports play an important role. It is now important to convey this message to policymakers, not only transport policymakers, but also those dealing with industrial, defence, agricultural, etc. policy. Ports are enablers of Europe's ambitions and they are part of the solution".

FUTURE CHALLENGES

Two key points ESPO is focusing on are improving port connectivity and exploring opportunities presented by artificial intelligence and digitisation. Regarding the first point, the Secretary General of the Organisation highlights that "we believe the new TEN-T regulation, which will enter into force in summer, is a good basis to improve connectivity both between ports and with the hinterland. For instance, in the new framework, short sea connections between two ports in one member state, as well as connections with third countries, will be recognised as motorways of the sea. Also, last mile connectivity gets a lot more attention in the new legislation. These are good steps forward. It now remains to be seen how the requirements and priorities identified in TEN-T will be supported by the Connecting Europe Facility and all other support instruments".

Regarding digitalisation and artificial intelligence, these are two aspects currently under discussion within the Organisation. "As concerns digitalisation, ports see a lot of merit in digitalised solutions. Developing the smart port and the digital twin are on the agenda of many ports. At the same time, ports are paying particular attention to cybersecurity. In October of this year, the new Cyber Security Directive, the so-called NIS II, is coming into force. Ports are getting prepared for this. Cybersecurity is a shared responsibility of all stakeholders in the port. It is important that everyone is on board".

Source: APV

▲ Port of Vigo, Spain.

Spain works on its Maritime Transport Decarbonisation Strategy

A MORE COMPETITIVE AND SUSTAINABLE FUTURE FOR SPANISH PORTS

ÓSCAR PUENTE, MINISTER OF TRANSPORT AND SUSTAINABLE MOBILITY FOR THE GOVERNMENT OF SPAIN, ANALYSES THE SPANISH ROADMAP FOR IMPROVING THE COMPETITIVENESS OF ITS PORT NETWORK AND TACKLING THE CHALLENGE OF DECARBONISATION.

Spain is a predominantly maritime country that occupies a strategic geographical position as a gateway to and from Europe via the Atlantic and the Mediterranean. The national network of State Ports comprises 28 Port Authorities managing 46 ports, including key logistics hubs such as Barcelona, Valencia, Algeciras, and Vigo. The network closed 2023 with traffic reaching 543.3 million tonnes and achieving a net turnover of 1.238 billion euros, an increase of 3.7% compared to 2022. "Ports of general interest are fundamental to the country's economy," highlights Óscar Puente to Industrias Pesqueras. He emphasises that around 80% of Spain's imports and 60% of its exports pass through these state terminals, which are also centres of innovation and key players in decarbonisation and emissions reduction.

"The Spanish port system is the sum of many parts. It is the result of each of the ports that comprise it, which together have positioned Spain as the EU country with the highest maritime connectivity and the sixth globally," states the minister, highlighting the potential of Spanish ports: "Our enviable geostrategic position, combined with the first-class capabilities and services of our ports, have made Spain a strategic node for international maritime transport and the logistics platform of southern Europe."

▲ Oscar Puente, Minister of Transport and Sustainable Mobility for the Government of Spain

Despite its strengths, Spain is not immune to international challenges in maritime transport, whether related to geopolitical tensions or a future shaped by climate goals. Spain faces on one hand the challenges arising from the uncertain global situation, including

"The Government of Spain approved the Strategic Framework for the Port System in 2022, which serves as a guide to set the course for ports until 2030"

▲ Port of Barcelona, Spain.

price inflation, armed conflicts, and various threats "that could destabilise supply chains." Exogenously, Puente highlights the consequences of certain regulations, such as the application of the ETS directive to maritime transport, while also considering the intrinsic challenges of the dynamics of transport chains and the specificities of each of the ports of general interest.

To address these challenges, the Government of Spain approved the Strategic Framework for the Port System in 2022, which serves as a guide to set the course for ports until 2030. This framework includes measures and initiatives aimed at achieving more connected, innovative, and sustainable ports, thereby making them more competitive in the global environment and continuing to add value to society.

In this regard, Spain's priority for promoting and strengthening maritime connectivity focuses on land accessibility, specifically by enhancing rail connections at ports. As part of the broader effort to increase the share of freight transported by rail, "ports play a very prominent role," says the minister. In fact, around half of the goods transported by rail either originate from or are destined for a port, notes Óscar Puente. Sustainability, through the electrification of docks or the development of alternative energies and port-city initiatives, are the next priorities for the Ministry of Transport and Sustainable Mobility in port matters. "This gives us an idea of the importance placed on these concepts within the management of our ports, which directly impact people," explains Puente.

At the same time, the Government of Spain is developing a Maritime Transport Decarbonisation Strategy, aligned with national objectives through the National Integrated Energy and Climate Plan, as well as with the international commitments of the sector. The future roadmap to achieve the "zero emissions" goal in the sector focuses on "green" maritime routes with a series of aid programs that will address the objective from a global perspective, decarbonising maritime routes end-to-end through three main pillars: the deployment of zero-emissions capable ships, the use of zero-emissions fuel or energy, and the implementation of refuelling or recharging infrastructure.

The Ministry aims for this maritime transport decarbonisation strategy to be accompanied by a support plan that could be financed through funds collected by Spain from the application of the Maritime ETS. Given that Spain, according to the initial calculations by the Commission and due to its status as the EU country with the highest number of port calls, will be tasked with managing compliance with emissions rights regulations for the largest number of ships among all EU countries—over 3,000 ships and more than 500 shipping companies—this plan will play a crucial role.

Simultaneously, Spanish ports are undergoing a profound transformation to enhance their competitiveness, always adhering to sustainable development criteria and within an increasingly complex international environment. Óscar Puente particularly highlights the efforts of ports positioning themselves as logistics hubs for offshore wind energy, as well as two lines of significant development: the electrification of docks for supplying electricity from internal or external renewable sources, and the generation and provision of alternative fuels at ports, whether those considered

"Spanish ports are undergoing a profound transformation to enhance their competitiveness, always adhering to sustainable development criteria and within an increasingly complex international environment"

LEGAL REFORMS TO BOOST PORT COMPETITIVENESS

In legislative matters, the Government of Spain is working on reforming the Law on State Ports, the Merchant Marine and the Law on Maritime Navigation. The aim is to adapt the administration to new challenges, enhance maritime safety, and prevent marine pollution. The reform also seeks to improve port competitiveness and shipping companies, as well as modernise maritime administration by creating more streamlined registries to attract shipowners and generate employment opportunities.

transitional (such as LNG, for which there has been a significant national deployment, leveraging Spain's logistical potential for this type of product), or, in the more or less near future, synthetic methane or ammonia, supported by 'green hydrogen' production plants.

"These are large-scale projects in a national energy renewal strategy where Port Authorities must play a role as facilitators, co-creators, or co-promoters of such initiatives," explains the Spanish minister.

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