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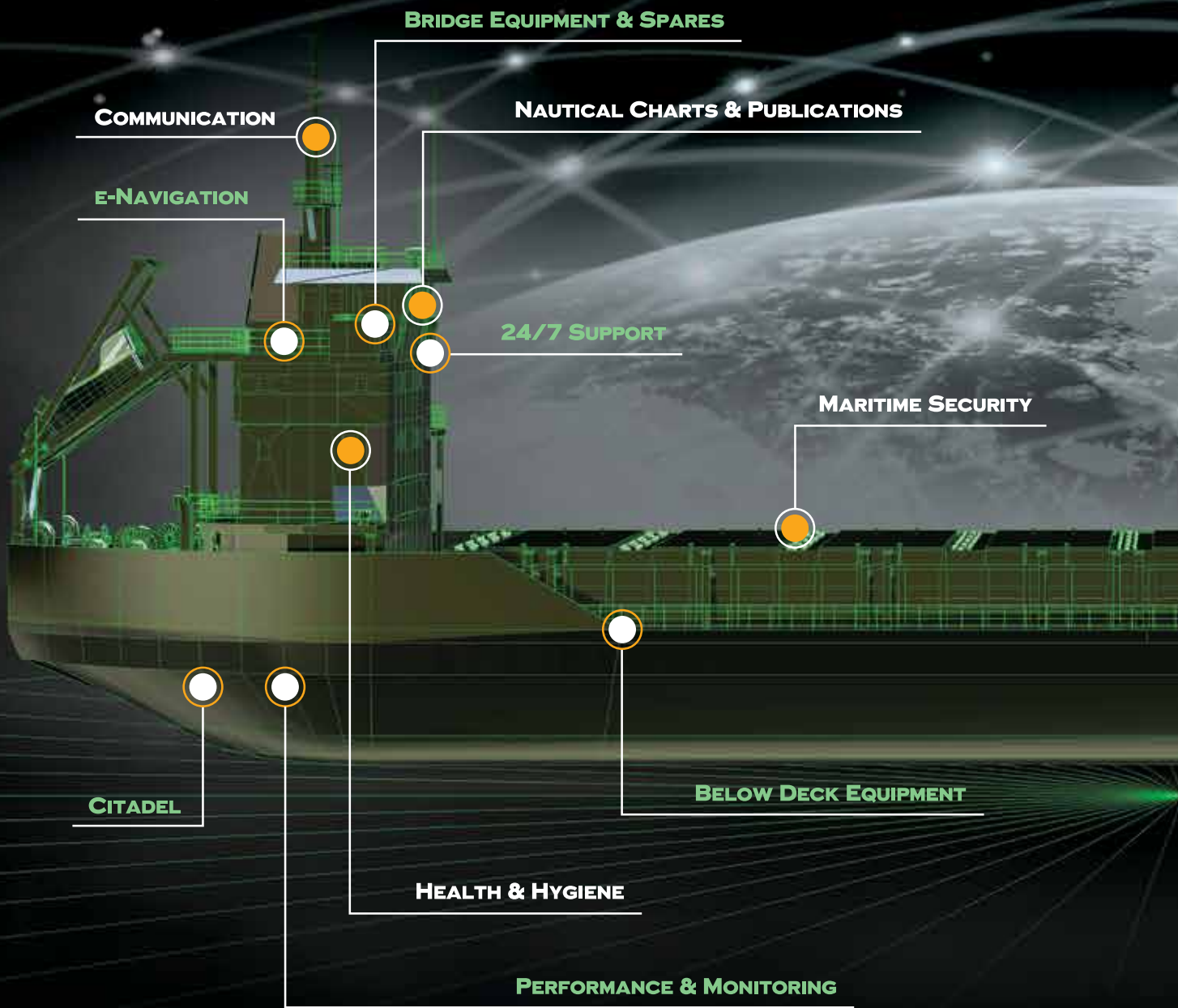
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Cover: *Contship Fun*, managed by *Contships Management Inc.*, during her recent dry-docking in "PIRAEUS I" floating tank of Piraeus Port Authority SA (PPA) in Perama.

Photo: *Naftika Chronika*

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INTERCARGO:

An open discussion on the organisation's past and future journeys

On the occasion of the 40th anniversary of the establishment of INTERCARGO in 1980, the International Association of Dry Cargo Shipowners collaborated with Isalos.net to organize an in-depth online discussion on current developments and the issues facing the industry. During the debate, the participants spoke about the reasons that led to the creation of a representative body for bulk carrier shipowners back in 1980.

The discussion participants were Messrs.

Dimitrios J. Fafalios,
Chairman, INTERCARGO,

Spyros Tarasis,
Vice-Chairman, INTERCARGO,

Uttam Kumar Jaiswal,
Vice-Chairman, INTERCARGO,

Tom Keenan,
Technical Committee Chairman, INTERCARGO,

John Platsidakis,
Honorary Chairman, Chairman (2013-2018) INTERCARGO

and **Jay Pillai,**
former Vice-Chairman (2015-2020),
INTERCARGO

Edited by:
Giannis Theodoropoulos





INTERCARGO's Annual General Meeting, in London on October 2018



INTERCARGO's 40th anniversary: accomplishments and future anticipations

A live webinar was organized on the 28th of January 2021 in order to celebrate the 40th anniversary of INTERCARGO and pay tribute to its creator Anthony J. Chandris as well as all past Chairmen and Members that contributed to the organization's development and success.

The event was organized by the Isalos.net/ Naftika Chronika research team that published a special edition on the organization's inspiring history in September 2019. This webinar is part of a series of events that will bring the organization closer not only to the shipping industry and the international political fora but also to the public at large.

The event was broadcast through all the INTERCARGO and Isalos.net communication and social media platforms and attracted more than 5,000 viewers from all over the world.

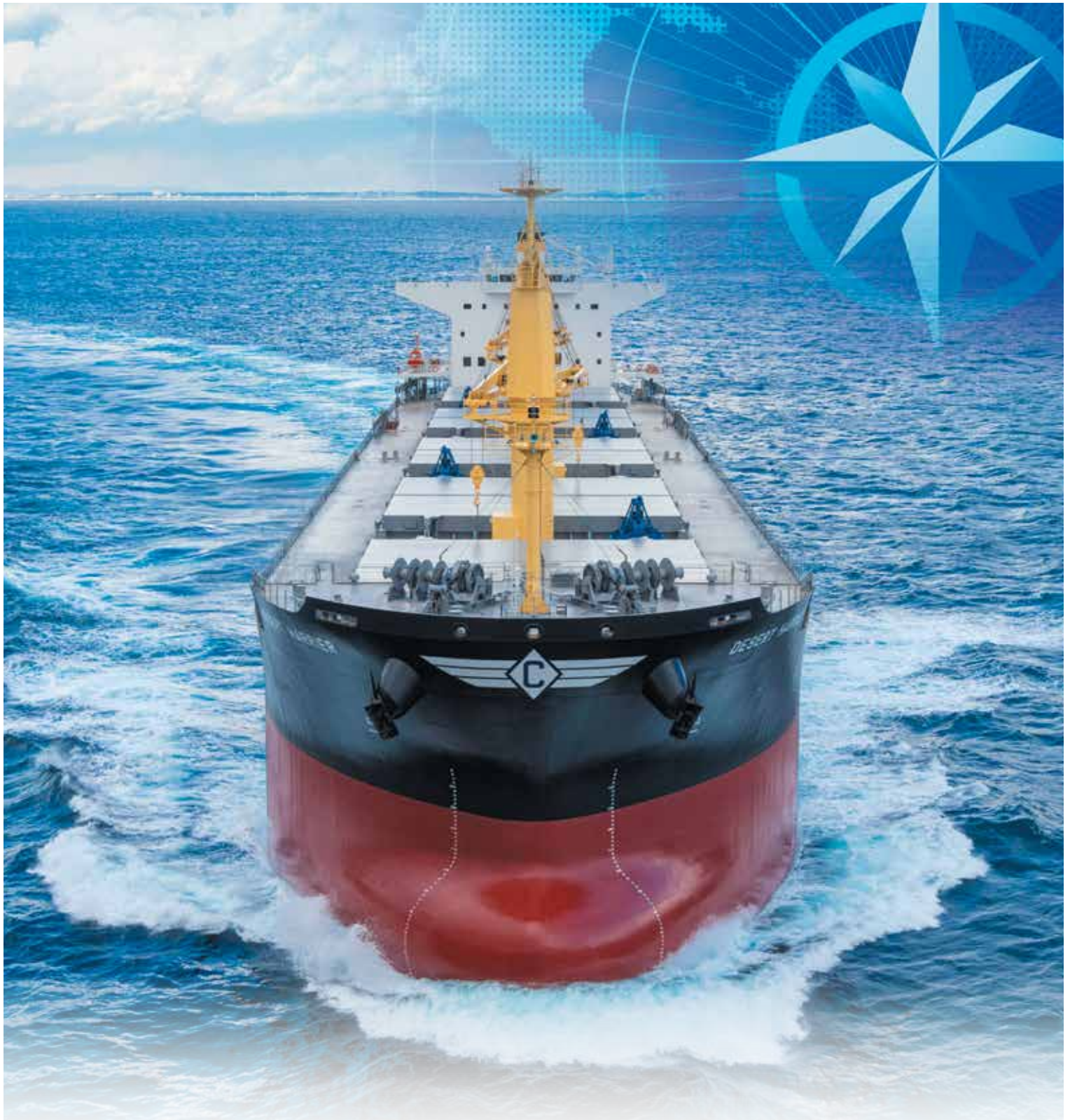
Mr. **Kitack Lim**, Secretary-General of IMO, and Dr. **Spyros Polemis**, founding member and Former Chairman of INTERCARGO from 1994-1996, extended short welcome speeches.

Mr. Kitack Lim gave a historical overview of IMO and INTERCARGO relations and then referred to the pandemic's impact on shipping and, in particular, on crew changes. The Secretary-General of IMO then said: "As we move forward and look ahead to post-COVID recovery, I would like to thank INTERCARGO for their support and collaboration. The pandemic has shown us just how

valuable it is to have a body of non-governmental organizations in consulting status within the IMO family that stands ready to offer their experience, expertise, and support in disturbing, complex situations. [...] In the coming years, I look forward to our continued cooperation as we focus on creating an even safer, more secure, greener, and more sustainable shipping industry in the post-pandemic world. The pandemic has illustrated the need for greater efficiency. Shipping's sustainability beyond the pandemic will depend on its ability to embrace digitalisation and new smart technologies.

Photo: Anthony J. Chandris, the visionary behind the founding of INTERCARGO and Aristomenis Karageorgis, Chairman of INTERCARGO (1986-1990) talk to members of the Greek ship owning community in Athens in the late 1970s.

Photo: Naftika Chronika archives



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I know that by working together we can find solutions. I know I can count on INTERCARGO to support IMO's work to enable a sustainable post-pandemic recovery and truly sustainable future of shipping.

”

Kitack Lim,
Secretary-General of IMO

Cooperation will be vital in enhancing shipping's efficiency and sustainability to facilitate trade and foster economic recovery and prosperity. Cutting green gas house emissions is going to be a key policy issue in 2021 and beyond. I look to INTERCARGO to support this work. Moving to low and zero-carbon fuel is not going to be easy. But I know that by working together we can find solutions. I know I can count on INTERCARGO to support IMO's work to enable a sustainable post-pandemic recovery and truly sustainable future of shipping.”

For his part, Dr. Spyros Polemis referred to the difficulties and challenges of creating INTERCARGO “Speaking 40 years after the establishment of INTERCARGO, one can clearly see the struggles that took many, many years to overcome. People did not see the necessity of belonging to such an association or the benefits that would accrue to them. All this is now behind us, but those involved since the beginning can readily relate to those years and those difficulties - difficulties that justified the existence of INTERCARGO.”

The circumstances that led to the creation of INTERCARGO

Initially, Messrs. J. Platsidakis and D. J. Fafalios spoke about the reasons that led to the creation of INTERCARGO 40 years ago. Referring to the severe depression in the freight market at that time, Mr. Platsidakis said that: “The exceptionally bad freight market for the dry bulk sector was creating deep concerns about the sustainability of the dry bulk industry among shipowners.” This had made it necessary to create an organization representing and promoting dry cargo shipowners' interests. However, the Honorary Chairman of INTERCARGO emphasized that creating INTERCARGO was by no means an attempt to create a cartel.

Mr. Fafalios remembered that in the late '80s and '90s, many bulk carriers were lost due to structural failure. At that time, class and IMO rules could not keep up with ship size increases, cargo handling rates, and corrosive effects on the vessels. INTERCARGO assisted greatly in the development of new regulations and standards.

Asked why the shipping industry needs associations to represent its members' interests, Mr. Tom Keenan said: “Dry bulk shipping needs shipowner representatives because it is a very fragmented market that includes thousands of small shipowners whose voice is not easily heard. Even the largest companies

in such a heavily regulated industry are small compared to similar companies in other sectors, with one or two exceptions. Such associations contribute towards making and reviewing new regulations, improve shipping standards, voice the stakeholders' concerns and suggest solutions to industry issues. Companies and ships registered with INTERCARGO arguably enjoy a quality badge widely recognised by the industry as a mark of excellence - among other things, the ships of its members comply with strict performance criteria. INTERCARGO unites and promotes quality dry bulk shipping by providing a forum where dry bulk shipowners, managers, and operators are kept informed and can discuss and share their concerns on key issues and regulatory challenges, especially those concerning safety, the environment, and operational excellence. The Association puts forward its members' positions to the IMO and other shipping and international industry fora”.

Today's challenges

The webinar participants also discussed some of the challenges facing the dry cargo industry today. They all agreed that the ever-increasing environmental regulations aimed at reducing the environmental footprint of shipping translate into significant uncertainty and unpredictable consequences not only for this particular industry but



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Speaking 40 years after the establishment of INTERCARGO, one can clearly see the struggles that took many, many years to overcome. People did not see the necessity of belonging to such an association or the benefits that would accrue to them. All this is now behind us, but those involved since the beginning can readily relate to those years and those difficulties - difficulties that justified the existence of INTERCARGO.

”

Spyros Polemis,

founding member and Former Chairman of INTERCARGO (1994-1996)

for international shipping as a whole. Among the topics discussed were new fuels and technologies and the EU Emissions Trading System (ETS). Regarding the ETS, Mr. Fafalios pointed out that “By including shipping in the EU Emissions Trading System (ETS), which European lawmakers have recently supported, Europe has ignored INTERCARGO and the whole industry’s calls for collaboration and adapted solutions to achieve the much-needed reduction in Greenhouse Gas (GHG) emissions for a greener shipping”.

The Chairman of INTERCARGO also commented: “Global challenges and problems require global handling and solutions. The International Maritime Organization (IMO) works to ensure a level playing field globally, unlike European or other regional regulations. The latter have proven ineffective, as they create distortions and multi-tier markets, or even trade tensions. The EU ETS risks causing trade retaliation, an increase in emissions, and the decline of European ports. There is a danger that trans-shipment centres will be set up just outside EU borders, served by large, efficient bulk vessels. Smaller, less GHG efficient ships will then transport cargoes to EU ports, which will lose the efficiencies gained through technology and size. In short, carbon leakage will take place”.

Mr. Tarassis spoke about the human element on land and at sea, which, as he emphasized, “is the most valuable asset onboard and ashore.” Given the significant changes taking place, the Vice Chairman of INTERCARGO focused on the industry’s growing digitalization. “Don’t forget that we are in a data war. Whoever has and controls the data is the one who will succeed. We need to make sure that we get the data from our ships and gain value from it. I think COVID helped us on that issue as our industry became more digitalized. Now we need to build upon this and go forward.”, Mr. Tarassis said. He did not fail to point out twice that shipping is changing and that today stakeholders should jointly discuss ways to improve the industry. “Shipping will change, and it will change a lot in the next 10-20 years. We need to be there for our members and for ourselves to see how this will turn out. I think INTERCARGO will be there as it has been for the past 40 years.”

Capt. Jay Pillai commented on how sanctions and trade protection measures by the world’s major traders have brought about changes in the dry cargo trade pattern. According to Capt. Pillai, despite the US-China sanctions, dry cargo flows from other countries such as Argentina and Brazil have increased, which has increased ton-miles. “Global trade has a tendency to try to be as efficient as possible. Trade protectionism or politics often mean sourcing commodities from politically preferred suppliers further away, which has a beneficial effect for shipowners by increasing tonne-mile demand in shipping.” The former Vice-Chairman of INTERCARGO feels optimistic that Sino-US relations will improve after the Biden election.

Capt. Uttam Kumar Jaiswal’s speech caused a stir. Highlighting the chronic issue of oversupply in the industry, he essentially urged shipowners to buy modern second-hand bulkers instead of investing in newbuildings.

COVID-19: Lessons Learned

Special mention was made of the unprecedented conditions the pandemic has caused in international shipping. The speakers focused on the inability to perform crew

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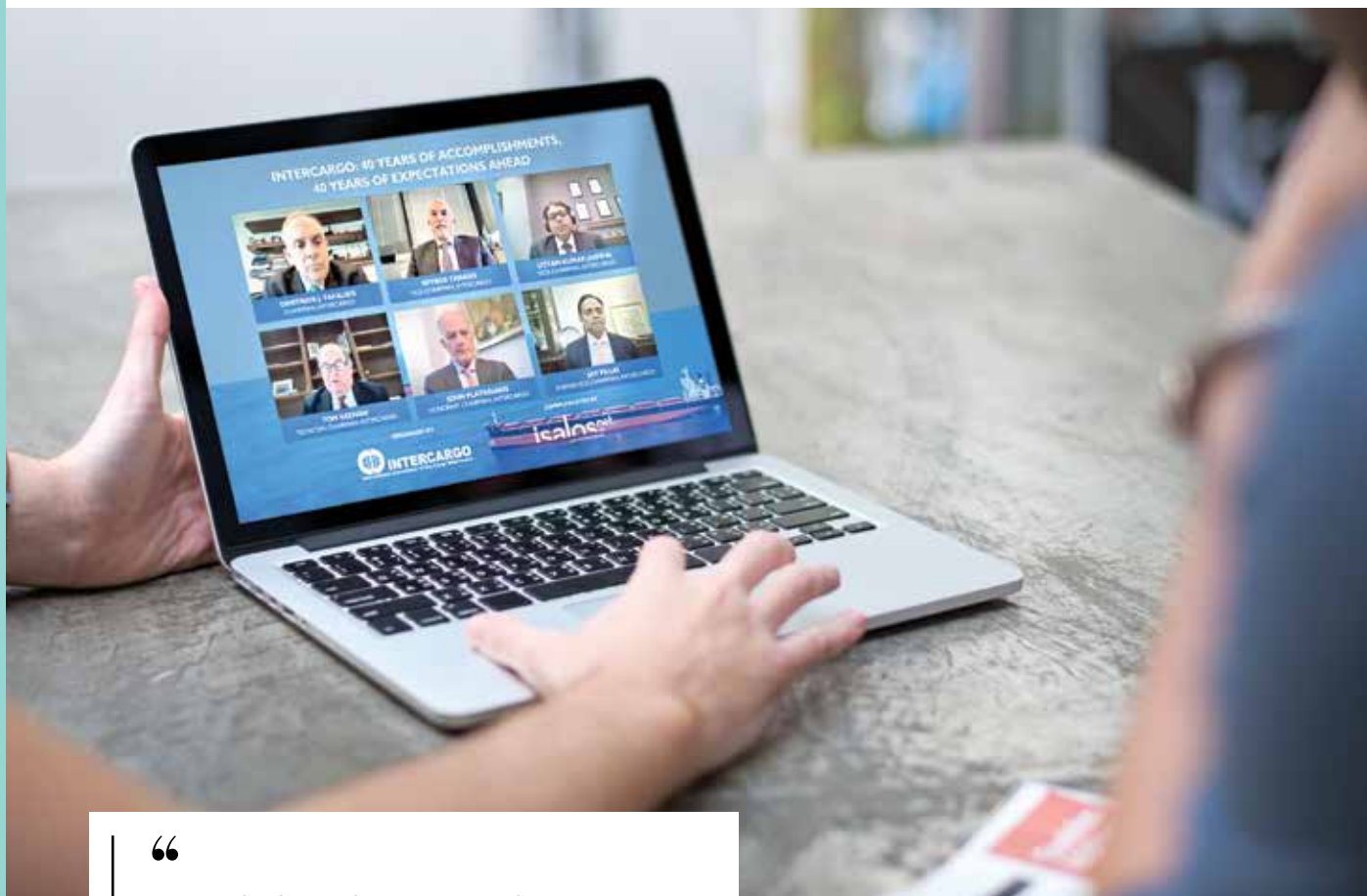
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”

Dimitris Fafalios,
Chairman of INTERCARGO

changes due to the restrictive measures in many ports and the negative effect it has on seafarers' mental health, many of whom are at sea for several months. They also spoke of the urgent need for seafarers, to whom we owe the smooth flow of goods around the world, to be recognised as key workers. Capt. Uttam Kumar Jaiswal, Vice Chairman of INTERCARGO, stressed that all parties involved should adopt the IMO protocols to resolve this issue and called on charterers to work together to solve this humanitarian crisis.

Commenting on the impact of the Covid-19 pandemic, Mr. Platsidakis said: "The COVID-19 outbreak has undoubtedly affected the shipping sector, so the dry bulk market was affected as well. Nevertheless, this was nothing new in the sense that shipping in general and certainly dry bulk shipping is very familiar with the ups and downs in the freight market, which are caused by various reasons". The Honorary Chairman of INTERCARGO stressed that shipping had ensured the uninterrupted flow of goods during the pandemic.

INTERCARGO and People

Mr. Fafalios stated that the 40-year history of INTERCARGO is primarily a story about people. The members, the seafarers, the secretariat, and the leadership of the Association.



HIGHER STANDARDS

A white silhouette of a large cargo ship is positioned behind the text 'HIGHER STANDARDS', extending from the left edge of the page towards the right.

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On the seafront

This month's top news
from naftikachronika.gr



Global merchant fleet crosses 100,000- ship mark

According to Clarkson Research data, the global merchant fleet of vessels above 100 gt exceeded 100,000 ships for the first time in February.

According to the same data, the average age across the 100,001 merchant ships is 21.7 years, and the average tonnage is 21,355 dwt.

Global shipping crossed the 70,000-ship mark in February 2006. Since then, its average capacity has increased by 57%.

EU shipowners call for fund coupled with targets for fuel suppliers to decarbonise shipping

The European Commission should address fuel suppliers by introducing sub-targets to make low- and zero-carbon fuels available for ship-

ping and increasing the multiplier for renewable fuels used in the maritime sector under the Renewable Energy Directive (RED), ECSA says in an announcement. A fuel standard as a requirement for ships instead of fuel suppliers under the FuelEU Maritime proposal would risk failing to deliver emissions reductions and be challenging to enforce. If a Market Based Measure (MBM) is introduced, a fund could invest the revenues to support these fuels' uptake, ECSA notes.

A global approach must be the cornerstone of the EU's policies, and any regional measures would risk undermining the international negotiations at the IMO level. As the shipping industry is fully committed to decarbonisation, success hinges primarily on the introduction of zero- or low-emission, safe, and widely available alternative fuels, which do not yet exist. ECSA advocates a two-pronged approach if any EU measures are to be introduced:

Edited by:
Giannis Theodoropoulos,
Michalis Nikolaou



- Establish a fund under an MBM and using the revenues to finance R&D projects and to bridge the price gap between new and conventional fuels; At the same time,
- Incentivise and require fuel suppliers to include a certain percentage of low- and zero-carbon fuels in their offering by introducing sub-targets and a higher multiplier for low- and zero-carbon fuels under RED.

“Introducing the right incentives and requirements for fuel suppliers to make low- and zero-carbon fuels for shipping available in the market is a prerequisite for the decarbonisation of the sector. As with the uptake of all new fuels, the chicken-and-egg dilemma can only be addressed by introducing the appropriate requirements for fuel suppliers. A fund under an MBM could support the uptake of these fuels,” said Martin Dorsman, ECSA Secretary-General.

A fund under an EU MBM would also minimise the sector’s administrative burden and ensure that all revenues are invested in its energy transition.

Mr. Dorsman continued: “A fuel standard should be geared towards fuel suppliers and not ships, which are merely the fuel users. This is especially relevant and should be taken into account by the European Commission under the upcoming FuelEU Maritime proposal. We are quite concerned that should the FuelEU Maritime put forward a fuel standard as a requirement for ships, such a measure would seriously disrupt the bunkering market and be challenging to enforce. More importantly, it would fail to incentivise energy efficiency improvements, be they technical (wind

propulsion assistance, heat recovery system, hull, propeller optimization, etc.) or operational (route optimization, slow steaming, etc.)”

ECSA submitted the European shipping sector’s position to the European Commission for public consultation on the revision of the EU ETS and the Renewable Energy Directive.

IMO urges for action against piracy in the Gulf of Guinea

The IMO Secretary-General Kitack Lim has expressed his deep concern about the escalation in the number and severity of attacks on ships and crew in the Gulf of Guinea region. Mr. Kitack Lim insisted on the need for all stakeholders to work together to restore security and reduce the threats to the safety and security of crews and vessels operating in the region.

The urgency of the situation has been highlighted by the attack on the container ship Mozart on

23 January 2021, in which one crew member was killed, and 15 seafarers were kidnapped.

In circular letter No. 438 issued 10 February, the Secretary-General said that IMO has been taking action to enhance the coordination of initiatives among stakeholders, including facilitating meetings with representatives of the industry, the Nigeria Maritime Administration and Safety Agency (NIMASA), and the Interregional Coordination Centre for the Implementation of Regional Strategy for Maritime Safety and Security in Central and West Africa (ICC).

The Secretary-General also stressed that ships need to implement the IMO endorsed Best Management Practices (BMP) for West Africa (WA) to avoid, deter, delay and report attacks.

IMO intends to convene a maritime security working group focusing on the Gulf of Guinea at the next session of the Maritime Safety Committee, MSC 103, scheduled to take place in May 2021. This will provide an opportunity for Member States and international organizations to discuss further collaboration and possible action to address the existing problems.

The first woman at the helm of the WTO

Renowned economist Ngozi Okonjo-Iweala, 66, who was appointed Director-General of the World Trade Organization (WTO), is one of Nigeria's most powerful women. In addition to being the first woman at the WTO's helm, she will also be the first head of the Organization from Africa.

Twice Minister of Finance and Head of Diplomacy in Nigeria for two months, Okonjo-Iweala began her career at the World Bank in 1982, where she worked for 25 years. In 2012, she failed to become president of the financial institution, facing the American-Korean Jim Jong Kim.

Ngozi Okonjo-Iweala has spent most of her life in the United States, where she studied at two prestigious universities, the Massachusetts Institute of Technology (MIT) and Harvard.

Although the WTO's statutes do not provide for the Director-General's rotating selection based on geographical criteria, there were intense rumors that it was now the turn of an African continent representative to assume the post. Since its inception in 1995, the WTO has been led by six men: three Europeans, one New Zealander, one Thai, and one Brazilian.

Okonjo-Iweala is expected to be stationed at WTO headquarters next to Lake Geneva in the coming weeks.

Describing herself as a "woman of actions" and having a reputation for taking on seemingly intractable problems, her work at the WTO is tailor-made for her. As Director-General, she will have to mediate international trade talks in the light of the US-China dispute, respond to pressure to reform trade rules, and address the protectionism escalated by the Covid-19 pandemic. The new head of the World Trade Organization advocated the reopening of the WTO, deeming it vital for this institution to be strong in order to overcome the Covid-19 pandemic and restart the global economy.

"A strong WTO is vital if we are to recover fully and rapidly from the devastation wrought by the COVID-19 pandemic. [...] I look forward to working with members to shape and implement the policy responses we need to get the global economy going again," Okonjo-Iweala said. "Our organization faces a great many challenges but working together, we can collectively make the WTO stronger, more agile, and better adapted to the realities of today," pointed out Ngozi Okonjo-Iweala in a press release.

For its part, the US delegation to the World Trade Organization said that it looks forward to working with Ngozi Okonjo-Iweala.

"The United States is committed to working closely with Director-General Ngozi Okonjo-Iweala, who can count on the United States as a constructive partner," said David Bisby, spokesman for the US State Department in Geneva.

South Korea's biggest yards increase order targets

Given that the shipbuilding industry is expected to perform better this year than in 2020, South Korean shipyards are setting ambitious targets for new ship orders.

According to a Yonhap report, Korea Shipbuilding & Offshore Engineering Co. (KSOE) set the annual order targets of its three units at a combined US\$14.9 billion in 2021, up nearly 50 percent from the previous year. The cumulative orders to KSOE's three shipyards came to about \$10 billion, or 116 ships, in 2020, meeting 90 percent of their order target of \$11 billion.

In early February, Samsung Heavy Industries Co. said it aims to win new orders worth \$7.8 billion, up 42 percent from its orders of \$5.5 billion in 2020. Last year, Samsung Heavy Industries achieved only 65 percent of its target.

Daewoo Shipbuilding & Marine Engineering Co. attained 78% of its target (\$5.64 billion of the 7.21 billion it had set as its target). In late January, the



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shipbuilder said it expected \$7.7 billion in new orders this year.

According to data provided by Clarkson Research Services, South Korean shipbuilders got off to a good start in January, as they bagged new orders totaling 910,000 compensated gross tons (CGTs), representing 54% of the 1.7 million CGTs ordered globally in January, or 24 of 66 ships, thus retaining their No. 1 global status in terms of new orders.

China's self-sufficiency in paraxylene to impact chemical shipping market in 2021

China's increasing production of paraxylene will reduce imports from South Korea and Japan, putting pressure on freight rates on intra-Asia routes in 2021, Drewry Maritime Research says in an analysis.

China is the world's largest importer of paraxylene, but in 2021 paraxylene imports are expected to fall by 10% as its domestic production capacity will grow by 9.8 million tonnes.

Paraxylene is the second-largest organic chemical carried by chemical tankers. In 2020, paraxylene comprised 17.1% of the total organics seaborne trade. However, trade volumes have been declining since 2018 due to the expansion of Chinese domestic capacity.

According to Drewry data, China imported 13.9 million tonnes of paraxylene in 2020, accounting for 69% of the total global paraxylene seaborne trade. However, the country's imports declined by 7.5% YoY as domestic capacity has been expanding since 2019. By the end of 2020, China's total paraxylene capacity reached 25.4 million tonnes per year. With additional 9.8 million tonnes and

6 million tonnes of new paraxylene capacity to start up in 2021 and 2022, respectively, Drewry expects this declining trend to continue in the next five years.

Despite the significant capacity increase, China will continue to be a major importer of paraxylene as consumption increases on the back of the rising production of purified terephthalic acid (PTA). Demand for the latter is growing in polyester fibres, bottle resins, and film.

China's paraxylene imports from South Korea and Japan slid by 15.7% and 17.6%, respectively, in 2020 YoY. With capacity additions in China, Drewry estimates paraxylene trade volume from South Korea and Japan to slump by 30% and 15% to 3.6 million tonnes and 1.5 million tonnes respectively in 2021.

Paraxylene exports from Brunei to China will remain stable in 2021 as Brunei's Hengyi Petrochemical plant, which started operating in 2019, is 70% owned by Chinese PTA producer Hengyi. The plant's 1.5 million tonnes paraxylene capacity is dedicated to Chinese PTA plants. Meanwhile, India's and the Middle Eastern exports of paraxylene to China will continue to increase in 2021, with new plants of 0.8 million tonnes in India and 1.4 million tonnes in Saudi Arabia to start up in 2021.

Drewry forecasts China's paraxylene imports to reach 12.5 million tonnes in 2021, a fall of 10% from 2020. In turn, the reduced volume of trade will squeeze chemical tanker freight rates on intra-Northeast Asia routes.

Michelin signs a transport commitment with Neoline

Committed to reducing CO₂ emissions from its logistics operations, the Michelin Group recently signed a transport commitment with NEOLINE. NEOLINE's decarbonized shipping service relies on clean and renewable wind energy as the main propulsion for its 136m long cargo ships with 4200m² sails. This is an innovative and unique solution, open to all shippers, which will reduce by 90% the CO₂ emissions related to transatlantic maritime freight transport.

The transport commitment signed by Michelin concerns the transport of tires loaded in containers by sailing cargo ships in Halifax, Canada, to Saint-Nazaire - Montoir de Bretagne, France, on the pilot line opened by NEOLINE, which will also serve the archipelago of Saint Pierre and Miquelon, as well as Baltimore, USA.

NEOLINE plans to open its transatlantic line with a first operating vessel in 2023. With the second vessel's arrival, scheduled a year later, the Miche-





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lin group will gradually entrust NEOLINE with at least 50% of the group's containers transported on this line.

Like the group's sites, which are committed to the ambitious goal of zero CO₂ emissions by 2050, Michelin intends to test new solutions to decarbonize its logistics operations.

80% of ports missing out on the benefits of digitalisation

Innovex One, a port management software provider for the world's busiest ports and towage operators, recently stated that of the 4,900 ports globally, the majority are not yet using digital technology for even the most basic processes. 80% of ports continue to rely on manual, legacy solutions such as whiteboards or spreadsheets to manage critical marine services such as towage, pilotage, and launch boats. This leaves many ports commercially vulnerable and less able to compete in an increasingly digital world.

While the phrase 'smart ports' has been used regularly within the maritime industry for several years, digitalisation benefits remain the preserve of only a few large 'Tier 1' ports that have the profile and financial muscle. This has created a polarised landscape within the port sector.

Many 'Tier 2 and below' ports still use manual, paper-based processes or Excel spreadsheets to arrange and execute jobs and rely on personal interaction and paper-based transactions as the norm for shipboard, ship-port interface, and port-hinterland-based exchanges. This leads to a range of inefficiencies in ordering, executing, and billing, as well as a lack of sustainability and competitiveness.

Alarming, this dynamic makes the 'last mile' of a journey at sea a weak link in the global logis-

tics chain, opening up risks of delays, late payments, increased fuel consumption and emissions, reduced revenues, and even safety concerns stemming from a lack of traceability. For the 20% of ports where this is not the case, they have often been able to rely on their own in-house software.

"The current dynamic reflects the often-messy reality of port operations, which is a blend of high-tech digital and paper-based, manual processes sitting side-by-side," says David Yeo, CEO, Innovex-One.

The Greek shipping community continues its work in upgrading public hospitals

Despite the pandemic outbreak, SYN-ENOSIS, the Greek shipowners' Social Welfare Company, is currently carrying out two important interventions to strengthen the National Health System. More specifically, it is implementing a program offering bed linen to all the country's public hospitals and a renovation program of the sanitary facilities in Attika's NHS hospitals.

Amid the increased medical needs of several Greek hospitals and clinics, a donation and delivery of bed linen took place these days to the 120 hospitals of the country's NHS regions and the National Center for Emergency Assistance. Deliveries were made to public hospitals in Athens, Thessaloniki, Patras, Ioannina, Larissa, Alexandroupolis, the Aegean and Ionian islands, and Crete, as well as over 45 other cities in the country. This significant donation concerned hospital linen of special specifications: 106,000 sheets, 25,000 pillowcases, and 28,000 blankets, as well as infant's and children's linen, specifically: 2,000 sheets, 2,000 pillowcases, 2,000 blankets, and 4,000 flannel/fleecy diapers.

Simultaneously, SYN-ENOSIS is also upgrading public hospitals' hygiene facilities in Attica, significantly improving the patients' daily lives and their sense of dignity. The works have been completed in the LAIKO and PENTELI CHILDREN'S hospitals. They will soon also be completed in the RED CROSS hospital, followed by EVANGELISMOS, ASKLIPIO VOULAS, and NIKEA hospitals. The relevant procedures are also in progress for the next three hospitals, ATTICON, PAMMAKARISTOS, and CHILDREN'S AGLAIA KYRIAKOU hospitals.

The President of Union of Greek Shipowners and SYN-ENOSIS, Mr. Theodore Veniamis, stated in this regard: "Through the Greek shipowners' Social Welfare Company SYN-ENOSIS, the Greek shipowning community continues uninterrupted-



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ly its work aimed at strengthening the National Health System, despite the difficulties caused by the pandemic. Once again, I want to thank the members of the Greek shipowning and shipping community for participating in these particularly demanding projects for the upgrading of the country's public hospitals."

Prime Minister Kyriakos Mitsotakis: Cosco's investment in Piraeus is an example of mutually beneficial cooperation

Prime Minister Kyriakos Mitsotakis participated by teleconference in the first I7+I summit organized by China, including leaders from countries in Central and Eastern Europe.

During his speech, the Prime Minister referred to the importance of international cooperation and stressed that the I7 + I Initiative has the characteristics that contribute to bold decisions through cooperation, solidarity, understanding, and transparency.

In this context, Kyriakos Mitsotakis noted that Cosco's investment in Piraeus is an example of mutually beneficial cooperation. "The example of the Chinese investment through Cosco in the port of Piraeus underlines this win-win approach, an investment initiative that is mutually beneficial for both countries," he said.

Chinese President Xi Jinping commented that "The port of Piraeus and Cosco's investment is an emblematic project. The port has become an important hub for China-Europe rapid land and sea links and connectivity between Asia and Europe," adding that Beijing is "ready to work with Greece and other parties towards promoting further the cooperation" within the framework of the I7 + I scheme.

12 million in extra support for coastal shipping in Greece

The Greek Ministry of Maritime Affairs and Insular Policy has secured extra support to coastal shipping companies amounting to 12 million euros, recognizing in practice its crucial role in ensuring communication and adequacy of supply and movement of passengers and goods between the mainland and insular Greece.

The ministry said in a statement that the additional support to address the negative consequences of the ongoing pandemic raises the total support package for coastal shipping to 67m euros.

The support of seafarers and workers in the sector continues with a series of measures approaching 15 million euros, including:

- Special leave compensation
- The extension of insurance coverage and unemployment benefit for unemployed seafarers
- The inclusion of coastal shipping in the scheme of subsidizing employer contributions for active seafarers
- The revision of the requirements for registering unemployed seafarers on the lists of seafarers available for recruitment
- Covering part of the unemployed seafarers' rent

"The Ministry of Shipping and Insular Policy from the first moment of the health crisis has proceeded with an integrated plan of support measures for both companies and employees. We managed to protect workers' rights and the seamless communication between mainland Greece and our islands. We continue to take all the necessary measures, in the exact same direction," stated Greek Minister Giannis Plakiotakis.

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Mr. **Hugo De Stoop**, CEO, Euronav, talks to Charis Pappas

Before ordering new ships, we need to make existing ships more efficient

Mr. Hugo De Stoop talks to *Naftika Chronika* about the short-term prospects of the wet market, the potential impact of the Poseidon Principles on the shipping industry, the reasons behind Euronav's strategic choice to fly the Greek flag, the backwash of the recent European green deal initiatives, and much more.

Euronav recently signed the Neptune Declaration, a global call to action to resolve the ongoing crew change crisis. Many prominent personalities in the shipping industry have spoken out, calling for a solution. Why has the shipping community's voice not been heard on an international scale over the past few months?

I do not know, but it is a pity. Maybe because politicians are driven mainly by votes or that very few powerful nations that influence international regulation-making produce many seafarers. However, indirectly, all the countries in the world, especially the OECD (or G20) countries, benefit greatly from trade enabled by shipping, so they must understand that it is in their interest to see this problem resolved.

The VLCC market experienced a severe downturn last summer. Given that global oil demand is expected to recover slowly but steadily, what are the market prospects for 2021? Should ship owning companies opt for newbuildings or second-hand vessels to address current and future demands?

The market will not be good this year. Demand for oil needs to recover from the low consumption due mainly to the Covid-19 pandemic. As far as vessels are concerned, the market does not need more ships, so if people want to invest in shipping assets, they should look at the second-hand market, which will offer good opportunities in terms of value.

Will scrapping be a necessity in the coming years? How do you explain the different reactions within the ship-owning community regarding the Poseidon Principles?

The Poseidon Principles do not deal with scrapping. They monitor emissions and try to align them with the Paris Agreement and the desired course of action. Before ordering newbuildings, we need to make existing ships more efficient. We can then look at the latest technologies and try to see which one will be the winner. This is not a revolution but an evolution. Old ships are being gradually replaced by eco-ships, and in the next 4-5 years, they will be replaced by ships with lower or zero-emissions.



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Greece continues to be a nation with a very strong tradition of seafaring and the pool of talents available in Greece is certainly the largest in Europe.

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The geopolitical landscape in the Arab peninsula is in continuous turmoil, yet the Kingdom of Saudi Arabia, the UAE, and Bahrain recently agreed to end the Qatari commercial blockade. Will the tanker market benefit from this development?

The lifting of the blockade is unlikely to affect the market because it had not affected it in the first place.

Are you concerned that Biden's new energy policy will have an adverse effect on the tanker market?

Not at all, we welcome further regulations that accelerate the transition away from fossil fuels. But people need to understand that this transition cannot happen overnight, so there needs to be a plan for incremental change. These changes need incentives; therefore, we would welcome a global carbon levy where the funds collected, return to the shipping industry in order for the necessary infrastructure to be funded.

Euronav is an international company with a significant number of vessels flying the Greek flag. What makes the Greek flag a mark of quality and a competitive force in the always dynamic international environment?

The European flags are indeed a stamp of good quality. Their regulations are more stringent than open registries (known as flags of convenience), and given the quality of our operations, we have no problem fulfilling the obligations under these regulations. Each European flag has its particularities (we fly the Belgian, French, and Greek flags). When it comes to the Greek flag, it gives an advantage to the people working onboard those ships, as most of their officers are actually Greek. Greece continues to be a nation with a very strong seafaring tradition, and the talent pool available in Greece is undoubtedly the largest in Europe. Our largest office is our ship management office headquartered in Athens, and we are there for a reason! Top-quality people onshore and onboard!

How has Euronav reacted to the European Green Deal initiatives that the European Commission is currently willing to implement? Is Europe pushing for change without taking



into account the views and concerns of all stakeholders? Do you think that the new ETS regime is on the right track?

Euronav is a supporter of the EU Green Deal and the EU's environmental ambitions, as clearly demonstrated by our active engagement in various initiatives such as the Global Maritime Forum, the Poseidon Principles, and the Sea Cargo Charter, to name but a few. Also, one should not forget the many things the maritime industry is already doing about the environment in general and, more recently, about emissions: double hull for oil tankers, ballast water treatment, IMO 2020 Very Low Sulphur Fuel Oil. We do hope and expect that Europe will consider the opinions of shipowners and shipowners associations. Any system will work best if supported by the industry, so we participated in the targeted EU ETS survey. We hope many of our peers also took that opportunity to share their views with the EU. An ETS system is a market-based measure, but we believe that a global carbon levy would be easier to implement and, at the same time, would ensure a global level playing field. We expect the EU to come forward with more details about the ETS in the summer. We hope it shares our view that global is better than just European and agrees that the revenues from

whatever system should be directly invested in the wider maritime industry - including infrastructure - and that the pioneering companies should be given due consideration.

Euronav has initiated various social responsibility programs in recent years. Is the company continuously evolving and adapting these programs, and are you measuring and reporting the impact of all your CSR actions?

Euronav was CREATED with the ambition to develop more advanced CSR (called ESG today) than anyone else in the industry. For example, we were the first large tanker owner to transition to an exclusively double-hulled fleet. In 2005, when we changed the company logo - right after merging with Tanklog, which was part of the Ceres group - the tag line we chose was "The ocean is our environment." That was 16 years ago, which shows we have always paid special attention to our environmental impact. Nothing has changed. Of course, as the company grew, we became more visible, and our voice became louder, so people listened to what we had to say - but our fundamental ambition remains to be the best in our class. The CDP score (B) that we obtain is certainly a token of that approach.



Mr. **Angelos Tyrogalas**,
Chief Operating Officer of Contships Management Inc., talks to Giannis Theodoropoulos



There are no "crystal balls" in the shipping market

Mr. Angelos Tyrogalas discusses Contships Management's decision to invest in the feeder containerships market, the impact of alliances and partnerships in liner shipping, and the medium-term prospects in this market. He also talks about the differences between the Greek shipping companies' family and corporate management model, the available financing options in shipping, and the Chinese investments in the Port of Piraeus.

Contships Management Inc. was founded in 2015 by Mr. Nikolas Pateras. What were the reasons behind the change from bulkers to containers, given that until 2014, Mr. Pateras' had focused on multi-purpose and dry cargo vessel management?

The ability to adapt is a key prerequisite for participating successfully in the shipping industry, which is, by its nature, very dynamic. Contships and Mr. Pateras' previous activities have a common background, namely a long tradition and extensive knowledge in managing vessels.

Based on a comprehensive analysis of the various shipping market sectors undertaken, a decision was made to focus on the container sector.

The container market calls for volume, quality, and service reliability, qualities that Contships has a proven track record in delivering and continuously strives to improve and develop further to satisfy charterers' demands.

In recent years there has been a significant increase in alliances and joint ventures in the liner shipping industry. Do you think these alliances may act as a deterrent to international competition and, in the medium term, have an adverse effect on the freight market itself?

For many years collaboration between competitors was a common practice. I have been involved in both organic growth and growth by way of joint ventures/alliances. I believe that joint ventures present a different form of competition - internally between the consortium partners and externally with the market.

Whether of a personal or commercial nature, any meaningful union requires some degree of comfort and trust between the participants. A joint venture requires defined limits, clear objectives, and shared goals to be successful. To the extent that these three factors exist, such unions take advantage of synergies while maintaining a healthy sense of competition between the participants vis-à-vis what each participant is expected to bring to the



arrangement. They also require that participants continuously deliver and develop, which results in a healthy internal competition.

Although joint ventures can lead to a diminishing number of players in any given market, the external competition remains. Due to its nature, the shipping industry needs to remain efficient in terms of the service it provides and the cost of delivering it. Existing players and potential new market entrants quickly identify efficiency gaps, so competition remains fierce. This is how Contships identified the feeder opportunity and grew to a fleet of 40 vessels in a very short time.

Companies defend against competitive compromise, so learning from competitors is still paramount. Although the freight market follows the above pattern and is affected by competition, other factors may also affect freight rates (upwards or downwards, and not related to the charter rate, as many believe). Shipping has historically been the biggest risk-taker in cargo transportation, and this includes the risk of pricing. Over time, the container market has become increasingly important as it is responsible for transporting most of the world's retail cargo. This has also created an increasing need for logistics companies that operate independently or collaborate with third parties in the container sector.

With 900-1,500 TEU vessels carrying more than 1.5m TEU per year, almost 5000 operations per year, and an extremely high number of port calls - our ships call at a port every 3 days! - Contships is there to support the market.

In 2020, the world economy and consequently shipping experienced an unprecedented crisis due to the pandemic. In this fragile environment, liner shipping managed to survive and to experience significant recovery. What parameters led to this improvement, and what are the shipping market's medium-term prospects?

Because of the pandemic, we have entered uncharted waters, which means that the shipping industry is trying to adapt to a new reality that is often proving to be more brutal than expected. Liner shipping has managed to survive, although we continue to experience the pandemic's effects on our personal and professional lives daily and will probably continue to do so in the

medium and long term. The world economy and the production and consumption parameters that underpin it have led the market to respond to the pandemic and the US-China Trade war that started in 2018. Unfortunately, there are no "crystal balls" in the shipping market. Hence, there is no way to predict the future - the keys to survival are being able to adapt as opposed to compromising and being well placed to keep up with and thereby participate in market trends as they unfold. Contships is strategically placed to adapt and evolve on this path, which would not have happened without the vision of Mr. Pateras and the team that plays a crucial role in this process.

For many reasons, many analysts believe that Greek shipping's traditional family-business model should be revised in the near future. Do you think that Greek shipping should turn to an exclusively corporate business model in the future?

As a company with external hires of the appropriate skill set, we would like all of our employees to feel as if they are still working for a family business, albeit within a corporate environment.

My own personal history started with my family's small ferry shipping company. I then went into

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A management company's purpose is to support the vessels and their operations, increase their activity, and assist proactively by offering scaled solution know-how. Whether onboard a ship or in the office, people in shipping will do their job well, as long as they love it and are passionate about it.

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third-party management, followed by ship financing, shipbuilding, and corporate management projects. I have been fortunate enough to experience many ship investment models at all levels of the cycle, enjoying the highs and surviving the lows. My experience has taught me to take the best from each model as there is no right or wrong. Irrespective of the chosen model, if you love what you do and invest the time and resources to achieve a certain level of quality and efficiency, you will be rewarded. Whether it is big or small, corporate or a family business, the cornerstones of every company are love and "filotimo."

Within five years, Contships' fleet grew exponentially. How easy is it today for a shipping company to raise capital to finance its activities? Do you think that other ways of financing can compete with traditional banking today?

As you rightly said, capital raising can take many forms. The most appropriate way depends on a shipping (or other) company's strategy and growth level when raising the capital. Another critical concern related to strategy is where the company wants to be businesswise in the medium and long term. Underlying all these criteria is the availability of a market to provide the capital. Contships has relied on traditional ship finance and own equity investment, which further demonstrates its belief in the assets in which it invests. Having said that, solid ship-management principles, cost control, upgrading assets (both in terms of CapEx and operational efficiency), and maintenance are core principles that ensure that a company's capital investments deliver positive results. We at Contships are proud of our ability to adhere to these core principles.

The human factor has always been a central component for the growth of Greek shipping. In your opinion, what skills and abilities should shore and sea executives have in order to adapt in the ever-changing and competitive shipping environment?

Ships and their operation are part of a complex environment. Participating in such an environment requires a combination of discipline and specialized set of skills from a high-quality education. A management company's purpose is to support the vessels and their operations, increase their activity, and assist proactively by offering scaled solution know-how. Whether onboard a ship or in the office, people in shipping will do their job well, as long as they love it and are passionate about it. The human factor in Greek shipping is a strong advantage because we have been fortunate enough to inherit the Greek mariners' spirit and their love of managing the complex world of ships. We at Contships strive to excel in this competitive industry by offering reliable and efficient.

Do you think that the Chinese investments in Piraeus Port benefit the Greek maritime cluster and the Greek shipowners specializing in liner shipping?

Any serious investment in Greece is welcome as another form of collaboration, provided the entity making the investment also enters an informal social contract with the broader community and not just the shipping community. Cosco has made substantial investments in the terminal and the ship repair zone, and this has had a trickle-down effect on the families in the community. The volume of business undertaken by the terminal continues to increase, which benefits financially the people involved in shipping. This, in turn, translates into qualitative improvements for their families that cannot be measured in financial terms, such as access to better education and other facilities, resulting in better employment prospects and a better quality of life. On the whole, we consider the Cosco investment in Piraeus an investment that will offer many opportunities to a number of stakeholders - and Greece as a whole - and hope to see more of our managed vessels calling at Piraeus for trade and repairs.



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Mr. **Steen Lund**, CEO of RightShip, talks to Giannis Theodoropoulos

Digitalisation and decarbonisation: The main challenges that the industry will face in the coming years

The CEO of RightShip shares his views on the new landscape emerging in vetting inspections and the importance RightShip places on the shipping industry's needs and priorities. Mr. Lund also talks about the DryBMS and the risk areas on which it focuses, as well as the new Safety Score - a useful tool for ship managers. Finally, he shares his views on the biggest challenges that the industry will have to face in the years ahead.

How has vetting changed in recent years? Has the coronavirus pandemic speeded up some of the ship vetting inspection procedures?

As a process, vetting continues to adapt and evolve together with the shipping industry. It would be fair to say that as a result of the pandemic, vetting is an area where shipping has had to prioritise innovation. Last year, for example, remote audits and inspections started becoming

commonplace in the industry. As a result, we are beginning to see the impact of digital tools enhancing the due diligence process. Increasingly, we see more real-time data collection, which will impact the pace of decision-making.

This again highlights the need for standardisation across the industry. Currently, there is no standardisation of the outputs from audits, surveys, inspections, or vessel vets across the industry, which is a significant challenge as many organisations use different approaches and present their findings in various formats that are often completed in an analogue manner. Digitalisation and data – and shared data standards - will remain an important aspect of streamlining the vetting process and providing industry-wide uniformity. To achieve a real breakthrough and build a critical mass of data, collaborating on standards should be given a far higher priority than attempting to build uniformity in data collection. For as long as a successful integrator with onboard IoT equipment can only show a few hundred connected vessels, the industry will stay in experimental mode. It needs scale to shift towards data standards that can generate genuine Big Data and, from there, build downstream solutions of real value.

The proposed Dry Bulk Management Standard aims at increasing the operational safety of dry cargo vessels. Do you think that the DryBMS should focus more on the human factor and particularly on the best practices that ship crews should follow to increase safety at sea?

The Dry Bulk Management Standard was designed to improve processes in the dry bulk sector as a whole and address several factors besides the human element, as all these factors are intrinsic to enhancing safety and cannot be considered separately. Through extensive consultation, we have seen a common need for a better communications culture, which can generally be implemented at the management level and filtered through the supply chain. DryBMS working group participants are unified in the belief that a standard with which we are all aligned will become common practice in the workplace culture, preventing incidents that impact both physical and mental wellbeing.

By focusing on the four most serious risk areas in vessel operations, namely performance, people, plant, and process, the new DryBMS will help the dry bulk sector achieve excellence in safety, security, environmental, and seafarer health and wellbeing standards.

Furthermore, we have recently announced our partnership with INTERCARGO, which will help us develop a new NGO that will impartially impose industry standards. We hope this will ensure that casualties in the dry bulk sector become a thing of the past while the standard continues to be protected and governed independently, with the industry's best interest at heart.

Responding to industry feedback, RightShip recently updated its Safety Score. What are the new features of the Safety Score? How important is it for RightShip to listen to the needs and priorities of the shipping industry?

After receiving considerable industry feedback, we are proud to launch our new Safety Score on February 8th. Going through different updates to the Safety Score was essential to its future success. We also think it is vital to work with all stakeholders – be they owner, charterer, port, financier, or other groups – to show them how they can benefit and utilise data to make shipping safer and more sustainable.

Our new Score outlines clear paths to improvement that create a level playing field and allow owners to understand how to improve their rating. Charterers gain a better understanding of the due diligence process as they look to improve safety, sustainability, and seafarer welfare within their supply chains. Charterers using the Safety Score as part of the vetting process now receive more information about vessels of the same size and type, so they are well placed to vet vessels based on reliable benchmarking. The metric is

entirely transparent, and we believe it will generate better safety outcomes for the sector.

How is RightShip adapting its environmental rating to align it with the carbon intensity indicator developed by the IMO? Will the RightShip environmental rating still be relevant?

In 2012 we developed and launched our GHG Emissions Rating as an answer to customer demand and a growing trend of reducing global CO₂ emissions. We are confident this rating will continue to be relevant as the industry continues to navigate towards decarbonisation. We are continually updating the GHG Rating in line with new industry trends. This includes working with owners to provide them with ways to prove and log efficiency, which will improve the ratings of their current fleet.

Additionally, we are looking into conducting extensive research and building partnerships to develop future solutions regarding decarbonization. RightShip seeks to work with a collective of like-minded businesses and individuals to overcome the economic, infrastructure, and product-focused challenges we are presently facing. The key to success will be a holistic and feasible roadmap with goalposts set incrementally.

As EEXI and CII consideration matures in the IMO, it is evident that current measurements and hence carbon-related products will change. Over time, it will be interesting to track and influence technology adoption from modelling emissions based on design data to capturing near real-time emissions data.

It is crucial to look beyond vessels to the entire supply chain. This is why we launched our Maritime Emissions Portal, a sustainability tool designed to support ports in reducing their emissions outputs through data-driven insights. The next step is to work out how all products and services will work together to provide a complete picture of future impacts – from lowering the human environmental footprint to insurance incentives and implementing low-carbon and zero-carbon fuel alternatives.

What makes the new Safety Score a useful tool for ship managers? If a player in the transport chain (e.g., a charterer) logs into the RightShip Platform, does he gain access to ships' scores as recorded during inspections?

For ship managers, the new Safety Index takes into account management performance and approach, giving owners and managers a clear



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understanding of how they can improve safety across multiple parameters. It also encourages shipowners to invest in system improvements, processes, and technologies that make the entire supply chain safer.

Providing shipowners with a concrete pathway to improving safety and their operations will support more comprehensive safety standards across the industry and drive a new debate within shipping on how we can manage risk while safeguarding our operations.

Regarding charterers, the Safety Score and Platform provide a clear indication of best practice operators and indicate those who have made clear improvements over time. We also believe that the Score has applications for other supply chain actors, including financiers, ports, and insurers.

What do you think are the biggest challenges that the industry will have to face in the coming years?

Broadly speaking, we believe the main challenges that the industry will face in the coming years will mostly be related to digitisation and decarbonisation.

Firstly, as regards digitisation, there will be a compelling need within the industry to improve the way it handles data to achieve maximum impact. For example, how could we generate data-driven insights for a ship manager who interacts with multiple class societies or support an owner who

has to provide noon reports for different and fragmented applications? The maritime industry has a wealth of data at its disposal. The challenge is getting the most out of those insights, mainly so that we can make decisions in real-time. We are working intensively on building our data-sharing capacity, bolstering our own data warehouse, and helping others better utilise their data for the benefit of the whole.

Decarbonisation, which has been high on the industry's agenda for years, is coming to a tipping point. The industry has not made enough progress in recent years to meet the 2030 carbon reduction targets – some have, of course, but many small-size owners have not had the bandwidth to invest in this area yet. In the next 12 to 24-months, we must make great strides in developing a unified road map that will help us meet these goals and ideally get us there ahead of time. The cost of these changes will be enormous, so the priority will be assessing the ways in which existing vessels will be suitably retrofitted, how new buildings will be designed and how associations, governments, banks, charterers, and other stakeholders can come together to implement solutions efficiently and effectively. We operate on two fronts – short-term and nimble, mostly technology and operations-driven improvements and the longer and more capital-intensive identification of the future fuel(s) and the resultant massive supply chain orchestration that will be required.

We know RightShip's mission, but could you tell us something about its vision?

As a data-driven organisation, we believe we have a key role in helping the industry use smart data intelligently to generate change. RightShip aspires to take the lead in data and outputs standardisation and to play its part in guiding the industry's digital adaptation at a time when it is needed the most.

The events of the last twelve months have radically changed the time frame for technological development. Just like in our personal and professional lives, where we have all adapted and taken advantage of technology to connect with others on all continents, shipping is now taking advantage of the radical improvements that data can offer.

We believe that this is the key to achieving our ultimate goal: a zero-incident, zero-emission shipping industry. This is not a dream either- we can and must make decisions in the coming years that will determine whether we will achieve this goal. We must all work together to ensure that we build the right framework for a smarter, safer, and more sustainable shipping industry.



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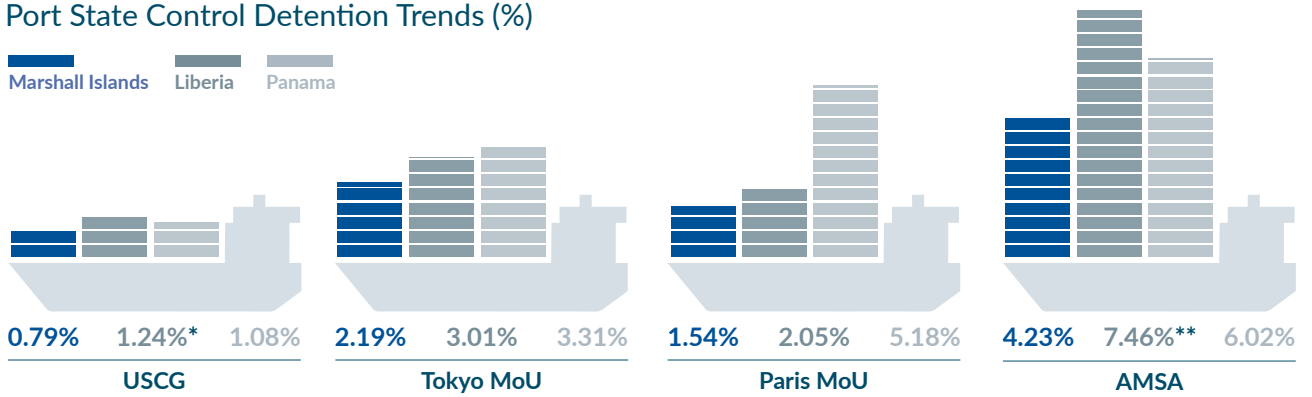
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Port State Control Detention Trends (%)

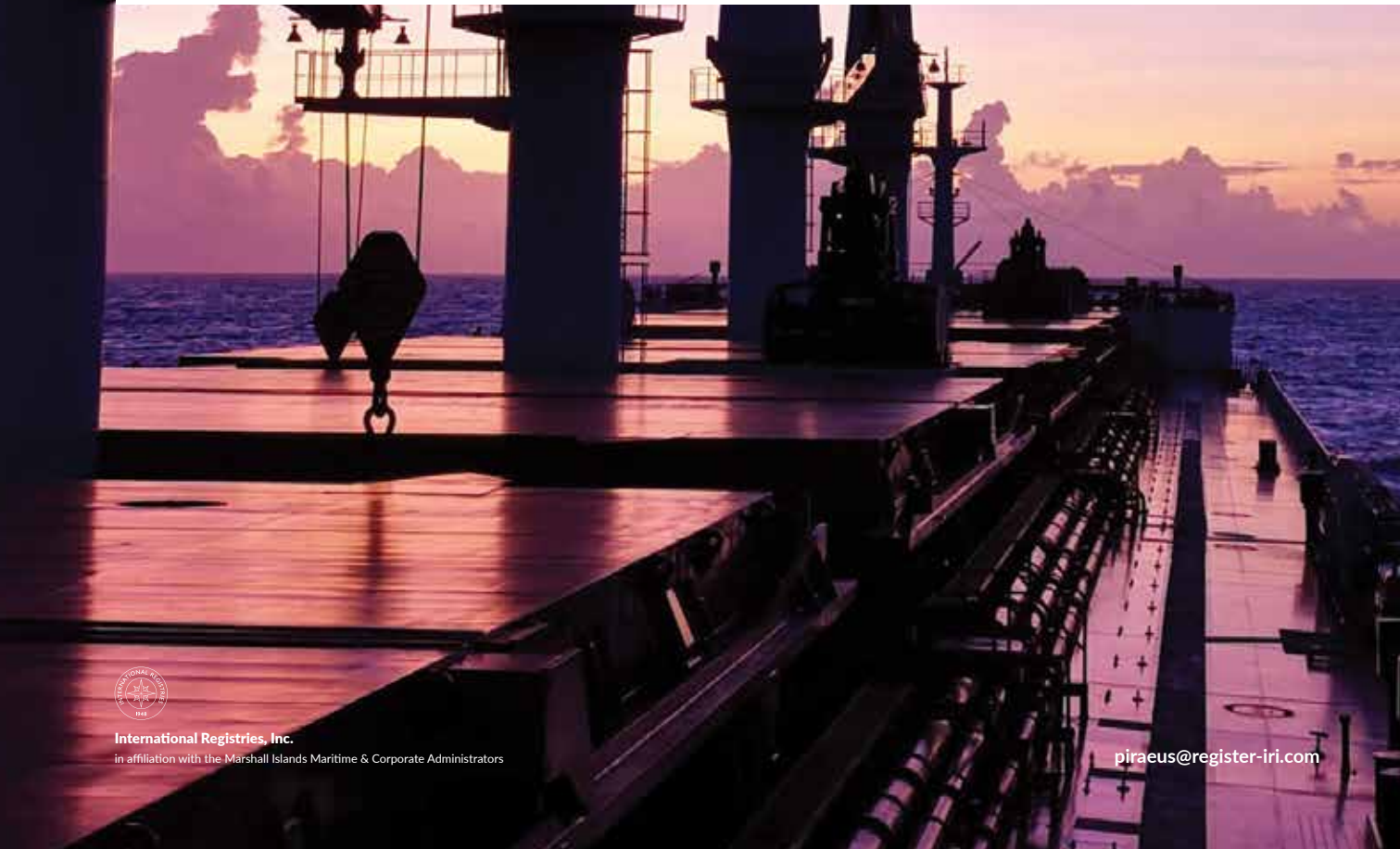
■ Marshall Islands ■ Liberia ■ Panama



* Liberia is targeted for additional PSC examinations by the USCG for having a detention ratio up to two times the overall detention average.

** Liberia has exceeded the overall AMSA average detention rate over the three years from 2017-2019 and is listed among the top five worst detention rates by flag State.

Sources: 2019 Port State Control Annual Reports.



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International Waters

News from the seas of the world



Shipping entrepreneurship developments

GasLog Ltd. announces private transaction with BlackRock's Global Energy & Power Infrastructure Team

GasLog Ltd. recently announced that it has entered into an agreement and plan of merger with BlackRock's Global Energy & Power Infrastructure team, which is focused on essential, long-term infrastructure investments in the energy and power sector. Under the Merger Agreement, GEPIF will acquire all of the outstanding common shares of GasLog

that are not held by certain existing shareholders of GasLog, including Blenheim Holdings Ltd., which is wholly owned by the Livanos family,

and a wholly owned affiliate of the Onassis Foundation (collectively, the "Rolling Shareholders"), in exchange for \$5.80 in cash per common share (the "Transaction"). The \$5.80 per share acquisition price represents a 17% premium to the closing price of GasLog's common shares on February 19, 2021. Immediately following the completion of the Transaction, the Rolling Shareholders will continue to hold approximately 55% of the outstanding common shares of GasLog and GEPIF will hold approximately 45%. Promptly after completion of the Transaction, the common shares of GasLog will be delisted from the New York Stock Exchange.

"This transaction is a transformative next step for GasLog, offering shareholders an immediate and considerable premium for their shares and allowing for access to growth capital currently absent in the public equity markets," said Peter G. Livanos, Chairman of GasLog. "I am delighted to be partnering with BlackRock's GEPIF team, an ideal complement to our management team, given our shared values of safety, sustainability and operational excellence. BlackRock's GEPIF team

Edited by:

Giannis Theodoropoulos,
Michalis Nikolaou



has a track record of success in supporting energy infrastructure businesses such as ours. I am confident that our employees offshore and on shore, customers and lending relationships will enjoy the many and substantial benefits of this partnership.”

CMA CGM creates a specialised air freight division

The CMA CGM Group is stepping up its strategic development in logistics by creating a specialised air freight division: CMA CGM AIR CARGO.

This move into air freight strengthens the Group’s transport and logistics business, allowing the company to offer its customers a new range of comprehensive, agile, and customised solutions.

To support its expansion into air freight, the CMA CGM Group is buying four 60-tonne-payload Airbus A330-200F freighter aircraft, which came into service between 2014 and 2016. With a range of 4,000 nautical miles, they will connect Europe with the rest of the world. The CMA CGM Group will entrust the operation of its freighter fleet to a European airline.

CMA CGM AIR CARGO represents a major new CMA CGM Group component in both operational and commercial terms.

This expansion into air freight is a new milestone in the Group’s strategic development to provide customers with a complementary range of services covering both shipping and logistics.

Trafigura has successfully issued a EUR400 million bond

Trafigura Group Pte Ltd has successfully issued a EUR400 million senior RegS bond with a five-year maturity. Following a broad engagement by Trafigura’s management team with investors during the virtual roadshow, the bond priced at 3.875 percent, a tightening of 37.5 basis points from the Initial Price Talk, thanks to very strong support from institutional investors and private banks.

The order book’s quality was reflected by the range and geographical diversity of the 120 investors who participated in the transaction. The oversubscription by circa two times after the price was revised, enabled the Group to increase the size of the transaction to EUR400 million.

Proceeds will be used for general corporate purposes. The long duration of the Euro senior bond will allow the Group to strengthen its balance sheet further.

Castor Maritime diversifies its fleet

Castor Maritime Inc. announced that it entered, through two separate wholly-owned subsidiaries, into agreements to purchase two 2005 Korean-built Aframax LR2 tankers from an unaffiliated third-party seller for an aggregate purchase price of \$27.2 million.

Both vessels have attached time charter contracts with a reputable charterer with an estimated remaining term of about one year, each of which shall provide the company with a minimum gross daily hire of \$15,000 and have a 50% profit-sharing arrangement over such level based on a predetermined formula.

The acquisition is expected to be consummated by taking delivery of the vessels within the first quarter of this year and is subject to the satisfaction of certain customary closing conditions.

Petros Panagiotidis, Chief Executive Officer of Castor, commented: “As we have communicated previously, we are a company that aims to take advantage of attractive opportunities presented to us as the shipping cycles evolve. Therefore, we are very excited to be entering the tanker market at what we believe is an opportune time for this sector.

In addition, we believe that the diversification of our fleet across the dry bulk and tanker sector provides us with a natural hedge against the cyclical nature of the shipping industry. With significant capital on hand, we are actively continuing to look for further opportunities to diversify and grow our fleet with the addition of high-quality tonnage.”

Hapag-Lloyd: new horizons in shipping finance

Hapag-Lloyd is breaking new ground in financing by concluding two debut transactions according to the Green Loan Principles of the Loan Market Association (LMA). This has also been verified by an independent expert in the form of a secondary party opinion of the DNV GL. Both transactions are associated with the financing of six ultra-large 23,500 TEU container ships, which were ordered in December 2020.

The syndicated green loan in the amount of USD

417 million has a 12-year maturity and will be used to finance three of the six container ships on order. The credit facility is being backed by the Korea Trade Insurance Corporation (K-SURE), and the syndicate consists of 11 banks. KfW IPEX-Bank and BNP Paribas were in charge of structuring and coordinating the transaction.

The lease financing for the remaining three new-buildings is in the amount of USD 472 million, has a maturity of 17 years plus construction-phase financing, and has been structured by the Industrial and Commercial Bank of China Leasing (ICBC Leasing).



Blue Economy

Marine biofuels on the rise

Ocean Network Express (ONE) announced the successful trial use of biofuel to power the M/V MOL Experience. The trial was completed on 7 February 2021, following bunkering at the Port of Rotterdam, the Netherlands, in November 2020, and was performed in collaboration with ship-owner Mitsui OSK Lines and leading sustainable biofuel pioneer GoodFuels.

During this first trial, the sustainable biofuel was blended with conventional fossil fuels enabling the M/V MOL Experience to make its Atlantic

crossings between Europe and the USA. The trial's success proves the viability of sustainable biofuels, which will help ONE meet its carbon reduction targets in 2030 and 2050, respectively. Biofuel is a fuel derived from renewable sources. The advanced biofuel used in the trial is made from waste oils such as used cooking oil. Biofuels are considered carbon-neutral because the carbon dioxide absorbed by the source of the biomass is equal to the carbon dioxide released when the fuel is burned. It has gained attention around the world as an environmentally-friendly alternative to fossil fuels.

PCCI calls for immediate action on ship recycling in Greece

The Piraeus Chamber of Commerce and Industry in letters to the Ministries of Maritime Affairs and

Island Policy, Development and Investment, Energy and Environment, Finance, and the Minister of State calls for their support and immediate intervention in order to “run in a coordinated manner” those actions that will allow the business development in the important field of ship recycling.

“Ship recycling activity faithfully follows the philosophy of the circular and, mainly, blue economy, as the recovery of shipbuilding steel and other metals, among other materials, not only reduces the depletion of raw materials but also saves resources for the shipbuilding industry,” says the president of the PCCI Mr. Vassilis Korkkidis.

As the PCCI notes, it has repeatedly advocated and substantiated arguments in favor of reviving activities in the ship repair shipyards. With these letters, it advocates and substantiates arguments in favor of the creation of Ship Recycling Units in organized shipyards, with the appropriate high environmental and occupational health and safety standards, as provided by the legal framework of the European Union

It is pointed out that “Greece, although a leading player in world shipping, does not have a well-established ship recycling unit that complies with the strict national and European environmental requirements, which could create significant benefits for the national economy, GDP, and employment.”

The Chamber believes that the current circumstances are favorable, as the appropriate financial tools to support business activities in this direction are now available either through the European Recovery Fund or the European Maritime and Fisheries Fund (EMFF) of the European Commission (DG MARE), which is launching a new invitation for the support of sustainable development of small and medium-sized enterprises within the Blue Economy throughout the EU.

The ports of Antwerp and Zeebrugge to join forces

The City of Antwerp and the City of Bruges have reached an agreement to merge their respective ports. The two-city agreement marks the start of a unification process expected to take a year to finalise. Once completed, the ports will operate under the name ‘Port of Antwerp-Bruges.’ As a result of the merger, the ports will be able to strengthen their position within the global supply chain and continue their course towards sustainable growth. Furthermore, the unified port will be more resilient to future challenges and will take the lead in the transition

towards a low-carbon economy. The ambition is for the Port of Antwerp-Bruges to become the world’s first port to reconcile economy, people, and climate.

The shared position of the ports of Antwerp and Zeebrugge within the global supply chain will receive a significant boost. The merged port will become the most important container port (157 million tonnes/year), one of the largest breakbulk ports, and the largest port for the throughput of vehicles in Europe. Furthermore, the port will account for more than 15% of Europe’s liquid natural gas transited, and it will, of course, remain Europe’s most important chemical hub. Finally, it will be the largest port for cruise ships in the Benelux. With a total throughput of 278 million tonnes per year, the unified port will be able to consolidate its leading position in the world.

The unification project is all about creating added value for the surrounding areas of Antwerp and Zeebrugge, for customers and stakeholders, as well as for the rest of Flanders. As part of a joint plan, the two ports have defined three strategic priorities – sustainable growth, resilience, and leadership in the energy and digital transition.

Google’s new subsea cable between the US and Europe is now operational

Google and its partner SubCom have recently announced that the Dunant subsea cable between Virginia Beach, Virginia, and Saint-Hilaire-de-Riez on the French Atlantic coast is now operational.

Google first announced this project, named after the first Nobel Peace Prize winner and founder of the Red Cross, Henry Dunant, in 2018. The project was expected to take off in 2020; however, the coronavirus pandemic put a brake on the two companies’ plans.

The 4,000-mile cable has a total capacity of 250 terabits per second —or enough to transmit the “entire digitized Library of Congress three times every second!” Dunant uses 12 fiber pairs and a number of other technical innovations that will contribute to maximizing its bandwidth.

The next Google cable to go live will be the Grace Hopper subsea cable between New York and Europe. This project is expected to go online in 2022 and will feature a total of 16 fiber pairs. Google is also building the Equiano cable from South Africa to Portugal. This cable is supposed to go online later this year.



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Geopolitics

N. Dendias: Greece is a bridge between the Eastern Mediterranean, the Persian Gulf, the Balkans, and the rest of Europe

“Greece’s ambition is to become a bridge between the Eastern Mediterranean, the Persian Gulf, the Balkans, and the rest of Europe,” said Foreign Minister Nikos Dendias in his statement following the completion of the “Friendship Forum” recently hosted in Athens.

The Greek Foreign Minister described the Friendship Forum as a “backdrop for the establishment of synergies in various areas such as the economy, energy, transport, tourism, culture, education, civil protection, and inter-faith dialogue.”

“What unites everyone present here today is the condemnation of unlawful actions, the condemnation of irrational actions that subvert peace and security,” he noted.

“Our purpose is to create a bulwark against threats, against violence, against extremism, against intolerance, against the distortion of faith, against irrationality.”

As the Greek Foreign Minister stressed, the critical component needed to consolidate prosperity is peace, which “...unfortunately, in our region, is threatened on a daily basis by disruptive and revisionist powers that invoke not logic but irrationality.”

After the Friendship Forum’s first meeting, the Minister of Foreign Affairs of Bahrain, Dr. Abdullatif bin Rashid Al Zayani, reaffirmed the participating countries’ common will to further strengthen their co-operation and actively contribute to the consolidation of peace, stability, and security in the broader region.

Taking the floor in alphabetical order from the Forum’s host Nikos Dendias, expressed his happiness to have participated in the forum, which brought together important countries in the region that have an extensive history of joint cooperation and sincere desire to enhance efforts and benevolent endeavors to strengthen joint cooperation for the good of their peoples. He especially thanked Nikos Dendias for his invitation, as well as his counterparts who participated in the Forum, and the Greek government and Greek people for the “great hospitality, the reception, and the excellent organization.”

The Bahraini Foreign Minister added that their Forum participants had studied areas of joint cooperation in the post-response to the Covid-19 pandemic, especially in the field of energy, innovation, digital economy, civil protection and other areas, expressing his confidence that the understandings reached in this regard would lead to good results and achieve the common goals of these friendly countries.

It is noted that the countries participating in the Friendship Forum of Foreign Ministers organized by Greece were Egypt, the United Arab Emirates, Cyprus, Bahrain, Saudi Arabia, and France.

The Foreign Ministers participating in the meeting, which was organized as part of the promotion and consolidation of multilateral friendship ties and co-operation between partner countries in the wider Mediterranean-Gulf region, discussed the prospects of strengthening co-operation in areas of common interest - including efforts to tackle the COVID-19 pandemic and address common security challenges in the wider region.

Sri Lanka: Exercises of geopolitical balance against the background of Colombo port

According to Nikkei Asia, the President of Sri Lanka, Gotabaya Rajapaksa, gave in to Indian pressure to acquire a stake in Colombo port, whose strategic location has made it a point of contention between China and India.

Rajapaksa's retreat came following a visit earlier this year by Indian External Affairs Minister Subrahmanyam Jaishankar Sri Lanka, where he laid down unequivocal terms for an Indian-backed development of a container jetty in the port. According to Rajapaksa's office statement, the Sri Lankan government has given the nod after taking into account "regional geopolitical concerns."

Based on what Nikkei Asia has published regarding the terms of the deal, the Eastern Container Terminal will be developed to ensure that the Sri Lankan government will acquire 51% of the new terminal. The remaining 49% will be handed to the Adani Group, an Indian business group with investments in emblematic domestic and international projects.

In fact, President Rajapaksa's concessions to India regarding the ECT come at a time when Sri Lanka seems desperate to seek New Delhi's favors. The government is seeking economic salvation through a \$ 2 billion financial lifeline from India to prevent the country from sinking into a sea of foreign debt. According to the Central Bank of Sri Lanka, the country's economy has been burdened with \$ 51.6 billion in foreign debt since September 2020. While foreign exchange reserves are shrinking, the bill to service this debt amounts to \$ 4 billion annually until 2024. For the Colombo-based diplomatic community, the muscle that Jaishankar flexed over the port deal has left little room for doubt that New Delhi will assert its regional weight selectively. As a diplomatic source told Nikkei Asia, India has many ways to remind the Sri Lankan government that its interests should be prioritized over others. Observers reckon that its assertive role in Sri Lanka is part of a broader push back against the strategic ground it has lost to its other Asian rival, China, which is expanding in India's vital space, which has unsettled New Delhi.

In the case of Sri Lanka, such alarm is not misplaced. The Port of Colombo already has the Colombo International Container Terminal, a \$500 million project built by the Chinese, in which it maintains an 85% stake, with the state-run Sri Lanka Ports Authority holding the remaining 15%. In this context, India's interest in Colombo port increases its value as the most valuable of Sri Lanka's three major maritime assets. In this way, the ports place the country at the heart of the geopolitical conflict in which India, China, Japan, and the United States are involved. Apart from Colombo port, where 70% of the transshipment cargo is destined for India, the island has another port in the northeast (Trincomalee), the second-deepest natural harbor in the world, and one more in the south (Hambantota). The \$ 1.2 billion Hambantota port was financed by Chinese loans and then leased to a Chinese company for 99 years as Sri Lanka essentially traded it for cash to repay multibillion-dollar international government bonds.



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Passenger Shipping

Over 95% dive in cruise ship arrivals and visitors in Greece

The Hellenic Ports Association (ELIME) announced the cruise statistics for 2020, as it has done for the past ten years.

“The measures adopted on a global level to curb the Covid-19 pandemic have had social and financial consequences on all activity sectors,” said ELIME in an announcement.

As expected, these measures have also affected the cruise industry worldwide, an area in which our country has shown a significant performance over the past years and had a promising future.

Cruise data recorded in 43 registered destinations in our country for 2020 show a dramatic drop to 202 cruise ship arrivals (from 3,899 arrivals in 2019) and 64,356 visitor arrivals (from 5,537,500 arrivals in 2019). This equals a drop of over 95 percent for both indicators, according to ELIME data.

The association expressed its hope and wish for the gradual recovery of all financial sectors in 2021.

Canada Bans Cruises for this year

On Thursday, 4 February, the Government of

Canada announced a one-year ban on cruise travel while urging Canadians and foreigners to avoid cruising altogether.

According to the government, this surprising decision reduces the risk of the virus spreading while Canada’s national health system is under pressure.

“As Canadians continue to do their part to reduce the spread of COVID-19, our government continues to work hard to ensure Canada’s transportation system remains safe,” said Minister of Transport Omar Alghabra.

The decision essentially stipulates that cruise ships with more than 100 passengers are prohibited in Canadian waters. Therefore, both the 2021 Alaska cruise season and the East Coast voyages will not take place, at least this year.

At the same time, the Canadian Department of Transportation has banned both yachts and passenger ships with more than a dozen passengers from entering Arctic waters.

MSC Cruises waiting for two new cruise ships with state-of-the-art environmental technologies

According to the press release issued by MSC Cruises 2021 will see two new MSC Cruises ships come into service, MSC Virtuosa and MSC Seashore, the latest ships to be delivered as part of the company’s long-term new builds program. Like all cruise ships in the MSC Cruises fleet, these new



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vessels are equipped with a wide range of state-of-the-art environmental technologies designed to achieve a zero-impact cruise operation.

Both new cruise ships will feature hybrid exhaust purification systems (EGCS) and advanced selective catalytic reduction (SCR) systems, which reduce sulfur oxide (SOx) emissions by 98% and nitrogen oxide (NOx) emissions by 90%. Moreover, the wastewater treatment systems of the two cruise ships have been designed according to IMO standards, while - as all the newly built ships of the company - they are equipped with shore-to-ship power connectivity, allowing them to connect to local power grids while at berth at ports where this infrastructure is available.



MSC Cruises has also announced its partnership with several industry leaders in a research project that promotes low-carbon shipping by combining progressive energy technologies and innovative ship design. Led by the University of Vaasa, the CHEK Consortium - deCarbonising sHipping- in addition to MSC Cruises, includes, among others, the World Maritime University, Wärtsilä, Cargill, Lloyds Register, Silverstream Technologies, and Deltamarin.

The consortium is expected to receive significant funding from Horizon 2020 - the EU's research and innovation program. The project will seek to demonstrate the synergistic benefits of innovative technologies that aim to maximize efficiency across all aspects of ship operations.

Finally, it is worth noting that in 2022, MSC Cruises expects the delivery of the "MSC World Europa," - the company's first LNG cruise ship and one of the most technologically advanced cruise ships in the world. It also expects the construction of its second LNG cruise ship to begin in 2021.

Stena Line to launch fossil-free ships before 2030

Ferry company Stena Line plans to start operating two fossil-free battery-powered vessels on the route between Gothenburg and Frederikshavn in Denmark no later than 2030. This was announced by Stena Lines CEO Niclas Mårtensson during a press conference about the industry collaboration project Tranzero Initiative in Gothenburg on Thursday, 4 February.

In an effort to speed up the transition to fossil-free fuels in the transport sector, Stena Line, together with Volvo Group, Scania, and the Port of Gothenburg, have joined forces in the Tranzero Initiative collaboration project to bring about a significant reduction in carbon emissions linked to the largest port in the Scandinavia. The aim is to cut emissions by 70% by 2030 in the Port of Gothenburg.

Stena Line CEO Niclas Mårtensson also announced the company's plan to launch two fossil-free vessels on the Gothenburg-Frederikshavn route before 2030.

Stena Elektra will be the world's first fossil-free RoPax vessel of its size and will measure approximately 200 metres and combine a passenger capacity of 1000 with 3000 lane metres freight capacity. The vessel will be built using high tensile steel to lower the weight and increase efficiency; it is estimated that it will run on battery power for approximately 50 nautical miles, the distance between Gothenburg and Frederikshavn. The battery capacity will need to be about 60-70 MWh, and the vessel will be charged in port. Stena Line is also looking into combining electrification with other alternative fossil-free fuels such as fuel cells, hydrogen, and bio-methanol to increase the reach of the vessels.

"The electrification of shipping has only just begun. We see great potential for battery hybrids and battery-powered vessels on several of our short-sea shipping routes in the future. But it will take more than the electrical ships - we also need to develop the infrastructure and charging possibilities in the ports and terminals at the same pace. That is why collaboration projects like this are so important, said Stena's CEO Niclas Mårtensson.

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Aiming to reduce the environmental impact of shipping, the gradual introduction of the new mandatory operational carbon intensity indicator (CII) in the industry will introduce new standards and challenges to all stakeholders, yet may affect market equilibrium.

Panos Zachariadis and Panos Kourkountis explore the state of things to come.



The implications of IMO's upcoming environmental regulations, on the commercial operation of ships

The two major new environmental regulations, which were agreed recently by IMO's Marine Environment Protection Committee (MEPC), will seriously affect the way shipping works and how ship operators manage their ships commercially.

The first one of these regulations is the Energy Efficiency Index for Existing ships (EEXI), which will limit the operational power of existing vessels, in an attempt to make them environmentally "equivalent" to new ships complying with the current phase 2 of EEDI. EEXI was the result of a long debate at IMO on whether to apply speed limits to ships or to regulate their emissions in a different way. Finally, the concept of a power limit, instead of a speed limit, received the widest support among the members of IMO. The ship's normal operating power will be restricted by mechanical or software means on the main engine, to the point that makes it compliant with EEDI phase 2. This, of course, will also result in lower operational speeds than normal. In general, older ships will see less allowed power available for normal operation than newer ships; however, every ship will have a different maximum allowable power, thus different maximum operating speed.



by **Panos Zachariadis**,
Technical Director,
Atlantic Bulk Carriers Management Ltd.

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www.dnvgl.com/decarbonization

An emergency bypass will be available in bad weather or other emergency cases to enable the use of the engine's full power. Whether this larger power restriction for older ships will result in substantial speed reduction compared to the new ships remains to be seen since the details of the regulation are currently being worked out. Obviously, older, less efficient ships may find themselves at a commercial disadvantage to compete with newer ships.

The second major regulation is the Carbon Intensity Indicator (CII). This regulation will have more extensive implications for shipping. CII is an operational CO₂ emission indicator for ships. Such operational indicators involve the emitted CO₂ (which is the amount of fuel consumption times a constant fuel factor, e.g., abt. 3.16) divided by the transport work. Transport work is the cargo or passengers carried times the distance travelled, etc. Although discussions continue, it has practically been agreed that the indicator for the regulation will be the Annual Efficiency Ratio (AER) which is the emitted CO₂ divided by the distance travelled and the ship's Deadweight. The annual AER of each ship will be calculated and reported every year. It will then be compared against a baseline which represents the average AER of all ships of the same type and size. That baseline will be for the year 2008, which is the reference year that IMO chose in developing its future CO₂ reduction targets, adjusted however for 2019 (because that is the first year that the IMO database will be complete using the now mandatory IMO fuel oil Data Collection System (DCS) of each ship). If a ship's AER falls below the baseline, then the ship has a "good" operational efficiency (less CO₂ emitted per transport work than the average). In addition to this, the annual operational environmental rating of ships will be established in letters A, B, C, D, and E (what I call the "refrigerator" environmental rating system). Letter C will be the band around the baseline (average) with A and B bands below and D and E bands above. Ships that will achieve a rating of E for one year or a rating of D for three years will have to submit corrective actions in their Ship Energy Efficiency Management Plan (SEEMP) in order to raise their rating in the subsequent year. The classification societies, as representatives of the flag, will be auditing and verifying all the data (at further substantial cost to shipping companies).

This whole system and procedures will be included in mandatory parts of the ship's SEEMP. The CII achieved, along with all company and ship procedures and actions to comply with the regulations, will be audited by classification societies in the same way as ISM. The proposed "corrective" actions will have to be approved by the ship's flag. Understandably, the bureaucracy and the extra workload for the com-

panies will be immense. Data from the IMO DCS will be extracted for each individual ship to get its annual AER. The AER compared to the baseline will determine the ship's letter rating. For "continuous improvement" and to achieve IMO's 2030 target of 40% CO₂ reduction per transport work, the baseline will drop every year by a predetermined amount for each ship type. Thus, it will be harder for ships to stay at, or below, the baseline. This amount of annual drop will be different for each type of ship, depending on their sector's already achieved CO₂ reduction from 2008. Note that in 2018, bulk carriers already achieved a 40% CO₂ emission reduction from 2008 levels, mostly due to the commercial circumstances and lower operating speeds. Unfortunately, that does not mean that they completed their mission. They will continue to be required to keep reducing emissions proportional to their total share of CO₂ emissions from shipping. Bulk carriers currently emit 27% of shipping's CO₂ emissions.

In my opinion, this is a flawed regulation. The main reason is the fact that operational efficiency indicators for individual ships are unreliable and, to a large extent, random. Since the indicators are influenced by parameters outside the operator's control, which are random (weather, position of next cargo, etc.), the indices themselves become random year to year; thus, they are not representative of the true efficiency of the ship. This has been shown by several past academic and commercial studies, which IMO has ignored. Because of this randomness, I believe that the regulation will not result in real CO₂ emission reductions. In all probability, a very large number of ships being rated A one year may be rated E the next year (and vice versa). Many of the members of IMO, even though they know that the index is unreliable, bowed to political and "green" pressure to "do something". Some other members, however, had planned this a long time ago. The regulation includes all the elements and the mechanism of the Emissions Trading System (ETS).

These regulations will come into effect in 2023. It is easy to envisage their commercial implications. Certainly, charterers will be avoiding ships rated D and E, at least in the beginning. Hopefully, in time, they may realize that these ratings are meaningless. On the other hand, the ship's expected rating may force shipping companies to consider the next employment, not only on its commercial terms but also on how it may affect their environmental index. We may see shipping companies choosing the next business of their ship, not based on the offered freight rate or the ship's location or the lay-can dates but on how the trip will affect the ship's environmental index! In any case, the bureaucratic burden of compliance will be huge, especially for small-size shipping companies.



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CII: IMO brings charterers on the scene of emission reduction

IMO has agreed to an amendment of MARPOL for an operational approach to reduce carbon emissions by applying the annual operational carbon intensity index (CII). The measure was necessary as the available technical solutions and optimization of the existing ships give marginal environmental benefits despite the high investment required from owners. Operational measures significantly reduce emissions, do not require modifications or extra investments, and are immediately applicable. IMO also considered that a ship's operation and decisions that are the charterer's responsibility, if unregulated, eliminate any marginal environmental benefits from technical improvements.

The annual operational Carbon Intensity Index (CII) is expressed as grCO_2 per ton/miles. The regulation is still under discussion, and important details have not been decided yet. It is expected that the CII will be part of the SEEMP, and for the first few years of application, the CII results will be reported for reference only and without consequences. After this initial period, the CII will be mandatory. An acceptable limit of carbon emissions (grCO_2) per transportation work (ton/miles) will be set for each type and ship size. Each ship will be given an annual CII rating from A to E for its operations during the previous year.

Intuitively, when we hear that a ship will be given an "A, B, C, D or E" rating, we assume that this has to do with the ship's quality or efficiency. Looking at ways to improve the CII of a ship, we realize that the CII formula's optimization is beyond the owner's and the technical management control. Records of the CII's of previous years reveal that sister ships in a fleet may have completely different CII's. The CII rating is not related to the technical



by **Panos Kourkountis**,
Technical Director, Sea Traders S.A.



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Speed, route and cargo utilization are crucial to CO₂ emissions and the CII.

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efficiency of a ship but to its operation. Speed, route and cargo utilization are crucial to CO₂ emissions and the CII. New ships built in compliance with the latest EEDI will be rated as “E” if they perform voyages at high speed and with limited cargo work. At the same time, old ships will be rated as “A” if they optimize their speed and voyages.

While speed, route, and cargo—the factors that determine the CII—are usually the charterers’ responsibility, ships will be obliged to monitor their CIIs and be accountable to the authorities. It is not the first regulation that renders ships accountable for the decisions of the charterers. Ships are accountable for the compliant fuel on board, while in most cases, it is the charterer who supplies the fuel. When the CII becomes compulsory, the charter parties will be amended to include a clause that will ensure that ships will be operated within the acceptable emissions level. The initial non-mandatory application of CII makes it difficult for owners to impose any relevant charter party clause earlier than the compulsory application of the measure.

The cap on CO₂ emissions set by CII is actually a cap on the quantity of fuel consumed during each voyage. Applying the conversion factor of the fuel to CO₂ emission ($c=3,114$ for HFO), operators can calculate the consumption that will result in the desired CII for each voyage. For instance, if for a ship type and size the required CII is 6 grCO₂/ton/mile, it can easily be calculated that with 50,000 tons of cargo for the voyage between Shanghai and Los Angeles (distance 6,487 miles), all ships of the same size and amount of cargo should consume 622 tons of HFO. More consumption than the acceptable range “C” will be rated as “D” and “E” while less consumption will be rated as “B” and “A.” The results of a single bad voyage should not significantly affect the final rating, which will be calculated as an annual average. The corrective actions in the event of systematic non-compliance for 3 consecutive years and many details for the regulation are to be determined.

It is still to be defined whether the CII will be calculated as the EEOI (grCO₂/tons/miles) with the actual cargo in the equation or as AER (grCO₂/DWT/miles) with the DWT instead of the actual cargo. This decision will affect both the environmental and commercial impact of the measure. The use of DWT simplifies the calculations and allows the same emission levels regardless of the actual cargo transported. Instead, the EEOI promotes voyages of fully laden ships, connecting the actual quantity of cargo on board with the consumption during the voyage.

As a commercial impact, it is expected that the operating restrictions imposed by CII (either EEOI or AER) will lengthen the voyages, increase the utilization of the ships, and consequently may increase the demand for tonnage. If the EEOI is adopted as CII, the allowable emissions for partially laden and ballast voyages will be substantially lower than in laden voyages leading to a further reduction in speed when ships are in ballast. The potential demand for tonnage, a better market for the ships, and higher charter rates do not serve all interests. Certainly, it is not in the interest of the charters and the cargo market. IMO applies a long initial period of non-compulsory implementation, and even after its implementation, the annual reduction factor is very low, anticipated at 1% per year. Therefore, any effect of the regulation on tonnage demand and the market will be contained. In conclusion, the CII, with its cap on emissions, redefines the way a voyage is planned and executed and enhances the optimization of transportation by sea. Rendering the ship accountable for decisions taken by charterers without a mandatory application complicates the initial implementation of the measure. However, upon mandatory application, compliance will not be negotiated, and the advantage of the measure should not be underestimated.

The CII has indisputable environmental benefits. Efficient ships have an advantage while no ship modification is mandatory, and no ship will become obsolete because of the CII.

It is very encouraging that IMO is finally adopting an environmental regulation addressing the impact of ship operations, cargo, speed, and route, as the root cause of excessive emissions. Blaming the ship designs for the emissions and considering that ships alone are responsible for bearing the environmental cost is not sustainable for the shipping industry and does not benefit the environment. Sharing the responsibility of emission reduction with other industry parties is the proper way to tackle the environmental issues.



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Connections	up to DN500 Studded, flanges
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Gaskets	NBR (Nitrile rubber gasket) for Sea Water, Oils EPDM rubber for Fresh Water, Food industry, vegetable oils, ozone, strong and oxidizing chemicals. Chloroprene rubber (Neoprene) for wide temperature range, oil and other petroleum solvents. FPM/VITON for long lasting, high Temp, for aggressive chemical compounds Aramid fibre gasket for higher temperatures Compressed Sheet Gaskets as KlingerSil and Reinz
Frame	Carbon Steel Stainless Steel

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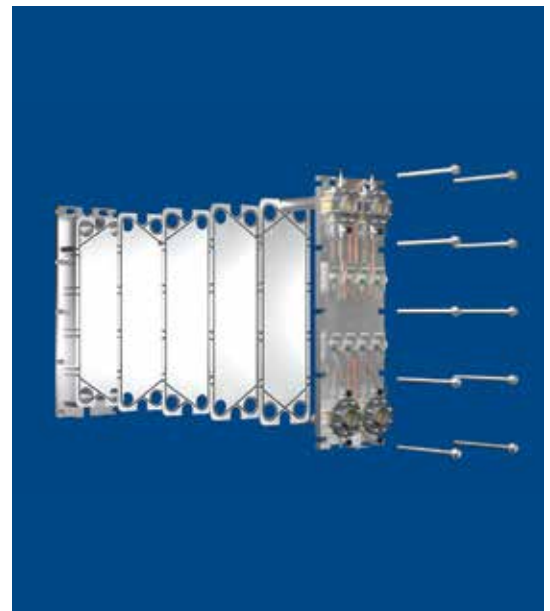
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FEATURE





Smart Shipping

Shipping was clearly among the sectors hard hit by the COVID-19 pandemic, and like most other industries, it underwent major changes. Suddenly, ships and companies found themselves depending on technology more than ever before to continue operating as smoothly as possible.

Quarantine and travel restrictions made it necessary to perform critical tasks such as ship inspections remotely, so digitalization became a key goal for many companies. Leading connectivity providers have reported a large increase in the data used by ships in 2020, reflecting many companies' shift towards digitalization through remote inspections, smart sensors, and remote monitoring systems.

Can the pandemic be an opportunity to accelerate shipping digitalization and the advent of so-called 'smart' ships'?

Does shipping have the necessary technological and digital maturity today to achieve a smooth transition to smart shipping?

In the following pages, *Naftika Chronika* presents the thoughts and views of those most competent to answer the above questions.

Feature Editors:

Charis Pappas, Nikos Vergounis





Maritime Education: Keeping in Pace with Smart Shipping Competency Requirements

by Professor **Ioannis Golias**,

Senior Advisor, Eugenides Foundation; Professor, National Technical University of Athens

“Smart Shipping” is a term used by the maritime industry to cover all issues concerning autonomous operation of ships, either coastal or ocean-going. In fact, it refers to an integrated system that includes not only the ship with its on-board technologies but also all other entities involved with the operation of the ship, like ports or other decision making or information providing centers ashore.

The emerging new technologies are a prerequisite for making the smart shipping system operational. The use of advanced technology hardware and software with their perpetually improving huge capacity and speed in combination with relevant big data sets – the availability of which is constantly being augmented – brings in fact the so called “Industry 4.0” concept in the maritime sector.

By using the Internet of Things together with advanced digital technologies and by developing and applying machine learning algorithms and advanced techniques of data analysis, big data sets are transformed into tailored smart information, offering –for a variety of fields – real time information concerning crucial decision-making variables for the navigation of the ship.

The IMO proposed in December 2018 a preliminary definition of autonomous ships as Maritime Autonomous Surface Ships (MASS), introducing four degrees of ship automation:

- Degree 1: Ship with automated processes and decision support: Seafarers are on board to operate and control shipboard systems and functions. Some operations may be automated and unsupervised.
- Degree 2: Remotely controlled ship with seafarers on board: The ship is controlled and operated from another location. Seafarers are available to operate the shipboard systems.
- Degree 3: Remotely controlled ship without seafarers on board: The ship is controlled and operated from another location.
- Degree 4: Fully autonomous ship: The operating system of the ship is able to make decisions and determine actions by itself.

It is evident that smart shipping can assist crucially in improving navigation effectiveness, which in turn augments the maritime industry competitiveness, improves sustainability by exploiting real time infrastructure and environmental data, and renders sailing safer by use of smart navigation and warning systems.

However, apart from sheer technological problems, smart shipping raises a considerable number of issues that should be tackled. The difficulty to maintain situational awareness despite the separation from the ship, the credence of data exploited, the protection from the cyber related incidents, the ability to deal with post-accident situations, liability and legal terms, the incentives given to owners to invest in smart ships, are only some of these issues.

Nevertheless, shipping is expected axiomatically to follow sooner or later what other industries like air transport, rail transport, road transport but also industries in completely different fields have been doing for many decades: adopt the full application of advanced digital technology in everyday operations as well as in decision making performance procedures. It could be argued that smart shipping will be at first limited; adopted in small-scale or special or short sea operations. However, as technology develops, digitalization will enter in most ship types with an increasing rate. The exact time and value of the expected acceleration is hard to predict but taking into account the continuously increasing rate of digitalization reported lately, the era of smart shipping must be considered as systematically initiated.

In view of the above, it is evident that significant operational and organizational changes are expected in the maritime sector. Digitalization



However, STCW should be updated to include additional skills related to digital development adoption and to the management of foreseen technological changes. Technological and cyber security culture, social and environmental awareness, self-development capabilities are thought to be among the required in the future additional competencies.

These additional required skills may seem at first glance as discouraging, given that they will bring additional difficulty for acquiring the corresponding CoC. However, the fact that for most of them the prevailing component is technological may

will bring new work cultures and new needs, and shipping will be required to adapt to the new work environment. The smart shipping evolution will require new knowledge and working skills,

and consequently the maritime education system should be developed to train seafarers accordingly.

The various degrees of MASS ship autonomy require different knowledge and skills. The shift from degree 1 to degree 4 will be gradual, leading constantly to the decrease of on board seafarers. The level of automation will be increasing but for a considerable transitional time period there will be in parallel technological developments for rather conventional ships, as it will take time until advanced autonomous ships become the mainstream case. As a consequence, there will be concurrent needs for seafarers training of different direction and knowledge depth.

There is no doubt that the main knowledge concerning ship navigation and efficient operation of ships, corresponding to the STCW core skills, will remain a fundamental prerequisite.

act as an attraction to the seafarer profession, given that young people are technology prone and most of them attracted by professions requiring technology applications.

Maritime education and training institutions have a crucial role during this transitional period of vast technological changes in shipping. Although the percentage of automated vessels will be limited during the initial period, integrated action plans are required in time. They should proceed immediately in a multi-phase reform of their curriculum and training procedures in collaboration with the maritime industry to ensure that the seafarers acquire the required knowledge and skills for future workplaces in smart shipping, as the latter develops across the different expected phases. A fundamental issue in this procedure is to ensure the availability of suitably qualified educational staff that possess both seafarer and technical engineering knowledge.

Finally, it should be stressed that the speed of changes in the technological systems and the resulting operational redesign in shipping may occasionally surpass the speed of understanding the knowledge and skills required for the future maritime personnel. To keep in pace with the new competencies periodically dictated by the continuous technological developments, a life-long training process is essential, based on the collaboration of maritime industry with the maritime education providers.

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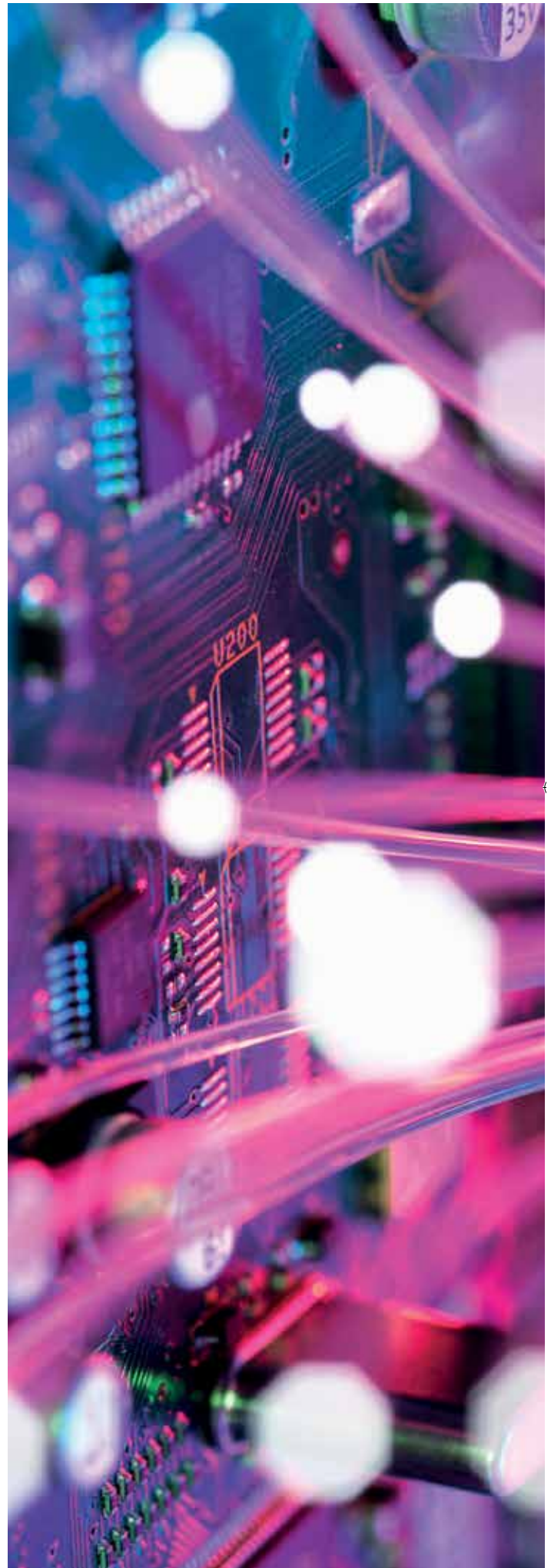
Maritime education and training institutions have a crucial role during this transitional period of vast technological changes in shipping.

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Towards greater vessel efficiency

by **Roberto Coustas**,
CEO, DeepSea

Roberto Coustas, CEO and co-founder of DeepSea, discusses shipowners and operators' growing need to improve ship performance as a first step in addressing some of the industry's biggest challenges, including decarbonisation and transparency, and explains how AI data models can help monitor the efficiency and performance of vessels.

Vessel monitoring and optimisation not only creates much-needed transparency between on-board reality and on-shore decision makers, but also empowers shipowners and operators to make

informed data-driven decisions. This is key to reducing fuel consumption, costs and emissions. Accurate and reliable monitoring is, and will be, absolutely essential in order to maintain good commercial relationships.

Currently, the majority of owners and charterers in the market rely on noon report data to assess the performance of their vessels. While this approach has been long-established in the sector, it is not without its limitations, specifically with regards to errors that manifest from manual human reporting. This traditional approach to vessel monitoring entails the use of sea trial curves provided by the shipyard, which are very different to the actual performance of vessels in the real world. This leads to a variety of problems, including unnecessary hull cleanings and, most importantly, underperformance claims that

create friction in the business relationships with important charterers.

The above results in an approach that fails to provide a clear picture of the actual performance of each unique vessel. Furthermore, it fails to track how this performance profile changes due to phenomena such as idle periods (hull fouling), as well as performance improvements (e.g. installation of mewis ducts, anti fouling paint). In addition, the lack of real-time access to data from the ship makes it very difficult even for crew to keep track with everything that is happening onboard the vessel (alarm history, loading condition of engines during the night, fuel consumption anomalies in non-ideal conditions, etc) and fairly compare actual performance to sea trials.

As the maritime industry continues to call for decarbonisation in the sector, the key challenge for owners is to remain competitive by smartly investing in their current fleet. There is only one way forward from where we are now, and it is towards greater vessel efficiency. Investing to improve the performance of vessels will be absolutely critical in the near future. One of the most pressing questions is around how we can assess the impact an investment has made on the per-



formance of a vessel? How can we optimise our actions for the greatest result? There is only one way that we can find out - the answer is in the data. Artificial intelligence helps owners better understand what this data shows.

One significant problem is that, these days, performance monitoring platforms are very expensive - and usually require a large upfront investment. We wanted to create a product that does not disrupt the current way that shipping companies work, is affordable, and will show the value that can be harnessed by using AI. Cassandra Light utilises Noon Reports, combined with AIS and weather data to provide owners and charterers with a tool to benchmark the performance of their fleet. Then, with the use of AI, it analyses how identical or sister vessels in DeepSea's pool performed under the same conditions.

Cassandra Light also has the insightful ability to break down fuel consumption into its constituent causes. This allows to determine the impact of interventions - such as fouling cleaning - but also to accurately adjust to the effects of weather

to allow fair comparison to sea trials and charter party limits. In addition, Cassandra Light can provide notifications to owners and operators in real-time in case an important event occurs such as severe weather, or violation of the charter party agreement performance terms.

Artificial Intelligence has the power to transform the way owners and operators unlock real value from their performance insights, securing savings and generating results from monitoring fleet performance. Shipping needs smart solutions to meet the industry requirements and regulations of today and tomorrow - regarding decarbonisation and other pressing challenges - and utilising AI will be key in meeting these requirements efficiently.

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One of the most pressing questions is around how we can assess the impact an investment has made on the performance of a vessel? How can we optimise our actions for the greatest result? There is only one way that we can find out - the answer is in the data.

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Shining a light on data driven decision making

It might sound like stating the obvious, but being able to make the right decision at the right time is absolutely key to good management in any industry, and shipping is no different. Our industry is surprisingly already packed with digital data sets that when brought together can enable you to make informed decisions that greatly improve the way you work.



by **Costas Kontes**,
Managing Director, V. Ships Greece Ltd.

Digital data is a Force Multiplier

A force multiplier refers to a factor or a combination of factors that gives personnel or hardware the ability to accomplish greater feats than without it. And digital data should be *your* force multiplier. It should be the factor that underpins your day to day activities as it helps to increase your visibility and control of your assets and services and allows us to manage more with less. It also helps to provide increased operational transparency, which can only be a good thing, *but...* Digital alone is not the answer.

Digital is only one piece of a much larger picture

Data takes many forms in vessel operations, and the management of this data to harness its digital potential is essential. It is a common misconception to think of data as only being elements that are streamed from an automated system. For example, streamed data from engine monitoring is an incomplete picture if not digitally integrated with your maintenance and defect picture of the same equipment. What is important is that you empower all elements of vessel operations by using as much data as you have available, moving to true data-enabled decision making supported by reliable and predictive analytics.

Too often the data we have is siloed, not used or even seen by other departments. But, when used as part of a wider picture it can give a detailed understanding of all elements of vessel operation. Building that richer picture allows you to really extract true value from data, it may take time, but it will come forward.



and **Zafeiris Syrras**,
Operations Director, V. Ships Greece Ltd.



And, by using all of the data at your disposal you are also able to give your workforce the tools they need to do their job naturally, efficiently, and safely. The goal is to turn data into information and information into insight.

Digital Empowerment

One of the most important elements is getting people to actually use the systems. Developing best practice and training guidelines is absolutely essential and as critical as actually having the tools themselves.

By using your data, it ensures that everybody, both onboard and ashore, is digitally empowered and feels comfortable with how the data relating to their role impacts the monitoring and improvement of performance across the board, making their lives easier. We are in effect creating building blocks to a better digital future.

Using the past to inform the future

Systems that incorporate multiple data strands, like V.Group digital ship management platform ShipSure, provide a unique indication of reliability and performance by combining major component failure probabilities into an assessment of reliability, effectively allowing crew and ship managers to predict failures.

By comparing each major component with historical data sets it is possible to create a unique probability of failure which is constantly updated as the data set learns. Combining the probability of failure with actual historic factors creates a unique Unit Reliability Index which allows us to predict potential future impacts allowing mitigation actions to be taken.

Combination provides the brightest light

Finding a way to navigate through the data enables you to pull out the maximum benefit. You might not have all the data but bringing together everything you have can only help to achieve the maximum value when it comes to optimising voyages, greater uptime, predicting the health of your vessel, lifecycle performance and better asset health, all driven by innovation. But the real key to bringing your data together is that it allows you to predict potential failures, meaning less down time, fewer unforeseen costs and better overall performance, something we all strive for.

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Developing best practice and training guidelines is absolutely essential and as critical as actually having the tools themselves.

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In this section of our special report, acknowledged Technical Managers and Marine Engineers focus on the benefits and present their recent experiences on the reliability and usability of smart ship systems and technologies.

The views of the authors are presented alphabetically.



Smart shipping may prove to be the epitome of new technology adoption and implementation

In the last sixteen months, the world has been hard hit by the COVID-19 pandemic, and its aftershocks are still there, shaking the planet.



by **Alexandros Dimokratis**,
Technical Manager,
Dorian LPG Management Corporation

Things in the health sector have moved at speeds never seen in the past; the innovation, research, development, and production of vaccines on a massive scale (despite their shortcomings) is a breakthrough of enormous scientific importance.

Shipping plays a leading role in global transportation, and it involves seamen who at times are exposed to the virus. Therefore, shipping has also been affected by the disease, as it is not sheltered and cannot be isolated from interaction with external contamination sources.

Has shipping developed and expanded during the pandemic period? Has the shipping community learned anything from this virus? What has it done to progress, develop, and move towards smarter/safer/greener transportation?

COVID-19 has taught us that we can carry out efficient remote surveys; this is something not dared or perhaps tried systematically in the past. It is a new approach to surveys that is here to stay or even predominate in the future.

The techniques compiled to assist remote surveys use data transfer via land and satellite communication between the vessels (auditees) and the auditor (shipping company/regulatory body). Besides vessel/ auditor surveys, we have also seen external audits conducted between shipping companies and regulatory bodies or even oil majors.

Anyhow, there are challenges, especially in data transfer, which still need to

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Smart shipping and new technologies combined can offer optimized routes, improved fuel consumption, reduced environmental footprint and enhanced safety for the crew.

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be resolved. The virus has succeeded in enhancing the implementation of remote surveys, attendances, and maintenance, where possible, as well as monitoring and troubleshooting.

Ultimately, this is the essence of Smart Shipping. As such, the virus has assisted shipping's transition to the Smart Age.

Adopting new technologies and Regulations can pose risks stemming from either using a new piece of equipment (Dual Fuel engines / Exhaust gas cleaning scrubbers) or putting a new policy (running on Low Sulphur fuel Oil) in place. Risk assessments and Risk Management assist in running and analyzing any subsequent alterations in the day to day "modus operandi".

Smart Shipping can prove to be the epitome of fully adapting to these new technologies. The technology brain these days is Digital. Smart shipping and new technologies combined can offer optimized routes, improved fuel consumption, reduced environmental footprint, enhanced safety for the crew; at the same time, both ports and cargo receivers will receive goods in a timely manner, reduce logistic costs and their warehouse expenses.

New technologies will ideally allow for decisions that are based on data sharing and interface between the operator onboard and the equipment, interface with navigation parameters (weather state and forecast -sea state- vessels in the vicinity), port information and traffic sharing, interaction with the charterers and Regulatory Bodies. Once all these dots are linked, then the operator is sure to be able to receive optimal assistance.

Some of the challenges facing operators in this link can be:

- Teething problems experienced with running on new technologies / support from the Makers of the equipment
- Charterers' patience to deal with the problems experienced on running new technologies
- Regulatory bodies cooperation and assistance with adapting new things
- Cybersecurity issues when it comes to data exchange / serving of intelligent systems
- Connectivity problems when at open seas / Bandwidth limitations of satellite communications
- Different data sources / IT systems and compatibility of technical parameters of vendors in the data circle
- Different interests from all the participating share holders
- Infrastructure in Ports is not yet ready to adopt and / or handle Smart Ships and Technologies

Parties participating in this chain could possibly have different interests and opinions; they are entangled in challenging circumstances and may not necessarily be willing to undertake risks. This is the price to pay for entering the New Age.

Technology in shipping has developed significantly the last decade(s). It was forced to do so by Regulatory, Operational expenses, Safety and Environmental drives. Commercial demands and comparison with the competitors have also changed the way companies operate. Things will be no different during the upcoming period. Expectations from all links of the chain will be increased. Not meeting all the standards and above requirements means that the business horizon will be narrowed (if not eliminated) for those that cannot follow or remain stagnant. Are Shipping Operators ready to accept these new challenges and adapt to the new technologies? Once they are, any previous reluctance is sure to be a thing of the past, (see Low Sulfur Fuel Oil use presently which is embraced by the Shipping Operators).

There are still issues to be resolved and challenges to overcome.

Technology will definitely experience further improvement, and will resolve the pending technical obstacles. All parties involved in this chain must be prepared for a new state of affairs.



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The digital transformation of ship management is already underway



by **Antonis Georgantzis**,
Technical Manager, LATSCO Marine Management Inc.

Throughout 2020 and the first months of 2021, the global Covid-19 pandemic and its impact on shipping gave rise to the immediate need to use technology as a substitute and alternative to the traditional shipping methods and systems previously used by shipping companies to run day-to-day operations. Digitalization and the use of available technology have accelerated to an unprecedented degree across the shipping industry. We see that data standardization has become vital in enabling its use as a decision-making tool on a broader level than just a single vessel.

The necessity of using digital platforms for communication, monitoring, and evaluating a vessel's performance - even for inspecting the vessel and its systems and providing remote assistance - has been accepted to varying degrees by shipping companies in the process of maintaining uninterrupted business operations.



In recent years, technological developments have laid the groundwork making the adoption and implementation of such digital platforms easier than it was just a few years ago. At the same time, the stricter global environmental regulations coming into force make the adoption of new digital systems and technological advances a key driver affecting efficiency gains, whether it is solely optimizing a machinery installation or the vessel's routing. Efficiency gains will save costs on operations without compromising the safety or quality of services offered, drive the way to regulatory compliance, and provide competitive advantages, thus supporting the company's future existence. The capabilities offered by digital technology will play a crucial role in the de-carbonization of shipping, which is one of the most challenging issues the industry will have to face in the near and more distant future. Benefits such as data optimization, improved environmental performance, and in many cases, improved risk management all contribute to a more sustainable future in shipping.

It is essential that shipping companies put their digital capabilities development at the top of their strategic priorities. It is equally important they take advantage of existing opportunities through closer collaboration and optimization between on-shore and onboard teams, and in many cases, with their clients, as there is a growing demand, especially by oil majors, to register vessels on monitoring platforms and performance evaluation tools with real-time data access.

The role of digital technology is to optimize shipping operations. Still, there are more elements to consider in the whole process, keeping in mind that shipping remains a people's business, which means the challenge will be finding the right balance between human and digital technology applications input.

Embracing new technologies does not come without risks. What technology providers have to offer might appear highly promising and impressive. However, we all need to consider certain factors before embracing its use. Introducing new systems into a fleet's existing operating systems requires in-depth knowledge of the existing installation and integrating new digital solutions into old systems.

The support from various company departments, such as IT and Cyber Security, will be vital for installing, supporting, integrating, troubleshooting, and ensuring the uninterrupted transfer of secure data to shore servers or cloud applications until it reaches the point where assigned teams evaluate it. Difficulties are to be expected during the development and implementation process. The time available to learn and become familiar with the systems and train the people who will use them are all challenges that require careful planning from the early stages until their eventual deployment and operation. A key element in the successful transition to smart shipping will be the engagement of teams with different backgrounds and experiences, in-depth knowledge and understanding of the ship's operations, systems, and networks, and, of course, the particularities and pre-requisites of the new technology it has been decided to adopt. Each company's operations are unique, so off-the-shelf solutions may not be the best way to support them. The need to customize and adjust a solution to fit into existing operational processes should be assessed carefully and evaluated in detail before committing to a ready-made solution that seems to promise a wide range of services but may include several hidden requirements that can make it very difficult to implement in the existing operating system and infrastructure. The integration of new platforms into a vessel's existing systems, real-time access to information essential for the vessel's operation, user-friendliness, and the interpretation of the obtained results are all elements that should be considered carefully during the process of applying digital technology, which should also serve as a decision-making tool for everyday users and management's requirements and needs. The investments in digital technology that shipping companies will be called to make - from a relatively simple, standalone engine performance monitoring system to highly advanced integrated platforms - are considerable in terms of capital and resources. Therefore, early identification of each operator's specific needs is of paramount importance in the whole process. We expect a higher degree of scrutiny in the optimization process by industry regulators and stakeholders, which comes with the need to use technology and data digitalization. The digital transformation of ship management is already underway, but it is crucial to plan carefully from the very first steps and see the road ahead strategically.

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Next-generation connectivity between ship and shore will improve operational efficiency

Even before the pandemic, the maritime industry had been under increasing pressure to adopt new technologies. Strategic direction no.2 of IMO's Strategic Plan (2018-2023) provides for the integration of new and advancing technologies in the regulatory framework.



by **Nikos Lamproukos**,
Technical Manager,
Eastern Mediterranean Maritime Limited

The new electronic engines that have been in service for years resulted from the advances in electronics and computer-controlled systems.

Class societies had started mobilizing their operations towards a smarter environment by issuing digital certificates and introducing remote surveys. However, the pandemic brought the shipping industry to a point where technological progress was not an option but a necessity. It undoubtedly changed how we live and work in a way we could not have imagined before, especially when it comes to digitalization and communication technologies. Webinars, web meetings, remote audits, remote surveys, and vetting inspections have emerged as a way to enhance health and safety and overcome travel restrictions.

The pandemic has undoubtedly reinforced the need for smart shipping and identified weaknesses in the industry that need improvement. Technologies related to seafarers' remote medical monitoring, remote monitoring of engineering malfunctions, and remote class inspections have already been implemented. For instance, two of the tools that have been developed are virtual reality (VR) glasses that can be used to look at a ship's machinery augmented by equipment manuals and measured data, and smart sensors suitably installed onboard to collect real-time data through a cloud-based system that receives, stores, and analyses this data for machinery/equipment operation in combination with environmental data (weather, tides, currents). Such information can be available instantly to help the crew or shore personnel with more expert assistance.

The full implementation of new technologies is time-consuming, requires capital, the appropriate infrastructure, and training for the people who will use them. However, increased automation and advanced information and communication technologies will provide the maritime transport sector with new opportunities to improve ship operations, safety, security, and logistics.

Among the emerging technologies are advanced digitalization and communication technologies, Cloud computing, the Internet of Things, Blockchain, sophisticated sensors, data capture and analytics, robotics, and Artificial Intelligence. These will contribute to smart shipbuilding, and improve competitiveness, although predicting which of these will be adopted in maritime transport remains a challenge for the future.

As per European Council for Maritime Applied Research and Development (ECMAR), "digitalization offers a positive impact to safety and environmental performance. New cloud technologies will dramatically affect the design, manufacture, and operation of vessels and their components. The Internet of Things will help to deliver smart vessels with shore-based control. Cyber-security and human factors will become important issues with digitalisation and automation. The next generation of connectivity between ship and shore will help shipowners reduce costs, avoid expensive repairs, and improve operation-



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al efficiency. Digitalization, sensors and automated processes, and the introduction of “big data” in maritime operations will lead to optimized energy use and fuel efficiency, vessel performance and condition monitoring, and real-time weather data and routing. A higher degree of systems automation and availability of smart sensors and global networks for data transfer between ship and shore will promote the remote-controlled and semi-autonomous operation of assets, e.g., autonomous ships and smart ports. Interconnectivity between sea-based operations and shore-based operation centres will increase shore support and control.” This, of course, will require very high protection from cyber-attacks.

Although no one knows what the future holds, it is evident that the industry is moving forward using the evolving technologies and adapting to the new environment that requires smarter and more autonomous solutions such as autonomous ships, robots, coastal control, and fully autonomous port operations. It is believed that autonomous ships will be a reality in the future.

Shipping companies are facing increasing regulatory, social, and economic pressures to reduce GHG and improve safety.

These new challenges and upcoming environmental regulations will eventually drive shipping companies to invest in new technologies and improvements. Moreover, they will have to train their offshore

and on-shore staff in order to make use of them. This cannot be done from one day to the next; it will take time.

In the future, more vessels will employ renewable energy sources to reduce fuel consumption, minimize emissions, and lower the impact on the environment. These technologies will improve the maritime industry’s competitiveness, safety, security, and environmental footprint.

Vessels will also reduce their environmental impact thanks to the use of alternative fuels and renewable energy.

Technology will allow shipping companies to manage their fleets and crew effectively, thus reducing their costs and increasing business efficiency.

Shipping companies are facing the same challenges with the latest technologies as they had in the past. In the 19th century, the new technologies adopted were steam propulsion and later propulsion through internal combustion engines. Companies that refused to adapt and insisted on traditional sailboats vanished.

In this context, shipping companies will have to adapt to the evolution brought on by new technologies to maintain their competitiveness and survive in the years to come.



Smart Shipping will add value to our industry

Struggling to give a definition of smart shipping, I would say it is a term commonly used by the industry to describe the digital technologies available today for verifying and optimizing the operational efficiency of ships.



by **Theodore Mavraidis**,
Technical Manager,
Euronav Ship Management (Hellas) Ltd.

Smart shipping consists essentially of smart ships, smart fleet management, and smart logistics. It mainly addresses the issue of global ship mobility and limited communication between ship and shore. Traditionally, shipping has followed the business model that views each ship as a small management unit. Smart shipping can change this reality through improved operational and transport management.

The availability of computing power has set the ground for adopting smart shipping: fuel consumption, weather-routing, voyage planning, vessel condition & predictive maintenance, and emissions control are popular options for improving commercial efficiency and complying with the new regulatory framework. In my view, smart shipping will add value to our industry and dramatically improve previously inefficient or uneconomical practices.

We are going through a period of transition from the old traditional shipping industry model to a digitally advanced one where the main drivers are the access and process of Big Data, automation, AI, the Internet of Things, and unlimited connectivity. I believe that smart technologies are already having an enormous impact on the industry, paving the way for “smart shipping,” which at its full extent will become key to shipping companies’ survival.

As I mentioned before, smart shipping is a spectrum of processes that use smart technology and Big Data analytics as tools to optimize shipping and maritime operations.



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Successfully shifting to data-driven operation requires a complete change in a company's culture from corporate management through to shore staff and the crew at sea.

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the extraction of meaningful conclusions from these data. Smart shipping will improve vessel and fleet performance but can also support the crew. Many claim that smart shipping will also increase safety. Around 70 to 80 percent of marine accidents at sea are a result of human error. With smart ships, this is likely to be reduced. However, despite their serious impact on most of the industry, this is not really reflected in the pace at which companies have been adopting Smart Shipping.

The challenges mentioned below are likely to contribute to this slow pace:

The “wait and see” approach

Many companies prefer to let other players take the initiative; others are still experimenting with the available solutions and doing trials to exploit data collection and analysis benefits in the near future.

Costs involved and mindset

Digitalization and smart shipping are the future of shipping and should be considered as an investment instead of an additional cost - which, by the way, is substantial. Some shipping companies are open-minded and are beginning to recognize the great potential of modern technologies. Even though shipping is generally considered a rather conservative business, some shipowners and ship-managers are gradually grasping the real cost of not adapting. Therefore, the key to success is a mindset change. Shipping players are capable of seizing the opportunities.

Available Technology

At present, data collection systems in the marine industry are not entirely reliable, and the companies that deal with them have to go through a relative learning curve to achieve higher levels of reliability and consistency. The shipping industry will need to create the proper environ-

ment and awareness across the stakeholders to adopt new technologies, tools and processes and also to regulate standards.

Through smart shipping, we all aim for increased efficiency, reduced costs, and more sustainable operations. Therefore, data becomes the most critical factor in achieving these goals as it leads to better decision-making, improved processes, and greater control.

Notwithstanding, the real value will not come simply from the collection of big data and its challenging transport to the office ashore, but from

ment and awareness across the stakeholders to adopt new technologies, tools and processes and also to regulate standards.

Human Resources

Shipping companies' existing personnel will soon be required to undertake additional training to provide the relevant support. Connectivity between the crew and shore staff will also increase - the unprecedented circumstances caused by the Covid-19 outbreak have undoubtedly accelerated this process dramatically.

Those taking a more proactive stance are increasing ICT training for staff working at sea and on shore, thus paving the way for a gradual transition to a more data-centric operation mode.

Knowledge of electrical, electronic, and software systems will become more important. Crews will probably assume a more supervisory role, while superintendents may have an increased workload and greater responsibility.

Quality of Data & Security

Low-quality data leads to misleading conclusions and interpretations. With regard to data protection, data will move between individual stakeholders because of their different interests, so they will need to be protected from external interventions such as viruses, piracy, or terrorist attacks.

Reiterating the above, it is pretty evident that apart from the tremendous opportunities, there are also substantial challenges for those who consciously decide to walk the road of smart shipping.

It is more than evident that companies that are quick to adopt, implement, and fully utilize smart shipping technologies, big data analytics, along with a new organizational culture, will be the ones to lead the industry into the future enjoying competitive advantages.

By 'organizational culture,' I mean that smart shipping should represent a shared concern on issues affecting several areas throughout an organization and evolve as the business changes.

Successfully shifting to data-driven operation requires a complete change in a company's culture from corporate management through to shore staff and the crew at sea.

As shipping's digitalization rapidly progresses, we may see a shift in power from ship to shore-based roles. It will be unrealistic to expect the limited number of crew/officers on board to have in-depth knowledge across multiple technologies.

This then raises the question: Should we consider strengthening crews' competencies in these areas?

In conclusion, I would like to repeat that digitalization and smart shipping are our shipping industry's future. There is undeniably a great opportunity ahead of us that should be considered an investment rather than an extra cost.



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Operational needs arising from a dynamic market in combination with challenging environmental conditions increase the risk of fouling. The end-result being increased fuel cost and Green House Gas emissions. To combat fouling, Jotun Hull Skating Solutions is engineered to keep the hull fouling-free at all times. This groundbreaking approach is now in the final verification stage, in collaboration with leading industry partners.



The unique competitive advantage for those adapting early to digitalization and smart technologies

The Internet and smart technologies were introduced into the shipping industry over a decade ago. In the past few years, smart technologies, artificial intelligence (AI), and virtual reality (VR) have started gaining traction in our daily operations. Combined with advanced satellite communications and high-speed internet, they have provided us with the tools we need to enhance our operations and advance towards digital transformation.



by **Stelios Psillakis**,
 Technical Manager,
 Seenergy Maritime Holdings Corp.

The shipping industry is currently at a new crucial turning point. The need to go digital is growing. There is increasing pressure from our customers for access to vessel data and active involvement in vessels' monitoring. We live in an era where building trust with customers, employees, and business partners through a responsible approach to technology should be the top priority of all shipping companies that want to grow and succeed.

Achieving digitalisation and advancing through the use of smart systems requires a new set of rules that will ensure the successful transformation of shipping as we know it and will further provide our customers with the insights that will allow them to minimize risks and promote/diversify their operations. These rules should be accepted by all those involved in the shipping industry in order to be mutually beneficial.

Currently, there is a unique competitive advantage for those adapting early to digitalization and smart technologies. Seenergy has been one of the industry leaders on this front and in many other areas. Digitalization and smart technologies will become a matter of necessity rather than choice in the years to come. However, we still see that many of our customers (charterers) do not have the appetite to participate on equal terms in the required investments. Moreover, they do not necessarily reward the ships with adequate new technologies, which may lead to further delays in the transition to smart technologies.

In general, our industry as a whole is not very open to change. While existing technologies can support the transition to the digital era, the regulatory and compliance part is still to be established. This would help shipowners and operators upgrade their business further and give them the competitive advantage required to invest in smart shipping.

Shipping is an industry marked by complex contracts where reliability and efficiency are paramount. At Seenergy, we entered into a partnership agreement with a major charterer, which improved the particular vessel's carbon footprint by at least 12%. At the same time, our charterers managed to take full advantage of the vessel's improved performance by operating at higher speeds. In this way, they benefited from the reduced fuel prices, the good market conditions, and the vessel's improved performance. The main issues we faced during and after the contract were:



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We firmly believe that digital technologies and smart shipping will provide us with new opportunities for greater optimization, automation, and profitability.

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- Data ownership and usage: there is a sensitive point where disclosing specific data to other parties is difficult.
- Liability issues: we rely on AI and smart systems, so determining the human factor and related liability issues is always on the table.
- Maritime cybersecurity: an issue that has been on our minds for the last five years and was recently addressed by the IMO.
- Above all: training personnel on board and ashore (situation awareness/intelligence) for operating in a digital environment, without neglecting the basic principles of seamanship.

When we started the project, we were skeptical about the results. In retrospect, we firmly believe that digital technologies and smart shipping will provide us with new opportunities for greater optimization, automation, and profitability. However, as already mentioned, to ensure all these advantages, shipping companies in cooperation with their customers (charterers) will have to identify and further regulate the optimum way to

achieve a successful and profitable transition to smart shipping for everyone in the future.

For the past 12 months, there has been a new global operating environment. The new regulations coming into force due to the Covid pandemic and the need for a clean environment made us realize that alternative solutions are required to carry out day-to-day tasks that until yesterday seemed easy to deal with.

Despite its traditional nature, the global shipping industry has managed to adapt quite promptly and efficiently to this new reality. We managed to do whatever was necessary to be able to operate our ships remotely. We have seen flag administrators, recognized organizations, and third parties offering remote surveys to verify that vessels comply with all regimes and regulations. But is that enough? Can we take the next step? Or have we simply ticked the box for complying with the new reality?

Although time will tell, I strongly believe that the years to come shipping industry will transform, and our operations will advance in such a way that we will become a leading example for many other industries.



The pandemic allowed smart technologies to be widely adopted, demonstrating their cost-effectiveness

Observing how the shipping world managed to adapt to the multiple restrictions imposed internationally on the new environment that evolved due to the pandemic crisis, one can see how easily digitalization and connectivity technologies were absorbed and put into practice in a very short space of time.

The fact that the new technologies were implemented on such short notice shows that although they were available, the time had not been ripe for the majority of shipping operators to adopt them. Once the shipping world realized that the hurdles which arose due to the pandemic threatened ships' normal operation, it quickly adopted digitalization and connectivity technologies to overcome the difficulties caused by the various restrictions. Therefore, the pandemic has offered the opportunity for the widespread adoption of such technologies while demonstrating their availability and cost-effectiveness.

Our organization, like many others, had all its staff working from home immediately after the pandemic restrictions were enforced, which was remarkable as it materialized from day one.

Furthermore, our technical department had to accomplish six dry dockings & special surveys combined with BWTS retrofits and CAP surveys within 2020. These tasks were indeed demanding; they were carried out under supervision, in the physical presence of different specializations. Due to the restrictions, two out of six projects had to be carried out without physical attendance at a Chinese shipyard, of which we had no previous experience. We saw this as an



by **Miltos Synefias**,
Technical Director,
Pleiades Shipping Agents SA.

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The new technologies have opened the door to information access and high-capacity measurement techniques via automated analysis processes running non-stop in the background.

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underwater hull inspections.

So, practically, the technologies were already in place. All it took was an event like the pandemic to kick-start their adoption and use - as a necessity rather than a choice. Thus, shipping organizations in various sectors had the chance to discover the broad range of advantages these technologies have to offer.

The recent environmental regulations to control greenhouse gas emissions imposed by the EU and IMO were another opportunity for these technologies to penetrate shipping operators' businesses. The obligation to collect and report emissions data from maritime activity (EU MRV & IMO DCS) made shipowners realize that getting organized for this task was as easy as collecting the respective data to monitor their ships' performance.

The combination of mathematical models, principles and theories of marine engineering and naval architecture, and the machine learning concept proved perfect for providing the user with a ship's accurate performance profile at any given draft and any weather condition. At the same time, real-time data transfer from ship-to-shore has been made easy, reliable, and cost-effective with the help of digitalization. As a result, the ship operator and the chartering department have at their disposal a valuable and powerful tool for evaluating various commercial voyage options, thus maximizing the potential profits and/or fuel savings.

This evolution opened up new horizons for optimizing hull performance by regularly monitoring the hull's condition, enabling operators to decide the right time and place to do a "soft cleaning" that would not disturb the antifouling coating protection. Finally, the hull's condition could remain optimal throughout the dry-docking intervals, thus guaranteeing the vessel's speed-consumption profile during this period. This program has been developed recently by a reputable paint manufacturer. It employs autonomous

opportunity to become familiar with the HoloLens (smart glasses) - a technology that enabled us to participate in real-time in the daily inspections carried out by third-party representatives from our head office, and decisions were taken on the spot.

The principle of remote inspections was adopted later on by Classification societies, and on a few occasions, we had the opportunity to perform successfully remote surveys for

ROVs and advanced remote-controlled engineering, combined with 3D digital modeling of the underwater hull and connectivity technology.

But the benefits of digitalization are never-ending. As mentioned before, practically every machinery operating parameter on board can be transmitted to shore in real-time and very cost-effectively. Advanced analysis methods ashore offer multiple applications, one of which is the ability to identify machinery operating patterns in parallel with crew operation practices. Appropriate optimization can then be developed and applied. Such an example was the optimization of cargo heating operations on our fleet's tanker vessels. For a few years now, we had observed that huge differences existed between the fuel consumption allocated for cargo heating of sister vessels carrying similar cargoes under similar weather conditions and in similar voyages. To understand the reason, we decided to develop a thermodynamic model to replicate the cargo heating process for this type of vessel with all parameters influencing this process. Using remote data acquisition and machine-learning techniques helped us establish a library of optimized cargo heating models that the crews onboard all sister vessels could adopt. As a result, considerable fuel savings and reduction in emissions were achieved.

Furthermore, the head office superintendent can preset logical conditions in the database management system for selected operating parameters onboard to be alerted via email, text message, or any other type of communication, should these parameters meet the set conditions. This is essentially a virtual employer that monitors day-and-night preset conditions as defined by the user.

The new technologies described above open new horizons in the way ships are managed today. The so-called Enterprise Resource Planning (ERP) systems of today aim to unite all departments to operate under a common database where data is generated once, thus avoiding duplication of processes, but are analyzed to automatically produce results in multiple ways to meet each department's needs. Maximizing the amount of information and providing it in a reliable and consistent manner and the appropriate format for each department is just what is needed to optimize the organization's size and maximize its profit-making capacity and efficiency through prompt and correct decision-making. Still, the shipping industry is more conservative compared to the automotive and aviation sectors.

The new technologies have opened the door to information access and high-capacity measurement techniques via automated analysis processes running non-stop in the background. The results can be used to optimize operations, forecast a ship's competitiveness over time, and make decisions based on more concrete reasons than just a gut-feeling. The extent of the need for competitiveness will determine how much new technology each shipping company will adopt in the near future.

In this section, leading technology providers present their smart systems' capabilities and the main conclusions they have drawn regarding their usefulness, efficiency, and safety during the pandemic.



Digital fleet operations need data-driven decisions

The biggest barrier to shipping's digital transformation is not COVID-19 nor the pace of adopting technology relative to other industries. The biggest challenge for shipowners is bringing together disparate data sources from across a fleet into a single consolidated view that drives faster decision-making.

Owners know they need better data; the challenge is that many don't know where to start.

Another challenge lies in the data itself—due to the different formats and sources of data and the need to collect some data manually, ship owners may need to rely on crew intervention. At the fleet level, the problem is magnified with impacts on safety, performance, morale, and compliance.

If the industry is to make progress towards a safer, more efficient, and digitalised way of working, then this welter of operational class, and regulatory data needs to be brought together with the external inputs such as performance against charter party to provide insights into how to maximise potential asset earnings.

By digitalising core operations related to reporting, integration, and fleet insights, owners can refine the way they engage with their managers and improve decision-making. The transformation process is designed around better asset management with inputs on environmental and vessel performance, improving compliance, and driving up standards.

For owners looking for a way to accelerate their digital transformation, ABS has created My Digital Fleet™, a platform that collects data and provides a real-time, risk-based analysis of vessel performance and compliance.

The solution can be found within a single system, like My Digital Fleet, which combines the various data streams of an asset and its organisation from multiple sources, allowing shipowners to make better-informed decisions more quickly, and ultimately creating a more efficient and responsive organisation.

Class is able to successfully bring together the technical and commercial aspects with safety and compliance data. This level of operational data provides a much more accurate picture of vessel position and performance, including a live view of compliance and a risk score that can advise on direct and indirect cyber vulnerability.

Understanding an asset's risk profile clearly has direct benefits tied to safety, and it also means the owner can keep the asset commercially available and competitive. Data-driven safety and maintenance moves move the process from the present into predictive, condition-based maintenance, making it possible to forecast machinery health and likely performance.



by **Kashif Mahmood**,
ABS Senior Vice President,
Digital Solutions



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Establishing a complete efficiency picture requires evaluating all systems on board



by **Mike Konstantinidis**,
CEO, METIS

While monitoring engine performance provides significant insight into how well a ship is functioning at sea, establishing a complete efficiency picture requires evaluating all systems on board, how these interact, and how the ship responds to its environment. After all, a ship with a fouled hull routed unnecessarily through heavy weather can only get so far so fast, no matter how optimal the machinery performance.

It is fair to say that ship efficiency aims will not be identical for the vessel's manager, owner, and charterer. Therefore, data on machinery performance, the ship's physical condition, weather forecasts, and previous experience must be properly harnessed to support users with different aims.

METIS Cyberspace Technology's Microsoft Azure-powered platform uses

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Ship efficiency aims will not be identical for the vessel's manager, its owner and the charterer.

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the power of Artificial Intelligence to combine real-time performance analysis with proactive decision support to meet the distinct ship efficiency needs of owners, managers, and charterers.

The METIS platform uses a network of Wireless Intelligent Collectors to harvest data from onboard machinery, navigational equipment, and operations regardless of the equipment supplier. Its performance analysis also integrates AIS, data fetched from daily/arrival/departure reporting, and weather forecasts.

Round-the-clock data acquisition from all available sources provides a rich, high-resolution picture of ship performance rather than a patchwork of inconsistent or even manually collected datasets. Benefits add up to more than the sum of its individual technical, operational, and cost gains and depend on the user's aims.

Today, over 250 ships use the METIS cloud platform, measuring 2.5 billion performance data points monthly, which combine automated data acquisition with high-grade analysis for fleet managers, chartering/operations departments, and ship personnel.

The complete dataset allows the ship manager to model 'what-if' scenarios, for example, to predict the route with the best possible balance between safety, voyage time, and

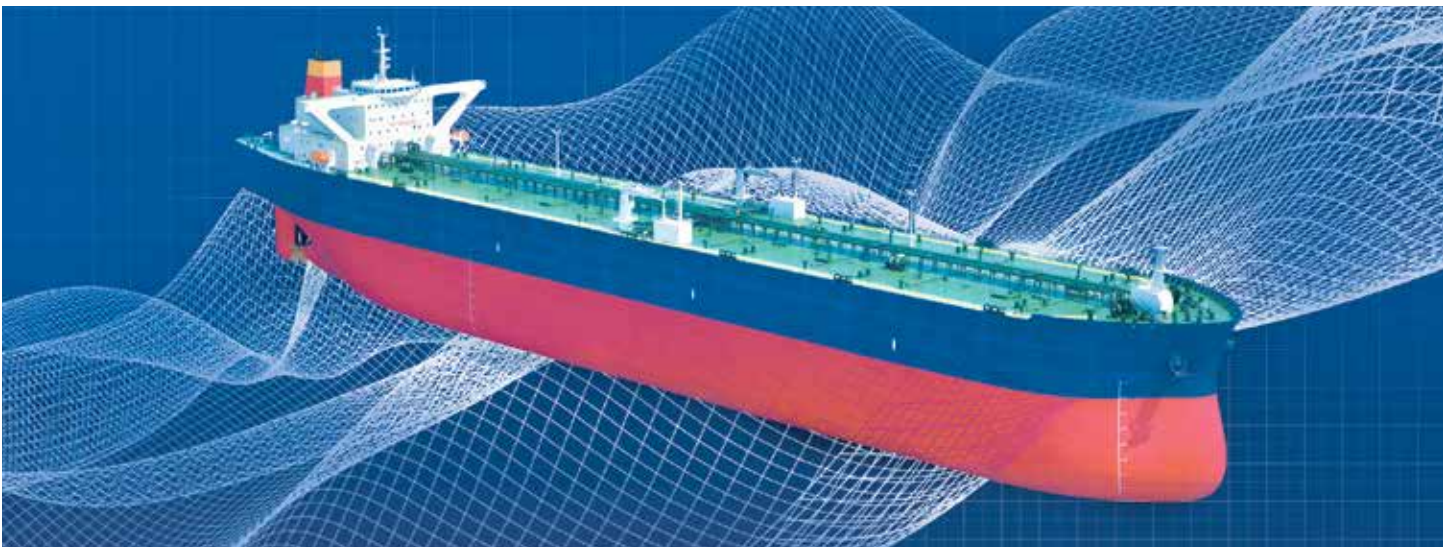
fuel efficiency, avoid specific areas, or specify the expected arrival time.

However, as the industry's only end-to-end platform powered by AI, the true value of the METIS solution is cumulative for individual ship and fleet-wide efficiency. Using machine learning, the platform evaluates itself every seven days and retrains monthly to refine the correlation between weather, hull fouling, power use, fuel efficiency, etc. This is a game-changing approach to ship efficiency that depends on a value judgement set by the user. For example, whereas one owner emphasises that the METIS platform brought a 27.5-per cent reduction in fuel consumption, another highlights how its predictive power led to a one-and-a-half-day cut in voyage time while using less fuel.

Meanwhile, ship managers can measure efficiency in the real terms of whether or not the vessel meets the terms of its Charter Party Agreements, courtesy of a new software module from METIS devised for this purpose. Once all CPA terms are imported, the user can identify potential deviations from specified efficiency requirements, with automated notifications applying when the speed consumption curve exceeds predefined limits.

METIS has even refined its cloud-based data acquisition and ship performance reporting solution to offer shipping's first tool to monitor the emissions in comparison to target values and predict the trade-off between emissions reduction and debt servicing for ships financed under the Poseidon Principles.

A new module calculates whether and when ships will need investments to keep pace with the IMO average efficiency ratio (AER) underpinning the Principles. It provides the first viable methodology for owners to predict whether their ships would benefit most from investment, a change in operating profile, or disposal in response to advancing emissions rules. In its next phase, METIS will add scenario-based analysis to predict the impact of individual technology upgrades.



Wind and waves are two of the most critical factors that affect the performance of a ship

In 1950, the dawn of the computer era, ENIAC, a primitive computer, was used to forecast the weather for the first time. However, it was only possible to provide a forecast for a single atmospheric layer and just one day ahead. Nowadays, the supercomputer of the European Centre for Medium-Range Weather Forecasts (ECMWF) performs more than 330 trillion floating-point operations per second and adds 200 TB daily to the MARS meteorological database, which exceeds 270 000 TB (1 TB is equal to 1000 GB).



by **Dr. Nikos Mazarakis**,
Area Sales Manager - General Office Manager,
Storm Geo

During the period 1980 – 2012, the storage capacity of all digital data worldwide doubled every 40 months, while today, 31TB of data is generated every second. This massive increase in computing power and data storage capabilities could not leave the commercial shipping industry unaffected.

Weather conditions (wind and waves) are two of the most critical factors that affect a ship's performance. Only a few decades ago, the only source of measuring the prevailing weather conditions was based on instrumental measurements of the wind and the atmospheric pressure. Nowadays, anemometers can be connected to a data logger, collecting continuous wind speed and direction observations with a few seconds time step. On the other hand, the high-resolution global weather, wave, and currents numerical models provide - with extremely high accuracy - the real conditions (analysis data) every 9 kilometers on the whole globe. More than 90 satellite platforms scan the ocean's surface, providing reliable real-time measurements. At the same time, dozens of sensors on board the ship provide a huge amount of real-time data on speed, consumption, engine power, and many other parameters.

An enormous amount of data is collected daily, making the shipping industry face the considerable challenge of finding the optimum way to connect them together. By making the right correlations, we can draw safe conclusions regarding the ship's condition and behavior in different weather conditions. So, as the ship crosses the ocean, we can have direct data for both the wind from the ship's anemometer and the waves and currents from the numerical weather models. We can also calibrate the ship's anemometer using meteorological data from the meteorological models. We can figure out whether the ship's anemometer needs calibration or replacement. The next step after gathering these data is to correlate them with the ship's speed and consumption. Thus, we can calculate both the effect of the weather (WxF-Weather Factor) and the effect of currents (CuF-Current Factor) on the ship's speed and fuel consumption. Knowing the ship's speed and consumption in calm sea for a specific RPM, i.e., 13 knots and 25 metric tons per day, we can measure the same parameters for various weather and current conditions. Similarly, we can assume that when a 30-knot wind blows on the bow and waves 4.5 m high come on the head, the speed drops to 12



knots without the effect of currents. Following the same procedure for a large sample of days and various weather conditions in relation to the ship's direction, we can create the ship's profile in correlation with the weather conditions, speed, and load of the engine.

Having the profile of our ship, we can (1) predict its behavior in various weather conditions and (2) obtain a clear image of the hull's condition. The first is possible thanks to the analysis and forecast data provided by weather and wave models. Having calculated our ship's behavior in each type of weather in relation to the wind speed-direction and wave height-direction-period, we can predict with significant accuracy its future position and the estimated time of arrival at its destination. For example, if we find that the ship arrives earlier than expected, we can reduce the speed, thus reducing consumption and emissions. Regarding the hull condition, we can filter the data through time periods when the weather factor is near zero or precisely zero (for example, for the days

when the WxV is not less than -0.5 knots). For instance, reducing the speed can give a clear picture of the hull fouling to help decide whether or not the specific vessel needs cleaning.

Many big data processing and management tools have been created at an accelerating rate in recent years. These data have no value if we cannot convert them into value. IFTTT technologies and applications will drive the shipping industry into the future. Perhaps the biggest challenge are discovering the tools that better fit our needs, finding the right people with the necessary expertise to do the job, and complying with the new strict environmental regulations that have completely changed the status quo.

“

As the ship crosses the ocean, we can have direct data for the wind from the ship's anemometer and the waves and currents from the numerical weather models.

”



Seafarers have gone digital. Will shipping companies follow suit?



by **Agapitos Diakogiannis**,
Founder & CEO, Seafair

As digitalization drives the 21st century, the world of shipping is facing new challenges and opportunities that will make it more competitive, efficient, and sustainable. The concept of “smart shipping” is no longer a futuristic idea. It is already happening.

Many “smart shipping” technologies and equipment have already been embraced by the industry - from advanced sensor technology to machine and navigation support systems, which raises the question:

Where does crewing management stand in this digital revolution?

Crewing is of crucial significance to the industry, yet it seems that no attention is paid to digitally optimizing its processes and making its operations more efficient. Data flow appears to be a big, costly issue. Shipping companies need to hire seafarers whom they usually source from manning agents or third-party crew management companies. However, these traditional recruiters have not embraced digitalisation as they lack the necessary infrastructure to identify and store programmatically critical information on seafarers. The sight of a storage room stacked with piles of papers is not something outlandish; on the contrary, in most cases, this is the typical way of storing and accessing(?) seafarer details and other relevant information. So, how is this useful information utilized? The answer is it is not. Valuable intel on seafarers gained from interviews, assessments, or background checks rarely reaches the crew departments, as they remain “hidden” in long-forgotten reports. The result is worrying as hiring decisions are routinely made on partial information and assumptions in an industry where human error is the leading cause of incidents and accidents. It is high time this inefficient data handling came to an end.



and **Konstantina Alegras**,
Business Development Manager, Seafair



“

Smart engagement creates a dire challenge for all crewing stakeholders who will be called to compete for seafarers in an online, data-transparent reality.

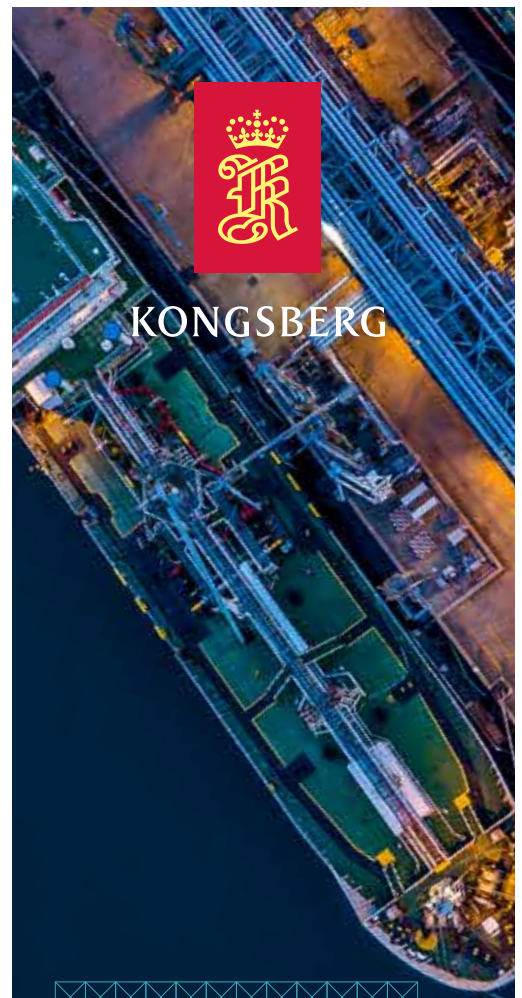
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Unfortunately, as soon as the problem leaves the traditional manning agency's office, it lands on the crew department's shoulders, which must then manage this scattered data. Many productive work hours are spent on manually transferring data (e.g., seafarer files) received from the agencies to their depositories; on average, 30-40% of a working day is spent on transferring digital documents to an ERP system. The irony is that this data, as mentioned above, is of questionable quality. Instead of shaping crucial manning decisions, critical insights are lost in the opacity of lagging procedures. Of course, this situation brings us to a double challenge: introducing smart technologies to crewing - ones that will minimize time spent on transferring digital info from one system to another - and, more importantly, consolidating all the insights regarding a seafarer's profile in an intuitive format. We strongly believe in the power data has in supporting stakeholders to make solid and informed decisions about the crews they choose to have onboard.

The challenge of data management leads to another decisive issue: smart engagement with seafarers online. Modern seafarers are digital natives

-they live on the internet, which they use to communicate and source information but also to search for jobs. Seafarers in today's digital reality cannot be sourced in maritime plazas like they were decades ago. Digital sourcing comes as an organic next step to deal with discrepancies and gaps in the existing, inept recruiting process. That is easier said than done as it is not just a matter of creating smart marketing campaigns to get in touch with seafarers; it is much more about their need to use and trust an intuitive product that will offer them an appropriate incentive to embrace. Smart engagement creates a dire challenge for all crewing stakeholders who will be called to compete for seafarers in an online, data-transparent reality - a fact that will gradually make them offer the best experience possible to attract the best talents to their pools. Engaging with seafarers online will help the industry break through the polarized environment of the past and boost retention rates. Creating communities for them to engage in online, bringing more entertainment options onboard, supporting them in managing their finances, or co-designing their career/training paths, are all elements that will help shipping companies retain and develop their best-qualified seafarers.

At Seafair, we are committed to helping the industry switch over to innovative solutions that will revolutionize the landscape of crewing. It is evident to us that data and technology are transforming processes and leading to meaningful and relevant decision-making. This is a dynamic environment, and we are eager to provoke its reinvention.



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VANOS S.A. at the forefront of new technologies and digital services

VANOS S.A. is an active maritime organization established in Greece in 1929 that delivers uninterrupted high-quality services worldwide. VANOS S.A. supplies customers within the marine industry, general industry, and the public sector with a vast range of well-known high-performance products and services. During these 92 years, our company has been at the forefront of adapting and providing new technologies and digital services, especially to the shipping industry. We are constantly looking for modern products and innovative services of the most advanced technology.

Through our long experience, we have realized that CAPEX & OPEX management, a very demanding field for shipowners and seafarers introduced at the beginning of the new millennium, are two critical areas in shipping management that are growing rapidly. Shipping companies and the fast-growing shipping industry spend a lot of money and effort and use their highest quality human resources to achieve the desired balance.

Thanks to the numerous and significant technological developments of the new era, combined with the powerful digitalization of services and smart onboard connectivity, the daily performance and operation management on ships simulates onshore management.

As a market leader in digital navigation solutions, our company's vision and strategy are to bring the key stakeholders and shipping companies of the Greek and global maritime industry to a common path offering fast-growing technologies, smart navigation solutions, data collection, and analytics, as well as digital maritime services, and along with our experienced and specialized personnel, to shape a one-stop-shop for the early adopters of new technologies.

Over the past decades, we have built a robust long-term network of business connections with major brands and special shipping applications.

In that respect and always driven by innovative approaches, we can deliver proactive decision-making and cost-effective tools for fleet management, smart and safe navigation, and regulatory compliance.

Some of the major maritime software and innovative digital navigation tools our company offers to the maritime industry are presented below:



by **Capt. Petros Giounis**,
Head of Sales, Vanos S.A.



I. PASSAGE MANAGER

“The industry’s leading e-navigation platform has undergone a complete transformation – ensuring safe and compliant voyage planning with a new, intuitive graphical interface. Create comprehensive passage plans in minutes and manage data and your digital library with ease.”

With Passage Manager, vessels will have access to a vast array of modules such as:

- UKHO Product (AVCS,ADP,AENP – updates, automated route creation and passage Planning, and weather forecasts
- Log Central – LogBooks gone Digital,
- EnviroManager – all the environmental regulations at the palm of your hand
- Regs4Ships – the biggest eBook database containing more than 100 titles from IMO, ILO,WHO, and the EU
- Enhanced Port Information – information for all the ports, including pictures, PSC information, and documentation

2. ELECTRONIC LOGBOOKS



“A logbook is a record of important events in the management, operation, and navigation of a ship.”

- Complete, accurate logbooks are required by law
- Logbooks are checked during PSC inspections.
- Inaccurate logbooks can result in penalties, deficiencies, vessel arrests, and affect the vessel operationally - a non-sailing vessel means the company loses money.

“Understanding the paper challenges.”

- Missing, untidy, incorrect logbook entries
- Incorrect entries, often due to simple mistakes
- Complex rules and regulations that are different for any other type of logbook entry
- Inefficient Process
- Slow Data Distribution

“With our LogCentral innovative “Electronic Logbooks Software,” we are giving your business 24/7 visibility and awareness of vessel operations.”

Electronic Logbooks Software is a clear user interface using the latest technology, which

- Makes logbook data simple, accurate and intelligent
- Reduces risk while maintaining compliance
- Brings efficiencies to day-to-day operations
- Increases productivity, saving resource throughout the business

ADVERTORIAL

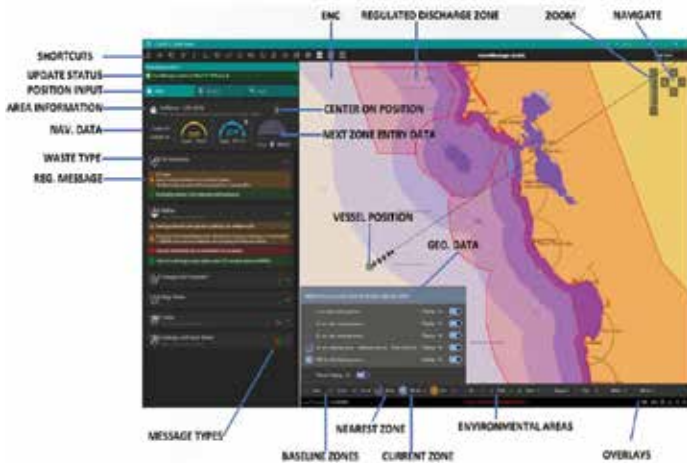
“LogCentral Insights – online, real-time view of your fleet from anywhere.”

- Single source of truth
- See logbooks in real-time
- **Smart data** – pinpoint entries geographically
- Trends, contrasts & outliers – implement corrective measures
- **Save time** – start audit remotely, maximize time onboard

“Mitigate against deficiencies.”

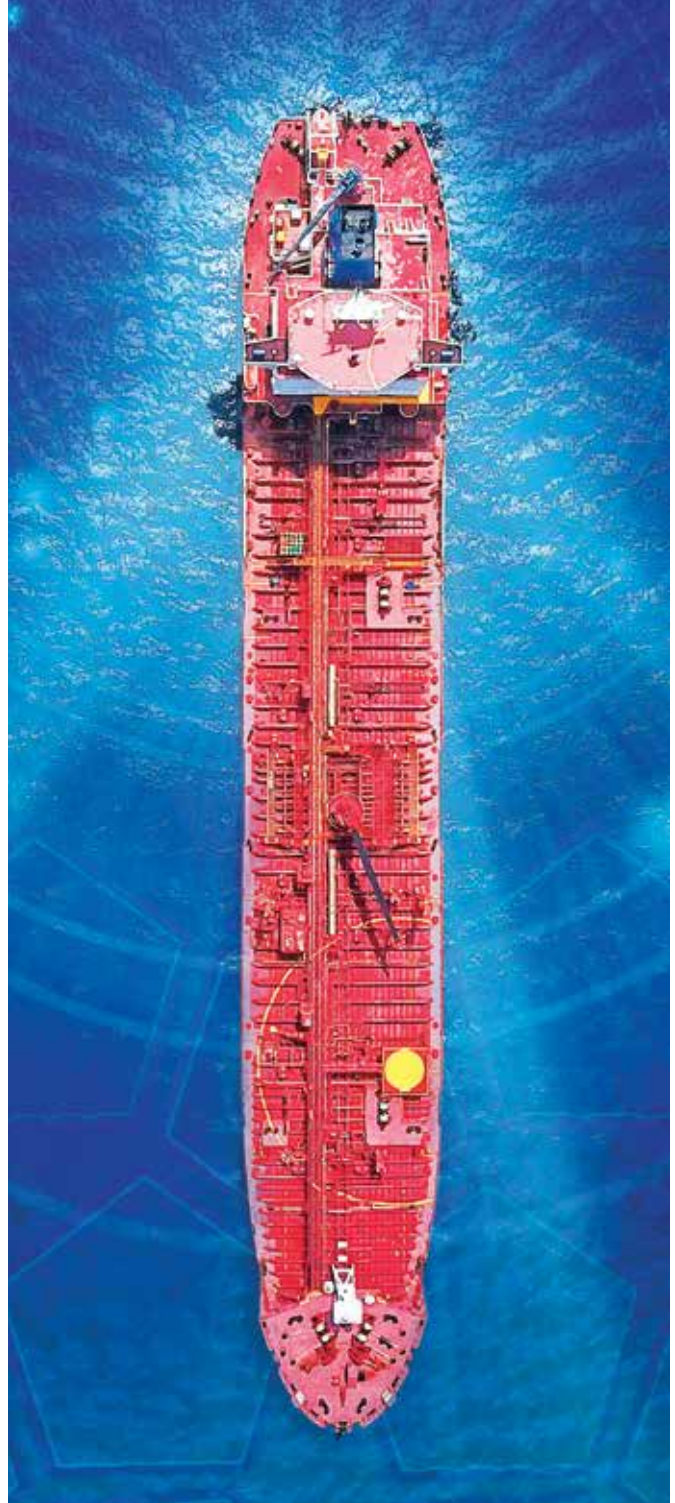
- Prevents incorrect and missing entries
- Smart logic guides users through the process
- More efficient – reduces logbook entry from 30 minutes down to 1 minute
- Clear, intuitive interface
- Compliant and **Cyber secure**

3. ENVIROMANAGER



“Stay compliant with MARPOL, regional and national regulations with an environmental solution that has a user-friendly interface Equipped with a traffic light system to help minimize the risk of faulty discharge and GPS connectivity to show the vessel’s current position.”

EnviroManager is a single platform tool designed to simplify navigation, safety management, fleet tracking, and compliance so you can drive profitability, ensure efficiency, and improve the success of your company’s shipping operation.



With EnviroManager, you will benefit from the following key features, which

- Present all relevant environmental regulation for current position and distance to the nearest land
- Optimize waste handling
- Optimize the switch from high to low sulphur fuels
- Support ISO 14001 certification
- Strengthen the environmental profile of the company
- Demonstrate to PSC that a tool is in use to manage environmental regulations.

4. REGS4SHIPS



“With Regs4Ships, companies will reduce administration and paper publications on board with a searchable digital maritime regulations database that combines Flag State compliance documentation with IMO, ILO, and EU legislation.”

- Regs4ships is an updated, searchable maritime regulation database that combines Flag State compliance documentation with IMO, ILO & EU legislation to provide an overall regulatory solution.
- SOLAS amendments will have the amendment applied to the SOLAS chapter and regulation.
- Flag/IMO/ILO documentation is often related but hard to find and not always obvious. We recognize this by including an Associated Documentation section on every page, putting all related documentation at your fingertips.

5. FLEET MANAGER

“FleetManager is a web-based portal for ship owners and managers that enables them to keep a full record of their ships’ activity.”

FleetManager has been designed to allow all users at any monitor to have a full overview of their vessels. By activating all the FleetManager modules, FleetManager is transformed into a critical shore-based management tool presenting information on the following:

- Fleet AIS Tracking
- Past Track data
- ENC Chart Data
- Emergency Room Tools (EBL and VRM),
- Event Notifications
- Email Alerts
- Inmarsat-C tracking compatibility (primarily used by vessels subscribing to our ENC PAYS service)



All industries across the spectrum and especially the marine sector, are driven by rapid developments and fundamental changes originating from the technological advances in areas such as artificial intelligence, autonomous vessels, smart connectivity, among others, to improve the automation and intelligence of vessels as well as their equipment and infrastructure. The challenges of smart shipping posed by IoT innovation and autonomous vessels -two of the new era’s major developments - will gradually bring shipping operations to another level.

VANOS SA and its reliable partners worldwide will always be there to guide you safely and efficiently into the new technological age of smart shipping by offering state-of-the-art new technologies, innovative products, and high-quality services through our one-stop-shop.



Horizon from the bridge

Through a seafarer's eyes

Increase in containers lost at sea

Loss of containers at sea due to severe weather conditions such as tropical hurricanes and storms can occur even when cargo storage and unloading are carried out following the established rules, especially when the ship is exposed to these conditions for an extended period of time (over 48 hours), and the mounting systems are loose due to the ship's rolling and pitching, making it dangerous for the crew to tighten the systems to their original position.

However, the loss of containers, apart from exposing the ship that loses them to the risk of losing part of its stability and the change of trim, is also a navigational

hazard. Containers floating uncontrollably at sea with only a small part of their surface above the water when loaded are not visible by ship radar at night or the naked eye during the day.

According to the World Shipping Council, an average of 1,382 containers have been lost at sea per year since 2008. However, the annual number of losses varied considerably due to major incidents, such as the One Apus. El Faro (2015), MOL Comfort (2013), Rena (2011), etc., in which a large number of containers were lost in a single event. The recent increase in container loss incidents on the Pacific trade route since early November (One Aquila, One Apus, Ever Liberal *, Maersk Essen, MSC Aries) has caused major concern in the container market. Still, there has not been a single mention of the great circle performed by the vessels on this specific route.

by Capt. Georgios Georgoulis



The Maersk Line containership “Maersk Eindhoven” lost a significant number of containers overboard while en route from China to Los Angeles - the latest in a series of container loss incidents to hit the trans-pacific trade.

Maersk confirmed that the Maersk Eindhoven experienced engine failure due to severe weather off Japan’s coast on 17 February, resulting in a number of containers being lost overboard while the ship was underway from Xiamen, China, to Los Angeles, California.

MSC, the company’s partner in the 2M Alliance, reported that preliminary information from Maersk indicated that several hundred containers might have gone overboard. An update from Maersk said that the ship had lost 260 containers during the incident.

It was reported that the Maersk Eindhoven crew was safe, and the ship’s power had been restored; the operating company said it was working on the vessel’s return to a port in Asia, the details of which – including time and location - are yet to be determined.

Preliminary reports indicate that a number of containers have been lost overboard, but it has not been determined yet which containers were lost or damaged. In a press release, Maersk said it was waiting for further updates from the vessel regarding potentially lost or damaged containers.

Like the Maersk Essen, Maersk Eindhoven is also deployed on Maersk’s TP6 loop and MSC’s Pearl service. This season’s string of incidents has resulted in nearly 3,000 containers lost over-

board, more than double the yearly average number of containers lost.

The Danish-flagged MV Maersk Eindhoven was built in 2010 and has a carrying capacity of 13,100 TEUs, similar to the other ships that have suffered container loss incidents in recent months. Preliminary findings indicate that an engine stop and loss of manoeuvring in rough seas led to the severe rolling that caused the accident.

Recent container loss incidents come as imports from Asia have been pouring into U.S. ports - including at the nation's top container ports of Los Angeles and Long Beach - and creating severe congestion.



So, instead of just worrying about the loss of containers in the high seas of this particular route in the November to March season, we should investigate whether the ships following the shortest route (great circle route) on which, as OCEAN ROUTE advises, ships reaching latitudes above 50N are likely to encounter seas that could cause severe damage to the vessel and its cargo on deck. Therefore, it would be safer to offset the risk of damage that may result from the benefit of the shorter route. But this decision must be in the hands of those who have knowledge and experience of the North Pacific Sea and the disasters it can cause, especially on ships 13,000 TEUS and above.

EEXI – Energy Efficiency Existing Ship Index

With the Greenhouse Gas Strategy for decarbonization towards 2050, the IMO has set the goal to reduce carbon intensity by 40% within the next decade up to 2030 and 50% in total (70% intensity) up to 2050. The Greenhouse Gas Strategy was approved by the IMO in 2018. The reduction rates are related to the baseline of 2008. Short-term, mid-term, and long-term measures are distinguished to achieve the goal.

Short-term measures are meant to be set into force by 2023. Different measures were considered and widely discussed, for example, introducing a speed limit, which will provide alternative sources of energy with a competitive advantage. With the experience of market-driven slow steaming for nearly one decade, this measure is considered to reduce CO2 emissions while giving alternative energy sources a competitive advantage.

During MEPC 75 in November 2020, the IMO approved amendments to MARPOL Annex VI, introducing an Energy Efficiency Design Index for existing ships (Energy Efficiency Existing Ship Index=EEXI). Subject to adoption at MEPC 76 in June 2021, the requirements will enter into force in 2023. The EEXI will be applicable for all vessels above 400 GT falling under MARPOL Annex VI. Guidelines on calculations, surveys, and verification of the EEXI will follow and be finalized at MEPC 76. Nevertheless, as the EEXI is the extension for existing ships of the newbuilding-related EEDI, most procedures will be the same as for the EEDI, with some adaptations regarding limited access to design data.

An EEXI Technical File must be issued for most types of ships except for ships that were already built in accordance with EEDI Phase 2 or 3 requirements in the past. The EEXI Technical File includes the calculation of the attained EEXI, which must be below a required EEXI value. This required EEXI value is defined for different ship types, with reduction rates related to the EEDI reference curve. These reduction rates are in the range of EEDI reduction rates related to Phases 2 and 3, meaning that the required EEXI is almost in agreement with requirements for current newbuilding.

The EEXI Technical File must be submitted to class in time for approval and is required to be carried on board afterwards. During the first annual, intermediate, or renewal survey after the effective date of the EEXI requirements, meaning within the year 2023, verification of the attained EEXI takes place; subsequently, the new IEE Certificate is issued.



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The calculation of the EEXI follows the calculation of the well-known EEDI. It is based on the 2018 calculation guideline of the EEDI, with some adaptations for existing vessels.

In principle, the EEXI describes the CO₂ emissions per cargo ton and mile. It determines the standardized CO₂ emissions related to installed engine power, transport capacity, and ship speed. The EEXI is a design index, not an operational index. No measured values of past years are relevant, and no onboard measurements are required; the index only refers to the ship's design.

The emissions are calculated from the main engine's installed power, the corresponding specific fuel oil consumption of the main engine and auxiliary engines, and a conversion factor between fuel and the corresponding CO₂ mass. The transport work is determined by capacity, which is usually the deadweight of a ship and the ship's speed related to the installed power.

The calculation does not consider the maximum engine power, but 75% of this power for most ship types. Specific fuel oil consumption of the main engine and ship speed is considered for this specific power.

The EEXI is applied to almost all oceangoing cargo and passenger ships above 400 gross tonnage. For different ship types, proper adjustments of the formula have been introduced to allow a suitable comparison. This is performed by correction factors. Several correction factors are defined to correct the installed power, e.g., for Ice-class ships, and correct the capacity, e.g., to consider a structural enhancement. Further correction factors are applicable for cranes on board and for Ice-classed ships.

With all these correction factors being applicable only for specific ship types, the initially simple calculation of the EEXI might become quite complex for some ships, but the experience gained from the EEDI application and IEE certification.

The first wind power driven Ro/Ro ship will be laid keel within 2022

Wallenius Wilhelmsen, the Norwegian Shipping Company, plans to build a wind-powered pure built-in Car and Truck Carrier expected to achieve up to 90% reduced emissions compared to today's best vessels.

Named the Orcelle Wind, the vessel design is scheduled to be ready for contracting with a shipyard by mid-2022 and a finished vessel ready for the high seas by 2025.

Wallenius Wilhelmsen will take the concept forward by applying its knowledge from the Ro/Ro

business to conduct a comprehensive viability evaluation.

There are many considerations that require attention before finalizing the Orcelle Wind specification - the features listed below provide a good indication:

- Overall car capacity of 7,000 vehicles
- Ability to carry heavy machinery and breakbulk cargo, in addition to cars
- Length of around 220m and beam (width) of approximately 40m
- Speeds of 10-12kts under sail that can be increased with the supplemental power system

Since 2008, the Wallenius Wilhelmsen vision has been to reduce CO₂ intensity by 33%, which is a significant step. But the journey towards zero emissions requires great strides forward. According to the Wallenius Wilhelmsen statement, the Orcelle Wind is one of them. However, it will take the dedicated collaboration of all players involved to make such a bold initiative as the Orcelle Wind succeed.

The Orcelle Wind will be the technical and operational testbed for zero-emission innovation, where various zero-emission fuels and technologies can be assessed and developed. The vessel's very design is in the final stages, and once completed, Wallenius Wilhelmsen will run a tender among the global yards and select the best bid.

Even though the vessel's exact price is yet to be defined, building the ship is expected to come at a premium due to the level of innovation it will integrate. The financing of the vessel is yet to be explored deeply. However, a solution could be found by going into the bond market to seek funds.

Wallenius Wilhelmsen CEO Craig Jasienski stated that he is looking forward to the yards coming to them and saying they want to be the first to build a vessel that will significantly shift the needle in carbon emissions. He added that this was an incredible opportunity for a yard to participate in absolutely innovative maritime industry solutions. He hopes yards are preparing themselves for this now because this is the future and different ways to solve the energy demands and reduce carbon emissions have to be found.

The ship promises zero emissions with no significant speed loss in relation to the speed limit considerations of the IMO's 76 (MEPC 76), so it is a strong business case if the initial cost of building the ship is covered by funding tools (bond market and blue funds).

Σημεία: Ελληνική
Μήκος: 79 μέτρα
Πλάτος: 11,7 μέτρα
Ιπποδύναμη: 1.500 ίπποι
Ταχύτητα: 12 κόμβοι
• 1.500 Τόνοι

Στο ξεκίνημα 1975



M.V. KRITON

Σημεία: Ελληνική
Μήκος: 157 μέτρα
Πλάτος: 25 μέτρα
Ιπποδύναμη: 12.000 ίπποι
Ταχύτητα: 18 κόμβοι
• 956 Εμπορευματοκιβώτια

1985



C.V. EXPRESS

Ένα από τα 6 αδελφά πλοία

Σημεία: Ελληνική
Μήκος: 304 μέτρα
Πλάτος: 40 μέτρα
Ιπποδύναμη: 78.000 ίπποι
Ταχύτητα: 25,6 κόμβοι
• 6.420 Εμπορευματοκιβώτια

2000



C.V. SEALAND NEW YORK

Ένα από τα 8 αδελφά πλοία

Σημεία: Ελληνική
Μήκος: 351 μέτρα
Πλάτος: 43 μέτρα
Ιπποδύναμη: 102.000 ίπποι
Ταχύτητα: 25,5 κόμβοι
• 9.500 Εμπορευματοκιβώτια

2006



C.V. COSCO HELLAS

Ένα από τα 5 αδελφά πλοία

Σημεία: Μάλτας
Μήκος: 300 μέτρα
Πλάτος: 48 μέτρα
Ιπποδύναμη: 64.505 ίπποι
Ταχύτητα: 22,5 κόμβοι
• 8.827 Εμπορευματοκιβώτια

2013



C.V. VALOR

Ένα από τα 7 αδελφά πλοία

Σημεία: Μάλτας
Μήκος: 369 μέτρα
Πλάτος: 51 μέτρα
Ιπποδύναμη: 66.893 ίπποι
Ταχύτητα: 23,0 κόμβοι
• 14.524 Εμπορευματοκιβώτια

Σήμερα



C.V. TITAN

Ένα από τα 5 αδελφά πλοία



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Ξεκίνησε από ναυτικό, την εξέλιξη και την προκοπή της
την οφείλει στους συνεργάτες της έλληνες ναυτικούς,
στη θάλασσα και στη στεριά.

Είναι η εταιρεία που αυτό δεν το ξέχασε ποτέ και
το αποδεικνύει με τις ενέργειές της.
Πάντα χρειαζόμαστε ικανούς νέους συνεργάτες
για να συνεχίσουμε
μαζί το έργο των παλαιότερων.

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A mobile app to improve seafarer well-being

Marking a significant step forward in seafarer welfare, a group of established maritime entities has cooperated to build a digital platform to improve the emotional well-being of the 1.7 million seafarers working worldwide.

Launched on 17 February 2021, the Safebridge CrewCare app – jointly developed by volunteer group Container Shipping Supporting Seafarers (CSSS), Maritime EdTech Company Safebridge, data analytics company Motion Ventures, and the Universities of Manchester and Plymouth – encourages seafarers to open up about their feelings and thoughts to mitigate the risk of depression and suicide – the two top causes of seafarers' deaths.

In a press release, Safebridge said that it recognizes seafarers as the global maritime industry's beating heart, without whom international trade would grind to a halt. Supporting seafarers' mental health is of paramount importance to the ship's safe operation, which makes the specific application the next logical step towards a future where every seafarer will be able to interact more closely with those ashore, taking greater care of his or her well-being. CrewCare makes it possible to create a real-time connection between crew managers and their seafarers, offering the level of support that goes far beyond career development. Seafarers' access to support is critical, and this app allows crew managers to precisely achieve that and ensure that seafarers make it home safely.

The app facilitates crew managers' ability to monitor the status of the seafarers' well-being, general health, and COVID-19 risks but also gives them the power to take immediate action and offer direct support to those in need.

The app incorporates a professionally qualified questionnaire based on techniques medical practitioners use to make decisions when presented with a patient's symptoms. An algorithm rates the multi-choice answers given to rate the seafarer's mood from 1 (low risk) to 10.

If a user scores 9 or 10, then that person is identified, and actions can be taken by the ship management company to appropriately qualified personnel in support of the individual. Where concern exists, there is an opportunity for seafarers to get help. The app is a very low-key diagnostics tool set up to ensure that those seafarers struggling to cope will receive the care they need. The quality and quantity of the data will also provide the industry with more substantive, meaningful statistics. The app combines features and functionalities derived from Motion Ventures and Safebridge platforms to offer a single central point for assessing, monitoring, and responding to seafarers' health and well-being needs.

The CrewCare application promises to improve seafarers' quality of life on board ships in the sea's unique environment. However, the application's success depends on the seafarers' willingness to answer honestly to the questionnaire to capture their real feeling, and the algorithms' accuracy. Finally, the application's success also depends on the availability of data from which to export meaningful statistics. However, some management companies may not be willing to publish data that reflect on their policies regarding their crews' quality of life onboard their ships.



Together, we can improve seafarer safety

We have a dedicated, worldwide loss prevention team providing
Members with proactive and inclusive support

MANAGED
BY **THOMAS
MILLER**



Maintaining high standards in the training and certification of seafarers

In the image appear: the Minister of Maritime Affairs and Administrator of the Panama Maritime Authority, Architect Noriel Araúz, the Minister of Labor and Job Development, Ms. Doris Zapata, the President of the Maritime University of Panama (UMIP), Mr. Víctor Luna Barahona, the President of the Panamanian Association of Naval Officers (APOM), Captain Clemente Forero, the Deputy Administrator of the Panama maritime Authority, Ms. Ana Margarita Reyes, the General Secretary of the Panama Maritime Authority, Ms. Elvia Bustavino, the General Director and the Deputy Director, of the General Directorate of Seafarers, Captain Juan Maltez, and Engineer Isabel Valencia, respectively, as well as the 20 professionals chosen for the project.

The efforts and actions of the Panama Maritime Authority to upgrade the knowledge of seafarers and the goals of the “My First Maritime Work Experience” program are highlighted in this exclusive interview by the Director of the General Directorate of Seafarers, Panama Maritime Authority. Capt. Juan Maltez presents his views on the management of the humanitarian crisis in shipping that makes crew changes very difficult.



Capt. **Juan Maltez**,
Director, General Directorate of Seafarers,
Panama Maritime Authority, talks to *Naftika Chronika*

Photos: Panama Maritime Authority

What measures and initiatives have been recently introduced by the Panama Maritime Authority in order to monitor and upgrade seafarers’ continuous education programmes?

Among the measures implemented by the Panama Maritime Authority to effectively monitor and improve the knowledge of seafarers, we currently maintain a system for reviewing and monitoring procedures based on a quality system for maritime training, which involves the review of manuals used in maritime training, the review of the profile of specialized instructors

for each of the training areas and the review of the equipment, workshops, laboratories, simulators, or boats used to complement the training.

This process is performed under a system of audits carried out at the Maritime Training Centers and authorized by the Panama Maritime Authority, to whom the training function has been delegated. All this under the minimum standards required by the amended STCW / 78 Convention. Additionally, we maintain a daily and monthly reports system to control the Maritime Training Centers' certificates.

What is the purpose of the “My First Maritime Work Experience” program initiated by the Panama Maritime Authority through the General Directorate of Seafarers (DGGM)?

This initiative was inspired by Law 121 of 30 December 2019, “Learning by Doing” proposed by the President of the Republic, His Excellency Laurentino Cortizo Cohen, through the Ministry of Labor and Labor Development (MITRADEL), AMP being the first entity to adopt and adapt it to the maritime sector successfully. It also complies with numbers 4, 5, and 8 of the 17 United Nations Sustainable Development Goals (SDGs).

The first recruitment took place in January 2020 through the Panamanian Association of Naval Officers (APOM) and the Maritime University of Panama (UMIP), who provided recruits. They consisted of eight (8) ladies and twelve (12) gentlemen, all professionals from the maritime sector with marine sciences, shipbuilding, and maritime administration careers, among others, who underwent six months of paid training and later exercised functions. The entire process was supervised and guided by specialized personnel from our institution.

At the end of their six-month training, ten of these professionals extended their collaboration with the AMP to 31 December 2020. We also approached industry companies and the Panama Maritime Chamber (CMP) to place the other ten professionals in the labor market, enhance their professional careers, and above all, positively impact their lives and those of their families. In addition to this pilot project, we have updated a database of seafarers seeking work. We are also knocking on the doors of various companies in Panama and abroad that need qualified labor with all their documents in order and ready to embark.

Are there any plans for the Panama Maritime Authority to enhance collaborations with European and Asian institutions?

As part of the Panama Maritime Authority's projects with other institutions, we can mention that Maritime Administration is currently appearing before the European Commission in the process of having Panama's training and certificates of competence recognized by the Maritime Administrations of the twenty-seven (27) member countries of the European Union, including Greece. To this purpose, our Administration underwent an audit by the European Maritime Safety Agency (EMSA) in 2019, which verified the training and seafarers' certification processes carried out by our Administration. Furthermore, in line with the Panama Maritime Authority policy of promoting bilateral agreements based on Regulation I/10 of the STCW'78 Convention, as amended with other maritime administrations, agreements have been signed with Asian countries such as Singapore and the Philippines. Likewise, the General Directorate of Seafarers is preparing to face an audit by the IMO State Parties scheduled for 2022, when the provisions of the STCW'78 Convention and other IMO international instruments will be audited and amended.



All these actions strengthen us and prove that we maintain high international standards in our seafarers' training and certification. As the largest ship registry in the world, the crews of our ships are competent and highly qualified.

The Covid-19 pandemic that began in 2020 caused a humanitarian crisis in shipping as crew changes became impossible in many key ports worldwide. What initiatives and actions has Panama taken to address this crisis? How has the Panama Maritime Authority reorganized its operations, procedures, and compliance policy restrictions since the COVID-19 outbreak?

Panama was one of the first countries in the world to apply the recommendations outlined in the Circular Letter of the International Maritime Organization (IMO N° 4204 / Add.14), regarding the compelling need for safe crew changes and drawing up protocols to ensure they are carried out safely amid the Covid-10 pandemic. Also, as the main governing body of the maritime sector in Panama, on 17 May 2020, the Panama Maritime Authority endorsed the position adopted by IMO Secretary-General Kitack Lim to declare seafarers serving amid this global pandemic as key workers. We played our part in facilitating crew changes, assisting in seafarer repatriation and replacement, thus ensuring that trade and the transport of goods were carried out safely.



This commendable work was carried out despite the airport and other health restrictions that made it difficult to carry out these crew changes. Following the IMO guidelines, we drew up the “Diagram of ways of repatriation, disembarkation, and boarding of crew members” protocol, which contains the following seven different modalities: Coordination of combined charter flight of different shipping lines for the crew, Ship-to-ship crew transfer, Ships with a crew of Panamanian origin (repatriation), Ship-to-ship crew transfer via buses (land), Exchange of Panamanian crew members for Panamanians in national ports, Exchange of foreign crew members for Panamanians in national ports, Boarding and disembarking of Panamanian crew abroad. This document was sent via circular email to shipping lines, shipping agencies, associates, diplomatic missions, and other stakeholders, and can be found on the AMP website.

In addition to crew changes, we processed requests by vessels requiring medical care for seafarers, allowing their crews to disembark for dental-related medical care and antenatal check-ups, among others, all with prior MINSAs approval.

The logistics deployment carried out by the Republic of Panama, which includes various government institutions, shipping companies, and shipping agencies acting in a synchronized manner with the mission of responding to seafarers who need to return home, has been praised worldwide and has become a reference point for the IMO.

From 19 March to 28 December 2020, the Panama Maritime Authority managed to facilitate 12,329 movements related to crew changes. These included the repatriation and disembarkation - by sea or by air - of seafarers from ships registered with the Panamanian Registry or other flags arriving in our jurisdictional waters and ports. Our genuine collaboration with the IMO Member States has been a valuable and rewarding experience. It has allowed us to work together with people (passengers and crew) of more than 50 different nationalities, and in compliance with the conventions ratified by the Republic of Panama, to have seafarers' work recognized as essential and a fundamental link in the global supply chain

After seven months of industrial paralysis caused by the pandemic, last October, the Republic of Panama resumed its international commercial flights from Tocumen International Airport, the country's main air terminal and a regional hub for Latin America. The resumption of operations at Tocumen has normalized and facilitated crew relief on ships in our jurisdictional waters.

We have worked tirelessly for our 318,000 sailors on more than 8,500 ships under our flag during all these months, carrying out actions fully endorsed nationally and internationally and zealously ensuring that the labor rights guaranteed in international work agreements are fulfilled, even in times of pandemic. We have worked hard so that all seafarers on our ships retain their current employment contracts and guarantee the payment of their wages and their rights to repatriation, leave, overtime pay, medical care, and other employment benefits.

The 427 labor complaints regarding non-payment of wages to seafarers processed during 2020, which led to the recovery of USD 2,021,691.29 in wages owed to seafarers by shipowners, are proof of our

commitment to the implementation of the 2006 Maritime Labor Convention. Furthermore, 539 repatriations of abandoned crew members on Panamanian flag vessels were carried out in various parts of the world at the end of 2020.

This hard work reaffirms our commitment to implementing the Maritime Labor Convention 2006 - to which Panama is a signatory - and the national regulations, whose primary function is to ensure that seafarers enjoy decent living and working conditions that guarantee their well-being.

Unless there are coordinated efforts and measures to address critical manpower issues, industry stakeholders should expect a shortage of skilled and competent seafarers. What skills should a young person have to pursue a career at sea?

Certainly skills in the fields of navigation, marine machinery, logistics, transport, as well as port personnel skills. English language proficiency – is an essential skill for this type of career since it is the language used internationally in the maritime sector. Leadership, communication, and teamwork skills, which are crucial for personal and organizational development are also crucial. Skills in the fields of information technology and technology, which also play a crucial role within the maritime sector. To have a good disposition at work, a good character, and a willingness to carry on learning are also essential.

We should however always remember that it is important to provide comprehensive training so that seafarers and other personnel in the maritime industry can respond effectively to any situation.

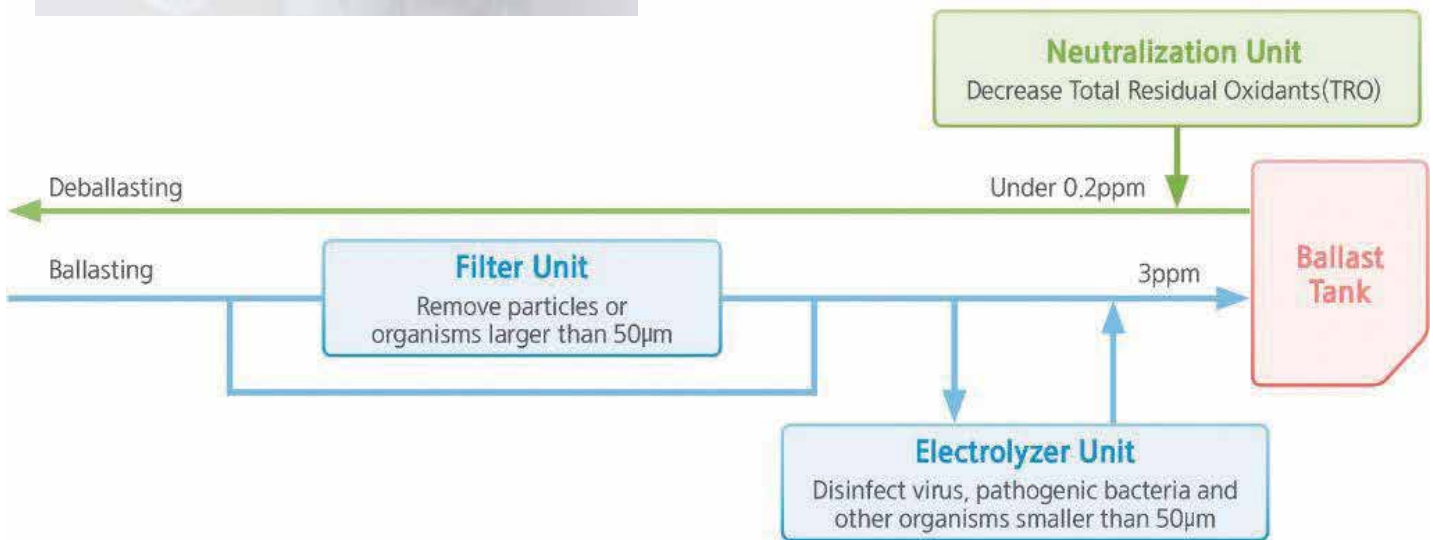
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Navigating in unchartered waters

The Marine Insurance market is hoping for its own Year of the Ox.

H&M Market Update



by **Maria Mavroudi**,
Founding Partner,
Searock Marine Insurance Brokers Europe

It seems that the COVID-19 pandemic and extended lockdown will bring the deepest recession since the 1930s, causing a downturn in world trade and transforming ways of working for most of the world, not excluding shipping and insurance.

2020 saw more losses than wins. At \$83 billion, 2020 marked the fifth-costliest year on record for insurers. Although these losses have mostly been outside the marine world, the cost is spread to all lines of business.

The significant reduction in market capacity and the hardening in the Hull & Machinery market continued throughout 2020. The rising cost of reinsurance and the near naught or even negative interest rates have put underwriters under extreme pressure to achieve positive underwriting returns. As a result, underwriters are prepared to lose business when they cannot write a risk at sustainable premium levels. In this volatile environment, we see consolidation among major market players in an attempt to



increase their market share and, at the same time, reduce the cost of doing business. As the number of participants decreases and capacity diminishes, prices are forced to rise.

Nevertheless, the decline in world trade and reduced claims in combination with increased premiums make 2021 look very promising for Hull, albeit in the short term. And as hopeful as the future looks, new capacity will yield to the hardening terms, but ultimately, the natural laws of supply and demand will probably dominate in the foreseeable future. Provided the claims environment remains near normal levels in 2021 and more capital continues to enter the market, there will likely be fewer increases in 2021. This does not imply underwriters will stop following strict guidelines to streamline their businesses and improve their portfolios' profitability.

War Risks/ K&R Update

The current geopolitical climate is the most turbulent it has been for quite some time. The recent losses and heightened international tensions are posing new

challenges to the War Risks market. To an extent, war market figures could be used as a barometer of global tensions. War risks might be low frequency by nature, but they are of high severity. Taken alongside the recent series of attacks on tankers in the Persian Gulf and the Red Sea, the market as a whole has shifted, creating a very volatile environment for shipowners and underwriters.

In 2019 we saw a marked deterioration in the Gulf of Guinea (GoC) risk, which is best summarized by hijacks doubling in this period compared to 2018. This trend continued into 2020. It is interesting to note that since 2016 we have seen an over 400% increase in the number of kidnappings in the GoC, which is an alarming development.

It is evident that pirate attacks have become very effective, sophisticated, and well-coordinated. It is estimated that an attack lasts no longer than 40 minutes in total. The increase in

the number of crew members kidnapped per incident and the higher ransoms demanded have resulted in higher expenses and response costs. London market insurers estimate that the average cost is between USD1.0-1.75m., while average ransom payments currently range from 350k to 500k.

Shipowners are encouraged to consult with their brokers to consider the competitiveness of the rates and the security of their war risk providers to ensure that they have the right level of coverage.

P&I Update

The 2021/22 P&I renewal season has been one of the most challenging to date, with significant rate increases and a movement between Clubs. While the general slowdown has severely hit shipowners in world trade, for the Clubs, this slowdown in commercial operations translates to a slowdown in liability claims. At the same time, Covid-19 related losses and claims generally seem to be at manageable levels.

An interesting industry development on the P&I front is the new Californian legislation enforced on 1 January 2021 that significantly increases penalties and fines for ship-sourced oil pollution damages in Californian State waters. Under certain circumstances, fines might exceed USD1bn.

More specifically, the court, on conviction, can now impose to the negligent party a) a fine of not less than USD10,000 and not more than USD1m. for each violation, while each day or partial day a violation occurs is a separate violation, and b) for spills over 1,000 gallons, the new law permits the court to impose an additional fine of up to USD1,000 per gallon spilled.

The International Group Clubs informed their members that the cover of USD 1bn. per ship per oil pollution incident, including response costs, third party claims, and fines, remains unaltered. In the meantime, it was advised that the International Group is working with coalition partners to explore the possibility of addressing industry concerns arising from this law.

In practice, as of 1 January 2021, shipowners face a significantly higher risk of exposure to financial liabilities exceeding the level of P&I cover that is currently available and, subject to the severity of the case, may be left with high uninsured exposure.

There is no doubt that Shipping is facing a tougher regulatory environment. Attempts for regional and national regulations complicate the already fractured regulatory framework and do not help towards the global standards according to which Shipping is required to operate. Consequently, shipowners are facing increased risk exposure and are asked to respond to increased insurance costs. The global insurance market is monitoring this development without being in a position to propose a dedicated insurance product at this stage. Also, the obligation of Federal and State COFRs for tank and non-tank vessels prior to entering the U.S. remains.

GasLog Ltd.:

“GasLog Galveston”

GasLog Ltd. continues to dynamically expand its fleet of LNG carrier newbuildings in 2021 by taking delivery of the “GasLog Galveston” on 4 January.





“GasLog Galveston”

The “GasLog Galveston” is a 174,000 cubic meter cargo capacity LNG carrier with dual fuel medium speed propulsion (“X-DF”) built by Samsung Heavy Industries, S. Korea. GasLog Ltd. expressed its gratitude to all the teams involved in the delivery of the GasLog Galveston carrier, from the team on board and the operations team to the site team and everyone ashore for their valuable contribution despite the Covid-19 challenges.

Vessel Type	IMO No.
Liquefied Natural Gas Carrier (LNGC)	9864928
Year of delivery	Gross Tonnage
2021	115,636
Shipyard	Port of Registry
Samsung Heavy Industries Co. Ltd.	Hamilton Bermuda
	Draught
	23.2 m

Capital Gas Ship Management Corp.:

“Aristos I”, “Aristidis I”

Evangelos Marinakis-led Capital Gas Ship Management Corp. has recently taken delivery of two state of the art new buildings and expects another 4 vessels in 2021.





Two LNG Carrier newbuilds for Capital Gas Ship Management Corp.

The company took delivery of the 'Aristos I' last November and the 'Aristidis I' in the first days of 2021. Both vessels were built by Hyundai Heavy Industries, S.Korea. They have 174,000 m³ cargo capacity and are propelled by XDF engines. They are equipped with the latest available technologies, including an air lubrication system and they have increased filling limits (more than 99%). They are the first two of seven sister ships to be delivered between 2020-2023. The vessels have been chartered to BP Shipping for a period of up to 12 years.

Vessels' Names	Class
'Aristos I' 'Aristidis I'	BV
Vessel Type	DWT
Liquefied Natural Gas Carrier	81,451 MT
Year built	Length
2020, 2021	299 m
Shipyard	Breadth
Hyundai Heavy Industries	46.4 m
	Flag
	Malta





The dynamics of shipping finance today: A certainty of uncertainties

In the space of little more than a decade, the ship finance landscape has changed radically and is

still evolving. Back then, the industry's needs were more or less met by banks, the traditional source of capital for shipowners the world over, and public capital markets that had opened up to a wider circle of industry players amid the allure of the shipping hyper-cycle.

January 2020 began with bullish excitement, great fundamentals, and a thrilling tanker market. We plunged into paralysis in March as equity markets collapsed, credit spreads blew wide open, the price of crude went negative, sale & purchase transactions stalled, and new shipping deals screeched to a halt. As the year came to an end, the promise of safe and effective vaccines, a sober orderbook of new vessels, additional stimulus, and a rally in commodities delivered right back to where we started it – bullish.

The coronavirus accelerated trends in ship finance that were already well underway before the virus started spreading. Commercial banks continued their retreat from shipping; ABN Amro and Nordea formally announced that they are scaling back international ship financing activities. And, as of Q3 2020, NORD LB's shipping exposure was just €2.9 billion, down from €16.9 billion in 2016 — a reduction of 83%.

With credit for ship contracts becoming more expensive and the loan syndication market not functioning well in 2020, even the best of borrowers had to work harder to put together facilities in excess of \$500 million. As the cost of ship financing continues to rise, many people feel that it is approaching levels that are appropriate based on the risk. There are market expectations about new lenders entering the market when margins rise enough, tenors are cut short enough, and loan-to-value ratios get low enough.

Some of the biggest and most active commercial shipping banks like Citi, DnB, and Societe Generale spent their year in lockdown collecting emis-



by **Maria Bertzeletou**,
Maritime Research Consultant

sions data and presiding over the first full year of the Poseidon Principles. In April 2018, the International Maritime Organisation (the “IMO”) took the unprecedented step of committing the shipping industry to a long-term strategy to reduce greenhouse gas emissions from international shipping and to phase them out as soon as possible this century. Known as “IMO 2050”, the strategy aims to reduce total annual greenhouse gas emissions by at least 50% by 2050 compared to 2008 while pursuing efforts to phase them out entirely by 2100.

The Poseidon Principles, announced in June 2019, provide a framework agreement aimed at aligning shipping investors with the IMO 2050 requirement. If maritime finance players are willing to pick up the baton to fight for a cleaner shipping industry, the maritime business will be forced to follow.

Under the framework agreement, signatories such as lenders, lessors, and financial guarantors will assess vessels’ sustainability within their existing and future shipping portfolios, using an annual efficiency ratio (“AER”) of grams of CO₂ per ton-mile. The signatories will have to disclose whether their portfolios are in line with the framework agreement’s climate goals. This effectively means that “bank liquidity will be prioritised clients supporting IMO target levels I,” which means that shipowners seeking external financing will need to address decarbonisation. The Principles were developed by three global shipping banks: Citi Bank, Société Générale, and DNB, in collaboration with leading industry players, including A.P. Møller Mærsk, Cargill, Euronav, Gram Car Carriers, and Lloyd’s Register.

In the 2020 Poseidon Principles Annual Disclosure Report, 15 signatories have successfully reported their alignment. The average reported alignment score is +1.2 percent, which means that the 2019 greenhouse gas (GHG) emissions associated with signatories’ shipping portfolios are on average 1.2 percent above the decarbonization trajectory expected by the IMO. Individual scores ranged from -45 percent to +32 percent. Only one year after launch, European signatories to the Principles have structured over \$1.2 billion in Poseidon-linked facilities that tie the cost of capital to GHG performance, specifically climate-aligned GHG performance.

2020 got off to a strong start, with lead arrangers Nordea, ABN Amro, Crédit Agricole, DNB, and SEB putting together a \$390 million senior secured refinancing for New York-headquartered International Seaways in January. The package comprised a 5-year \$300 million term loan, a 5-year \$40 million revolving credit facility, a 2.5-year \$50 million transition credit facility, and \$100 million accordion feature. The term loan and revolver include a sustainability-linked pricing mechanism based on Poseidon.

In July, ABN Amro refinanced a \$15 million receivables facility for Ireland-based Ardmore Shipping, which also contains a pricing adjustment feature linked to carbon emissions reductions. The revolver has a margin of L+390 and matures in 2022, with an option to extend for two more years. “Overall, Ardmore’s AER result for the fleet is 6.11 grams per ton-mile (g/tm) for the last four quarters to September 30, 2020, which is meaningfully below the Poseidon Principles AER target for 2020 of 6.8 g/tm,” said Ardmore in its Q3 earnings.

In September, Antwerp-headquartered crude oil tanker company Euronav secured a \$713 million loan package from a Nordea-led lending consortium. “This is the first major financing of our fleet we have with specific emission requirements,” said Euronav in its Q3 earnings. “These targets start immediately with compliance over the first 12 months being rewarded with a reduced interest coupon of five basis points.”

In October, French duo Société Générale and BNP Paribas announced a \$200 million, six-year senior secured SLL for Hong Kong-based Seaspan. Pricing is based not just on Poseidon-inspired vessel carbon intensity reductions but also on Seaspan’s ability to include sustainability-linked provisions in future charter contracts.

Poseidon’s success as a climate alignment agreement among shipping financiers was followed in October with the launch of the Sea Cargo Charter—a framework among ship charterers for assessing and disclosing the climate alignment of chartering activities. The establishment of the Sea Cargo Charter means that 17 of the world’s largest trading and commodities houses will join ship financiers in pushing the maritime shipping industry to get on a pathway to net-zero emissions.

In November, a working group at the Climate Bonds Initiative launched the Shipping Criteria of the International Climate Bonds Standard (CBS), building on the Poseidon loan methodology to create a Use of Proceeds methodology for green bonds. CBS also provides guidance on how companies can transition the performance of their assets and businesses towards zero-carbon. Overall, the Poseidon Principles have clearly established a model for how the financial sector can kick-start sectoral decarbonization.

The volume of sustainability-linked financings also grew in 2020 – and there are expectations for this trend to continue. 2020 saw green bank debt deals for Maersk, Seaspan, Torm, Fred Olsen, Dorian, Ardmore, Klaveness, International Seaways, and others. There was plenty of non-ESG ship finance business concluded this year, too. In the hydrocarbon maritime IPO market, Sovcomflot priced its long-anticipated \$550 million IPO in Russia.

According to Marine Money data, despite the impact of COVID-19, the shipping and offshore industries raised \$11,337 million from the capital markets, representing a 20 percent increase from 2019. The increase was driven by a surge in debt issuances from \$6,147 million in 2019 to \$9,375 million in 2020. That increase was partially offset by a \$1,205 million decline in equity proceeds, which fell to \$1,963 million. Total equity proceeds in 2020 were the lowest since 2004. Mergers and acquisitions were the most apparent casualty of COVID in 2019. In 2020, eleven transactions worth \$2,091 million were the lowest M&A volume since 2009. The two largest deals took place within the U.S. market.

From Asian lending, Chinese leasing companies reported a decrease in volume of about 15% last year. Maersk Tankers executed a sale/bareboat back on 14 product tankers to China Development Bank Financial Leasing. It is undeniable that Chinese leasing companies have become essential for the ship-



ping finance industry. Today some of the world's largest ship financiers are the Chinese ship leasing houses supporting both shipowners and the nation's shipbuilding industry.

Hong Kong has introduced new tax incentives for ship leasing to secure that it stays ahead. On 19 June 2020, the Inland Revenue (Amendment) (Ship Leasing Tax Concessions) Ordinance 2020 (the Ordinance), which introduces concessionary tax regimes for qualifying ship lessors and ship leasing managers, was passed. The new tax regime applies to revenue received on or after 1 April 2020. Under the new scheme, the tax rate on the qualifying profits of ship lessors carrying out operating lease and finance lease activities, including subleasing and sale and leaseback arrangement, will be 0%. On the other hand, the tax rate on the qualifying profits carrying out ship leasing management activities for ship lessors will be 0% and 8.25% for associated companies and non-associated companies, respectively. In an interview, ship manager Bjorn Hojgaard, CEO of Anglo-Eastern Univan Group, sees a positive impact from the regulation for the wider shipping business community in Hong Kong. Bill Guo, Executive Director of Shipping Finance at ICBC Leasing, one of the world's top ship leasing companies, believes that Hong Kong is now set to become an even more "ideal place" for many Chinese leasing companies to conduct their activities.

For 2021 ship financing trends, the panellists had positive expectations at this year's London Virtual Marine Money Forum. There are expectations that deals valued at around \$150m-\$200m to be of particular interest to banks. Bank lending remains the cheapest form of capital, but the importance of diversifying financing options is high. Following the trend of recent years, Chinese-leasing-house activity in the industry continues to grow, notwithstanding that volumes might suffer potential blowback from 2020 that may take some time to

filter through. Leasing houses are expected to remain an attractive option, but could become more selective in terms of the businesses they serve, with a preference expected for standard, modern vessels that provide more liquidity. Debt and equity capital markets are also set to feature in the financing mix.

There is an appetite among banks to grow their shipping portfolios, with new sectors, such as offshore wind farms, set to be of increasing interest. Overall, the panellists' comments suggested that financing will be available in 2021 from a variety of sources, both traditional and non-traditional, with the ESG lending landscape set to evolve particularly quickly. As the global Covid-19 vaccine rollout continues and market conditions for a strong rebound strengthen, it seems that now is a good time for owners to engage with financiers and consider their strategy for the post-Covid-19 shipping landscape, ready for full steam ahead once markets rebound.



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Commodities

From production to seaborne transport and consumption

DRY BULK CARGOES

COAL

Increase in Australian prices

Energy commodity prices started the year on a positive note, rising across the board led by an increase in oil prices for the third consecutive month, OPEC says in its February report.

In general, overall financial market bullishness on expectations of addi-

tional government-led stimulus was a supportive factor. Colder than average weather generally supported both natural gas and coal prices in Asia and Europe, with price gains in the US smaller in comparison due to milder January weather there. In January, Australian thermal coal prices rose for the fifth consecutive month, increasing by 4.6% m-o-m to \$86.8 mt – almost 25% higher than in January 2020. Similar to the previous month, colder than average winter temperatures in North-East Asia and the rising price of competitor fuel, such as natural gas, proved supportive.

Back in December, given strong demand, due to colder than average weather and robust economic performance, Chinese coal imports more than tripled m-o-m to \$39.08 mln tonnes, while coal output in the country accelerated to 3.2% y-o-y in December, from 1.5% y-o-y in November. Meanwhile, thermal power generation jumped significantly in December 2020, up by 9.2% y-o-y, according to China's National Bureau of Statistics.

Edited by:

Giannis Theodoropoulos,
Michalis Nikolaou



IRON ORE-STEEL

The latest data on EU trade and consumption

The European Steel Association (EUROFER) recently released its Economic and steel market outlook 2021-2022 report. The report includes data on consumption and trade of steel in EU countries in Q3 2020 as well as estimates for 2021.

More specifically, EU28 apparent steel consumption fell (-11.6%) year-on-year in the third quarter of 2020 (that is for the seventh consecutive quarter, after an unprecedented drop (-25%) in the second quarter) and amounted to 32.8 million tonnes.

Albeit higher than the record low seen in the second quarter, the volume for the third quarter 2020 reflects the unprecedented deterioration in

steel demand due to the severe disruption brought by the Covid-19 pandemic - in addition to the negative factors that had materialised in the preceding quarters and had already led to a sharp, continued reduction in steel consumption, EUROFER says.

Total imports of steel products into the EU28 (including UK) – including semi-finished products – fell pronouncedly (-25.4%) in the third quarter of 2020 (vs. -16.8% in the second quarter). In the whole year 2019, imports from third countries had decreased (-11.5%), against an increase (+12.5%) in 2018. The main countries of origin for finished steel imports into the EU market were Turkey, the Russian Federation, South Korea, India, and Ukraine. These five countries represented 65% of total finished steel imports into the EU. Total EU exports of steel products to third countries decreased (-8%) year-on-year in the third quarter of 2020, further to a decline (-23%) in the second quarter. The main export destinations for EU steel exports over the third quarter of 2020 were Turkey, China, Switzerland, and the United States, followed by Algeria and Egypt.

The Coronavirus pandemic and lockdown has a massive impact on steel-using sectors' output, with plant closures, capacity reduction (permanent and/or temporary), and huge supply chain disruption. Thus, economic growth and global trade are set to remain subdued and exposed to fragility until the second quarter of 2021, with repercussions for export-oriented sectors (automotive in particular), EUROFER notes. Total steel-using sectors output is set to fall (-11%, almost unchanged from EUROFER's previous forecast of -10.4%) in 2020, to recover (+7.4%) in 2021, and to grow more moderately in 2022 (+4.1%). EUROFER expects that real consumption will fall (-11%, previously set at -11.5%) in 2020 and will recover in 2021, together with the improvement in steel demand (+7.5%, previously +9.3%), and in 2022 (+2.9%).

Latin American consumption a sign of the region's economic recovery at the end of last year

Latin America continues to show signs of economic recovery, although performance is uneven across countries in the region, says the Latin American Steel Association (Alacero) in a recent report. The goal of the steel industry is to continue to meet the demand in each country. In this scenario, the total production of crude steel in 2020 was 55.6 million tons (Mt), which represents a decrease of 8.4% compared to the total in 2019. This is similar to the world results, which registered, without taking into account China, a reduction of 7.7%, to 822 Mt. The Chinese steel industry, in turn, recorded production of 1.053 billion tons, equivalent to an increase of 5.2%.

In Latin America, Chile was the country with the best performance, with 1.2 Mt and an increase of 2.1%; at the other extreme was Peru, with a reduction of 40.6%, to 732,000 tons.

Total rolled steel production fell 9.7%, reaching 46.3 Mt, similar to 2003 production and far from the best performance of 57.5 Mt in 2013. The largest drop in production of rolled products for the main economies in percentage was recorded in Argentina, with -18.8% (total of 3.5 Mt in 2020), and in volume in Mexico with a drop of -1.7 Mt (-9.9% and volume of 15.8 Mt). As a reference, Brazil closed with -3.7% (21.7 Mt).

Steel consumption reflects the regional economy's improvement, having registered an increase to 5.5 Mt in November 2020, 6% more than the same month last year. There has not been a month with numbers like this since October 2019.

It is estimated that this performance may be maintained during the first quarter of 2021. In November 2020, the share of imports in consumption fell,



and the expectation is that regional consumption will grow again, with the trade deficit under control. In November, the accumulated trade balance registered a deficit 13.5% lower than in the first 11 months of 2019 (-12.4 thousand t).

A new study by Professor Dr. Germano Mendes de Paula warns about the risks of competitive differences in Argentina, Brazil, Colombia, and Mexico with countries in Asia such as South Korea, India, Vietnam, and, especially, China. It also draws attention to the risk this represents for the steel industry's metal-mechanic value chain in Latin America. The document, entitled "Competitive Asymmetries, Deindustrialization, Steel Chain and Industry," shows how these differences in competitiveness variables such as taxation, education, logistics, and financing are undermining the future of the steel industry in the region. In this context of great competitive asymmetries, the defense of the metal-mechanical chain and the steel industry in Latin America is essential to maintain activities that have high levels of linkage and generation of high-quality jobs.

ArcelorMittal – Vale: Positive outlook for shipments and production

ArcelorMittal recently released its financial results for the three-month and twelve-month periods ended December 31, 2020, noting that its

own iron ore production in 4Q 2020 increased by 4.2% to 15.3Mt as compared to 14.8Mt in 3Q 2020 primarily due to higher production at ArcelorMittal Mines Canada. ArcelorMittal's iron ore production in 4Q 2020 increased by 3.5% to 15.3Mt as compared to 14.8Mt in 4Q 2019.

Market-priced iron ore shipments in 4Q 2020 increased by 7.9% to 10.6Mt as compared to 9.8Mt in 3Q 2020, primarily driven by higher shipments in AMMC, Liberia, and Mexico. Market-priced iron ore shipments in 4Q 2020 were 9.8% higher than 4Q 2019, reflecting higher production levels, particularly at AMMC and Ukraine. FY 2020 market-priced shipments of 38.2Mt are up +2.9% YoY. FY 2021 market-priced iron ore shipments are expected to increase to approximately 39Mt ArcelorMittal estimates in its report.

Vale also released its 2020 production and sales report. As noted, iron ore fines production totalled 300.4 Mt in 2020, in line with 2019. In 4Q20, Vale produced 84.5 Mt of iron ore fines, 5% lower than in 3Q20, mainly due to higher rainfall levels and tailings disposal restrictions in the Southeastern System in Brazil.

Considering production restrictions, Vale ended 2020 with 322 Mt of production capacity and expects to achieve 350 Mt capacity by the end of 2021.

GRAINS

WHEAT

Recent estimations for global production, consumption, and trade

The US Department of Agriculture (USDA) recently published the monthly report "World Agricultural Supply and Demand Estimates" for February. The outlook for 2020/2021 US wheat that month is for greater supplies, increased consumption, higher exports, and reduced stocks. Supplies are raised 0.8 million tons to 1,073.5 million. Global production is increased to a record 773.4 million tons as higher production in Kazakhstan more than offsets reduced production in Pakistan and Argentina. World 2020/21 consumption is increased 9.8 million tons to 769.3 million, mostly on higher feed and residual use for China and increased food, seed, and industrial (FSI) use for India.

China's 2020/21 feed and residual use is raised to a record 30.0 million tons, surpassing the previous 2012/13 record of 26.0 million. China's domestic corn prices continue to be at a premium to wheat, encouraging greater wheat feed use. Additionally, increased auction volumes of old-crop stocks in China have expanded the availability of feed-quality wheat. India's FSI is raised 3.5 million tons to a record 96.5 million as government stocks data indicate greater disappearance than previously estimated. This is likely the result of the inclusion of wheat products in India's government food assistance programs to address economic disruptions caused by COVID-19.

Projected 2020/21 global trade is raised 1.1 million tons to 194.8 million tons as higher exports for the EU-27+UK and Kazakhstan more than offset lower exports for Argentina. The EU-27+UK exports are raised on a strong export pace and improved price competitiveness with Russia. Kazakhstan exports are increased on its pace to date and greater exportable supplies. Argentina's are lowered on reduced supplies and a slow export pace to date. This month, the largest import change is in China, where imports are raised to 10.0 million tons on a continued robust pace. Projected 2020/21 world ending stocks are lowered 9.0 million tons to 304.2 million with most of the reductions due to increased consumption for China and India. However, global stocks remain record high, with China and India holding 51 and 9 percent of the total, respectively.



CORN

Conflicting forecasts on Argentinian production

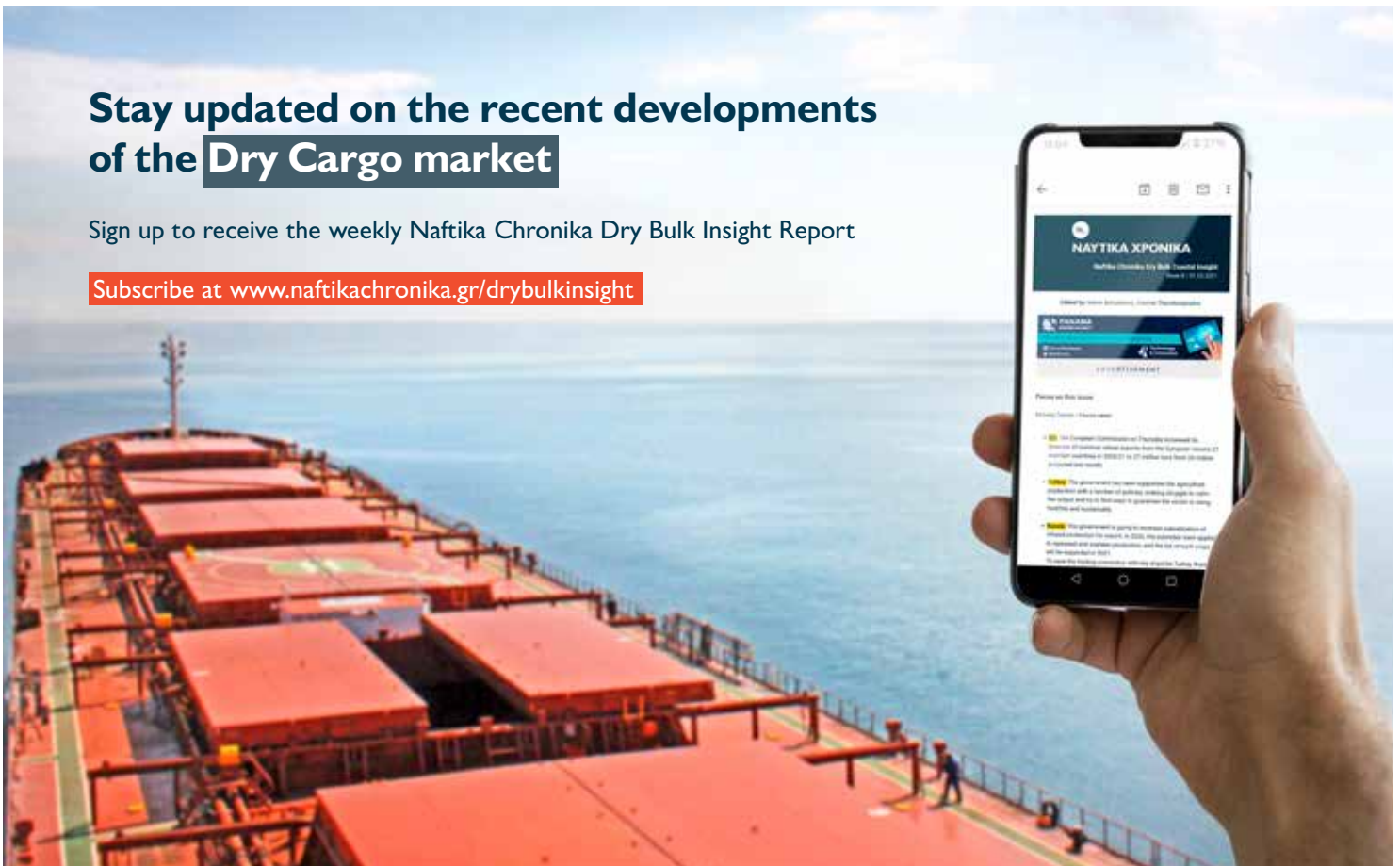
Argentina's corn production for the 2020/21 marketing year will reach 46 million tonnes, 5.5 million tonnes below the previous marketing year as expected by the Buenos Aires Grain Exchange (BAGE).

"Late planted corn destined for commercial use maintains a good crop condition in the central agricultural area. In parallel, the harvest of early-planted corn in Santa Fe and Entre Ríos provinces show yields that are below the expectations raised at the beginning of the season", BAGE said in a weekly update. On the other hand, the Rosario Grains Exchange raised its forecast for the 2020/2021 corn harvest year to 48.5 million tonnes from 46 million earlier.

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WET BULK CARGOES

CRUDE OIL

OPEC revises down global demand forecast for 2021

OPEC recently released its February report in which it says global oil demand will increase by 5.79 million barrels per day in 2021. The estima-

tion is down by around 100,000 bpd from January's estimation. "Extended lockdowns and the re-introduction of partial lockdowns in a number of countries has resulted in downward revisions to IH2I projections", OPEC said.

For 2021, oil demand is now anticipated to average 96.1 mb/d. "While the global economy is showing signs of a healthy recovery in 2021, oil demand is currently lagging, but is forecast to pick up in the 2H21," OPEC noted.

EIA: US production to fall in 2021

In its February Short-Term Energy Outlook (STEO) report, US Energy Information Administration (EIA) estimates that US oil production will continue to decline slightly in the coming months, reaching 10.9 million b/d in June. Although oil-directed drilling has increased in the United States in recent months, the number of active drilling rigs remains lower than year-ago levels. EIA expects production from newly drilled wells will be more than offset by declining production rates at existing wells in the first half of 2021.

However, based on EIA's forecast that West Texas Intermediate crude oil prices will remain near or higher than \$50/b during the forecast period, EIA expects drilling will continue to increase. As a result, production from new wells will exceed the declines from legacy wells, and overall crude oil production will increase in the second half of 2021 and 2022. EIA estimates that US crude oil production will average 11.0 million b/d in 2021—down from 11.3 million b/d in 2020 and 12.2 million b/d in 2019—and will rise to 11.5 million b/d in 2022.

Opportunities and challenges ahead for India

The International Energy Agency recently published its India Energy Outlook 2021 report, which explores India's opportunities and challenges as it seeks to ensure reliable, affordable, and sustainable energy for a growing population.

The report examines pathways out of the crisis that emerged from the Covid-19 pandemic and longer-term trends, exploring how India's energy sector might evolve to 2040 under a range of scenarios.

India is the world's third-largest energy consuming country, thanks to rising incomes and improving living standards. Energy use has doubled since 2000, with 80% of demand still being met by coal, oil, and solid biomass. To meet growth in electricity demand over the next twenty years, India



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will need to add a power system the size of the European Union to what it has now.

This special report maps out possible energy futures for India, the levers and decisions that bring them about, and the interactions that arise across a complex energy system. The following scenarios are considered:

- The Stated Policies Scenario (STEPS) provides a balanced assessment of the direction in which India's energy system is heading.
- The India Vision Case is based on a rapid resolution of today's public health crisis and a more complete realisation of India's stated energy policy objectives.
- The Delayed Recovery Scenario analyses potential downside risks to India's energy and economic development in the event that the pandemic is more prolonged.
- The Sustainable Development Scenario explores how India could mobilise an additional surge in clean energy investment to produce an early peak and rapid subsequent decline in emissions.

In the STEPS, India's oil demand will rise by almost 4 million barrels per day (mb/d) to reach 8.7 mb/d in 2040, the largest increase of any country. By contrast, in the Sustainable Development Scenario, a much stronger push for electrification, efficiency, and fuel switching limits growth in oil demand to less than 1 mb/d.

Domestic production of oil and gas continues to fall behind consumption trends, and net dependence on imported oil rises above 90% by 2040, up from 75% today. This continued reliance on imported fuels creates vulnerabilities to price cycles and volatility as well as possible disruptions to supply.



LIQUEFIED NATURAL GAS (LNG)

How climate change increases demand

As the climate changes, the Arctic is warming four times faster than global averages, causing the circumpolar Jetstream to weaken and move southwards. Consequently, freezing cold air masses – known as the Polar Vortex – descend to more densely populated areas in the earth's Northern Hemisphere, where humans have no other immediate choice but to increase fossil fuel consumption to keep warm.

Analysing global temperatures and related weather phenomena, Rystad Energy believes that the increased frequency of this weather pattern, which has caused a rise in demand for coal, liquefied natural gas (LNG), electricity, and even a bit of oil, is here to stay. Recent eye-popping price spikes and their spread between summer and winter will widen, especially for gas, both natural and liquefied.

With European and Asian markets hungry for natural gas and LNG, storage levels are getting depleted. And with the Polar Vortex expected to create another cold snap in February, a perfect demand storm will likely cause a spike in global demand and contribute to a 4% rise in LNG consumption this year, reaching about 377 million tonnes (MT) in 2021 versus 363 MT in 2020.

Due to the cold snap, North-east Asia has already reached an international LNG import all-time-high in December, when the region imported a record 22 MT. In particular, China imported a record 66 MT in the whole of 2020, despite the effect of the Covid-19 pandemic, and is on the verge of overtaking Japan as the world's largest LNG importer. Rystad Energy expects Chinese LNG imports in 2021 to grow to 72.9 MT, just 2 MT short of Japan's projected 74.9 MT.



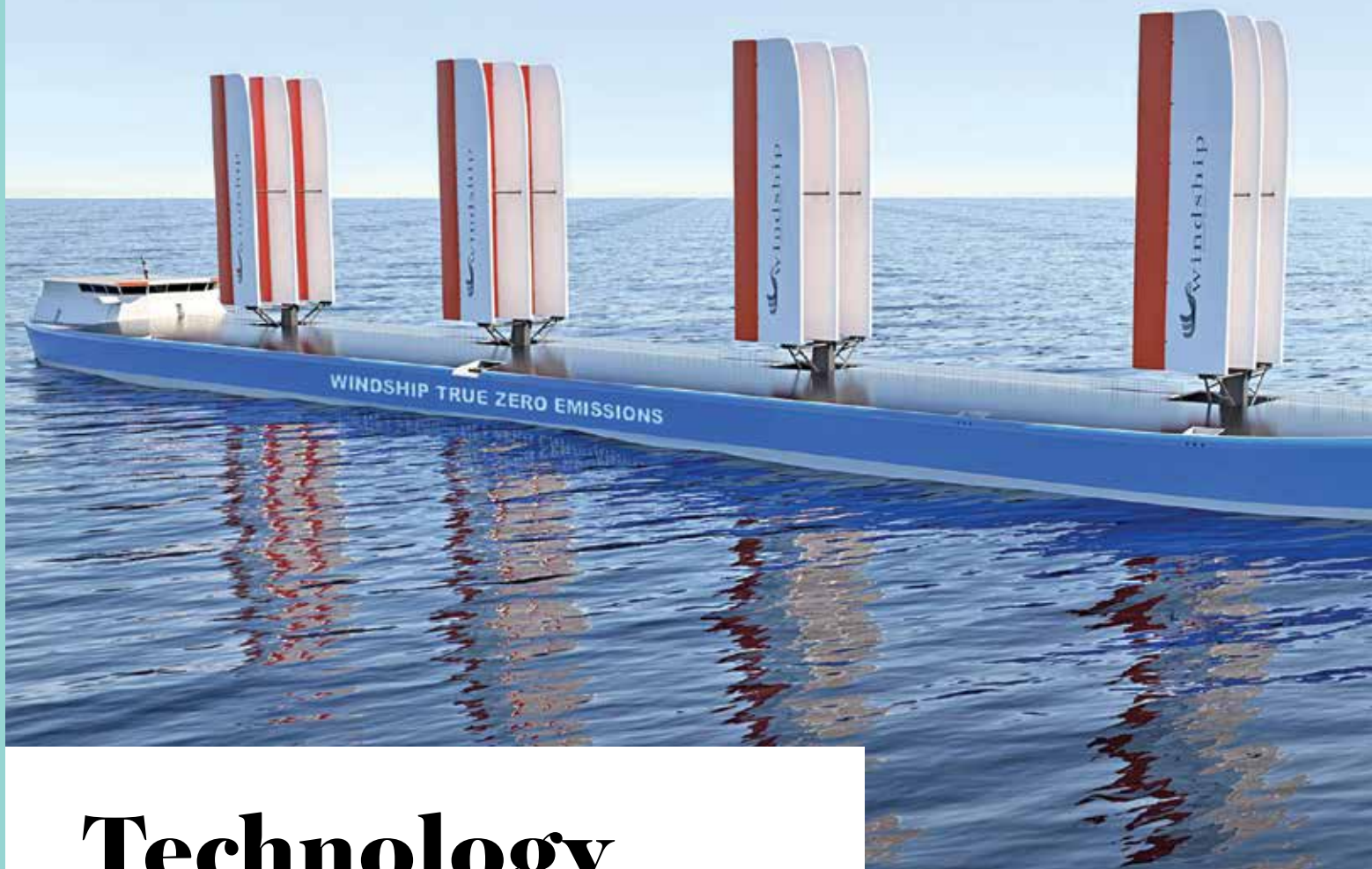
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Technology & Shipbuilding

Windship Technology unveils first True Zero Emission ship design

Windship Technology unveiled its designs and announced an investment partnership with one of the world's leading classification agencies. Starting from a clean drawing board, Technical Director Simon Rogers and his design team developed and tested the company's patented high performance, highly efficient triple-wing rig at the renowned Wolfson Unit in Southampton. The technical team further developed a new diesel-electric ship drive system that eliminates CO₂, NO_x, SO_x and particulate matter to True Zero whilst also incorporating large solar arrays, carbon capture, optimised hull shapes, and specialised weather routing software into the overall design package.

Edited by:
Nikos Vergounis

The eye-catching triple-wing rigs produce a driving force several multiples greater than single-masted solutions of the same height currently being promoted in the industry. The 48m Windship Technology rig is stowable on deck through a unique, innovative stowage solution to aid port navigation and cargo handling. Its composite structure is borne out of technology and design from the wind turbine industry, ensuring reliability and longevity of greater than 25 years. Professor Philip Wilson, a former Professor of Ship Dynamics at the Ship Science Department at the University of Southampton who is convinced by Windship Technology's solution, says: "The holistic approach demonstrated in this solution whereby wind power, solar power and the reduction of harmful exhaust emissions to effectively zero, are all brought together, means that at last there is a design solution that the International Maritime Organisation can champion to achieve its requirements for 'at least' zero-carbon shipping." The company has announced a significant partnership investment with the international regis-



trar and classification society DNV who will be conducting both an outside-in and inside-out verification to fully assess Windship Technology's whole-ship design with a view to classifying emission reductions, safety, and operability.

NYK to Build Two New LPG Dual-Fueled VLGCs

NYK recently announced the order of its first two liquefied petroleum gas (LPG) dual-fueled very large gas carriers (VLGCs) to Kawasaki Heavy Industries Ltd. Both ships will be built at the KHI Sakaide Works shipyard and are set for delivery in 2022.

When LPG is used as fuel, exhaust gas from the ordered VLGCs will contain at least 85% less sulfur oxide (SO_x) and 15% less carbon dioxide (CO₂) than conventional VLGCs with fuel-oil engines.

These new VLGCs will comply not only with the SO_x Global Cap regulations that were tightened from January 2020 but also with the EEDI phase 3 requirements.

In addition, by equipping the ships with LPG tanks on deck, it will be possible to load LPG for fuel separately from the LPG cargo. Having the LPG tanks on deck extends the cruising range of the vessel when LPG fuel is used even though the size of the vessel remains the same.

In the future, by promoting the development of an eco-friendly fleet, NYK will provide customers with a low-carbon transportation mode and contribute to the reduction of environmental loads and the realization of a sustainable global society.

The world's largest dual-purpose LNG supply and bunkering vessel

Avenir LNG Limited has announced the launch of the Avenir Allegiance, the world's largest dual-purpose LNG supply and bunkering vessel from CIMC Sinopacific Offshore & Engineering Co. (CIMC SOE).

Avenir Allegiance was launched on 27 January 2021 at Zhoushan Changhong International Shipyard Co. Ltd. Due for delivery from CIMC SOE in the third quarter of this year, she will be the first 20,000 cbm vessel to join the Avenir LNG fleet and the world's largest LNG bunkering vessel.

Allegiance will be Cayman Island flagged and the 4th of 6 newbuilds delivered to Avenir LNG. Avenir's first newbuild delivery (the Avenir Advantage) took place in October 2020 and will be followed by the Avenir Accolade, Aspiration, Allegiance, Ascension, and Achievement this year.

South Korea's first domestic zero-emissions ferry

ABB has secured a contract with Haemin Heavy Industries shipyard to provide a complete power and propulsion solution for Busan Port Authority's first all-electric passenger ferry.

The new ferry represents the first commitment by South Korean authorities to a plan which will see 140 state-owned conventionally powered ves-

sels replaced with those operating on cleaner alternatives by 2030, in line with environmental legislation. Sustainable transportation, including marine vessels, will play an important role in South Korea's plan to achieve net-zero emissions by 2050, set out in the country's Green New Deal, announced in 2020.

As the first system integrator chosen to support this initiative, ABB will deliver an end-to-end electric power and propulsion solution for the twin-hulled ferry, which is due for delivery in 2022. The 40-meter catamaran ferry will have the capacity to carry up to 100 passengers and five crewmembers. It will operate between Busan's North and South ports, taking about one hour to complete a return journey with an average operating speed of 13 knots (24 km/h). The financial details of the contract were not disclosed.

Busan-based shipbuilder Haemin, which specializes in lightweight, environmentally-friendly vessels, and ABB have also signed an agreement to collaborate on further vessel projects in the future.

WinGD's biggest X-DF dual-fuel engine awarded GUINNESS WORLD RECORDS™ power title

The WinGD's 12X92DF dual-fuel engine series has been awarded the Guinness World Record for the most powerful Otto-cycle engine ever built.

In tests carried out at engine builder CSSC-MES Diesel Co (CSSC-CMD) and verified by Guinness World Records, for the official record title for the 'Most powerful marine internal combustion engine (Otto cycle) commercially available, the 2,140-tonne engine demonstrated a power of 63,840 kW at a speed of 80 rpm. The super-sized engines fuelled from 18,600 cubic metre tanks, containing enough liquefied natural gas (LNG) to sail a complete Asia to Europe round trip, will propel nine 23,000 TEU containerships operated by world-leading French shipping and logistics company, CMA CGM.

These ships are the world's biggest LNG-powered vessels. In November 2017, Rodolphe Saadé, Chairman and CEO of the CMA CGM Group, decided to make CMA CGM the first ship-owner to operate ultra-large containers using LNG. These ships are the result of seven years of research and development and a concentration of technological innovations.

WinGD CEO Klaus Heim said: "The future uptake of LNG as a marine fuel is being driven by large merchant vessels with two-stroke engines, where the savings - and the environmental benefits - are the greatest. We are delighted with this

achievement, which was made possible by CMA CGM's strong vision and close cooperation with engine builder CSSC-CMD and Bureau Veritas. The I2X92DF is not just the biggest dual-fuel engine in our portfolio – it is now officially the most powerful of its type in the world.”

Guinness World Records Vice President Neil Foster said of the achievement: “The WinGD marine internal combustion engine is thoroughly deserving of its Guinness World Record title. Records for engineering excellence never fail to fascinate, and this title is testament to the skill of the team at WinGD that had the vision and dedication to deliver the technology behind the title.”

The I2X92DF is further evidence of WinGD's commitment to accelerating sustainability within the shipping industry. The market-leading X-DF range of dual-fuel engines enables the use of LNG as a marine fuel. LNG fueled vessels significantly minimise air pollution caused by emissions of SO_x, fine particulates, and NO_x while offering a substantial reduction in greenhouse gas emissions. Like other engines in the X-DF range, it is ready for use, with no modifications required, once carbon-neutral fuels, including methane produced from biomass or renewable electricity, become available. These engines play an important role in helping shipping reach its target of reducing greenhouse gas emissions by 50% by 2050 and eliminating emissions as quickly as possible.

“K” LINE to expand sharing of ship operation data to enhance utilization of big data in the maritime industry

Kawasaki Kisen Kaisha, Ltd. (“K” LINE) and Ship Data Center Co., Ltd. (ShipDC) have agreed to share operation data of all “K” LINE fleet equipped with “Kawasaki Integrated Maritime Solutions” through IoS Open Platform (IoS-OP), the ship IoT data-sharing platform promoted by ShipDC.

“K” LINE had so far stored operation data collected from several vessels equipped with Kawasaki Integrated Maritime Solutions to IoS-OP and has now agreed to expand the sharing for all its owned fleet of about 140 vessels.

Though the development of information and communication technology has made it possible to collect large and various data from ships in

operation, data collection and analysis approaches are still fragmented. ShipDC is working on a common platform for ship-related data to encourage big data use in the maritime industry.

This data sharing significantly increases the amount of ship operation data transferred in IoSOP and enables IoS-OP members to fully utilize the shared big data to enhance their corporate value, which includes the pursuit of ship safety and economic efficiency, environmental initiatives, and the creation of maritime innovations to strengthen their competitiveness.

Taking this occasion of expanding the data sharing, “K” LINE decided to upgrade its.

Taking this opportunity to expand data sharing, “K” LINE has decided to upgrade its IoS-OP Consortium membership status to the highest rank of “Platinum” to extend its involvement.

“K” LINE and ShipDC aim for ship safety, contribution to the environment, and economic rationality through data utilization as well as a further acceleration of the collection, distribution, and utilization of data in the maritime industry with IoS-OP at the core.

The world's first tiltable Rotor Sail installation on Ro-Ro vessel

Norsepower Oy Ltd. has successfully installed two 35m tall Rotor Sails for SEA-CARGO, a leading logistics provider in the North Sea market. This installation heralds the world's first tiltable Rotor Sail, showcasing that vessels that have to negotiate height-restricted routes can benefit from this fuel and emissions-saving solution.

According to the analysis conducted by Norsepower and SEA-CARGO, the installation - on board the SC Connector, a 12,251 gross tonne (GT) sidedoor Ro-Ro – can achieve a fuel consumption, fuel cost, and carbon emissions reduction of up to 25%. In good wind conditions, the sailing vessel will maintain regular service speed by sail alone.

As shipping transitions towards decarbonisation and meeting IMO's 2030 and 2050 targets, the maritime transport industry is looking for proven solutions to ensure emissions reductions. Harnessing the wind is a natural step to reducing emissions and fuel consumption. Norsepower's Rotor Sail Solution is a modernised version of the Flettner rotor, a spinning cylinder that uses the Magnus effect to harness wind power to thrust a ship.

SC Connector, which sails between Western Norway, Denmark, the Netherlands, and also Sweden and Poland, transits under multiple bridges and powerlines, requiring adaptation of the Rotor Sails to tilt to almost horizontal when required.





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A Managerial Perspective VS IMO 2021 Cyber-Safety Requirements

Can't wait another year:

Cyber-safety is not a new “thing.” Corporate expertise has been around since the creation of ICT systems and their industrial/operational technologies integration. Added to the ISM code (MCS-FAL.1/Circ.3) and classified as mandatory by TN 24/2017), it addresses the risk introduced by cyber-related scenarios affecting the shipping industry’s solvency, which shows increased dependency on integrated systems.

All risk-introducing incidents disrupting the integrated onboard ICT health state, such as system failures/interruptions, compromised access, malware injected in networks from portable media, and so on, are considered cyber-incidents.

The ISM Code forces Shipping Companies to establish, control, balance, and maintain proactive and reactive safeguards, attaching great importance to the vessels’ side.

What is Onboard Cyber-Safety?

Cyber-security is definitely not just about an SMS, nor a case of fictitious hackers forcing firewalls to acquire ships remotely, or just a matter of asset management.

Like any safety requirement, cyber-safety is about identifying risks, knowing how to mitigate them, maintaining systems and procedures as ample proof to support mitigation scenarios, and finally documenting it all in the SMS.

As stated in the ISM Code, cyber-safety strongly relates to the way fleet ICT systems are developed and managed. All systems and devices, interconnected/embedded systems or not, must be responsibly blueprinted, tracked,



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evaluated, and assessed against potential risks and vulnerabilities, governing the entire onboard ICT architecture through scientific ICT practices. The technical, operational, and managerial ability to understand what to expect, protect the integrity, and seamlessly recover failed or compromised onboard systems from shore is the cornerstone of onboard cyber-safety. Hence, the deployment of complete, end-to-end, integrated, and responsibly governed ICT architectures is essential.

The problem is that this field is evolving at extreme speeds compared to the traditional reflexes of Shipping Companies on change management. Still, with such instability in the global arena, it is time to overcome the “this is how things have always been done” mentality.

MCS-FAL.1/Circ.3, TN 24/2017.

Guidelines are as extensive as they can possibly be, not short and vague as some in the industry have argued. They address the complexities of managing onboard ICT architectures in great detail through three extensive references given as detailed guidance in MCS-FAL.1/Circ.3, two of which are extensively adopted by the ICT industry in the corporate world:

1. Guidelines on Cyber Security Onboard Ships.
2. ISO/IEC 27001 standard on Information technology.
3. US NIST Framework - Improving Critical Infrastructure Cybersecurity.

The first document summarizes the cyber perils introduced by IT and OT systems as onboard interconnected entities, or not. Every device, network, system, and process should be hardened, assessed, monitored, and managed. The second document complements the first by introducing standardized ICT industry controls and safeguards onboard through ISO 27001. Like in any other ICT-dependent industry, ISO 27001 is deployed to address, define, and maintain an integrated cyber-safe environment. This reference clearly implies that every vessel must be treated as a unified and managed data-center.

The third document complements both of the above by adjusting Total Quality through everlasting care to improve onboard cyber-safety. Referring to fleets, the five NIST functions (Identify, Protect, Detect, Respond, Recover) require the ability to monitor, remedy, and recover incidents on compliant ICT architectures, using immediate, effective, and efficient actions by expert teams. Still, there is a catch; vessels cannot be attended while operating at sea, extending cyber-protection beyond the typical CIA triad of the corporate world.

2021: PSCOs seek ample proof.

The above requirements serve as absolute technical guidance for Flags, Port State Authorities, and Classification Societies. Flag administrations (e.g., Liberia) include the above in their audit procedures. Work Instructions for PSCOs (e.g., USCG) include detailed examples of how to seek ample proof regarding onboard ICT architectures in compliance with all the above.

Current PSCOs work instructions prove in practice that compliance relates to the behavior and capabilities of onboard ICT architectures, combined with the capacity of ICT teams to support these architectures. Only and only if the latter are in place, cyber-related SMS procedures can be generated. It does not work the opposite way, as it was believed a year ago.

Flexible organizations like Shipping Companies are less likely to dedicate

a full set of resources to cover all the above requirements. However, IQ Solutions SA and Bureau Veritas Marine & Offshore have provided a shortcut.

Compliance recipe:

Deploy a complete onboard ICT environment, Type Approved for Cyber-Security by Class.

The starting point for proper regulatory compliance is identifying gaps in the effort, know-how and resources required. The next step is achieving fleet-wide architectural ICT homogeneity tailored for compliance. The last step is partnering your Shipping Company's internal fleet management with an experienced, approved, and competent ICT provider. As a result, gaps are closed, internal ICT fleet managers hold critical day-to-day technology decisions, while fleets are kept compliant at all times.

The suggested compliance recipe can be deployed through IQ Solutions' VCell Cyber, the only complete end-to end onboard ICT environment awarded with a Type Approval for cyber-security by a major classification society. What Shipping Companies gain is the immediate upgrade of their fleets and fleet management departments towards compliance, regarding all abovementioned ISM cyber-safety guidelines.

Consequently, through fleet-wide VCell Cyber adoption, a healthy SMS can be built, supported by pragmatic, ample ICT proof of undeniable nature by PSCOs, providing peace of mind against the complicated and mandatory cyber-safety requirements, along with future integrations with IQ Solutions' onboard CCTV and Augmented Reality solutions, or even third party OT/IoT monitoring software, in a compliant and seamless manner.





Market News

Jotun

High quality antifoulings can make all the difference



by **Stein Kjølborg**,
Global Category Director,
Hull Performance, Jotun

Today's shipowners face a simultaneous battle on two fronts. A growing pressure to comply with ever more stringent environmental regulations is matched by a need to control costs and enhance efficiency in an increasingly competitive and unpredictable marketplace.

Confronted with such grave challenges, owners have an opportunity to pick the low hanging fruit of advanced antifouling solutions, simplifying compliance while also achieving significant bottom-line benefits.

Energy efficiency and carbon emissions are inextricably linked to fouling growth on ships' hulls. Algae and barnacles add significant frictional resistance, and this results in speed loss. To compensate for that, and keep up with sailing schedules, vessels are forced to increase power. As a result, fuel consumption and carbon emissions also increase.

That creates obvious financial ramifications, environmental impact, and difficulties in terms of regulatory compliance. So, in short, a dirty hull is bad news for everyone. Keeping clean is unquestionably the way forward.

Innovation advantage

With over a decade of market proven operation, and applications on around 1000 vessels, HPS' combination of silyl methacrylate-based coating technology, high-end technical service, and monitoring has recorded success in keeping vessel



speed loss as low as 1%, versus the market average of 5.9% (over a standard five-year drydocking period). This translates to a fuel saving of 14.7%, delivering powerful commercial and environmental gains.

We have developed this technology over more than 20 years, continually innovating to meet shipowner demand while investing in proving efficacy to demonstrate ROI. With this in mind, HPS offers customers a highly transparent performance guarantee, with Jotun's dedicated team of data analysts documenting and monitoring hull performance based on ISO 19030.

Unique approach

In March 2020, Jotun launched Hull Skating Solutions (HSS). This breakthrough in proactive cleaning is designed to maintain an "always clean" hull, removing bacteria and biofilm before macro-fouling can take hold. In doing so it optimises hull performance while diminishing the need for reactive cleaning.

Always clean

This bold approach to proactive cleaning takes the shipping industry to a whole new level in terms of fuel efficiency and environmental profile. HSS delivers an always clean hull and full operational flexibility for vessels facing the very toughest bio-fouling challenges. That's something no coating can possibly achieve on its own.

Research shows that if all vessels within the target market adopt HSS proactive cleaning, an estimated 40 million tons of maritime CO₂ emissions per annum could be cut worldwide. In addition, a minimum fuel cost saving per vessel of 13% could be achieved (over a five-year drydocking period, compared to typical average performance).

Reducing the risks in mooring operations

Published by OCIMF (Oil Companies International Marine Forum), MEG4 represents the best-known mooring practice and reflects the move by the marine industry and regulators towards Human-Centered Design principles.

Introduced in the shipping industry since September 2018, these guidelines have brought significant changes in the management of mooring systems, certification of mooring ropes and frequent co-operation between the end user and rope manufacturer. New terminology regarding the properties of mooring ropes, new procedures for line management planning, and, finally, upgraded testing procedures to be addressed by rope manufacturers have been introduced.

Certification of mooring ropes, as per MEG4 requirements has brought new procedures and time-consuming testing that aim to reflect the real working conditions in mooring operations.

In this respect, the end user can have a performance evaluation included in each MEG4 certificate while having the ability to compare different rope types and manufacturers.

KATRADIS ropes are continuously tested successfully and approved in accordance with MEG4 specifications.

All the required testing is performed in-house through our technologically advanced and fully equipped Quality Department and expertized technical staff. Also, our certification and Type Approval of our ropes is issued by classification society.



Type-approved Marine Transformers

This type-approved marine transformer – designed and manufactured by EMMIS MARINE – is a three-phase low-voltage dry-type transformer with the commercial label MAR/TC. Its power falls between 5 – 1600 kVA and comes with protection level IP23.

The MAR/TC marine transformer has been designed with particular emphasis on R&D with the ultimate aim to not only satisfy the requirements for its certification but also to incorporate innovative points that differentiate it from similar products of the competition in Greece and abroad.

In particular, it achieves significant energy saving with its smart casing design, the internal ventilation openings and the special copper high-current cable terminals for the avoidance of thermal losses.

The easy removal of its surfaces and the transparent cover surface, which can also be easily removed, facilitate and reduce significantly the time needed to execute several tasks, such as installation, testing and maintenance.

The special care for the mechanical support of cables routing through glands and the lifting lugs on the main part of the transformer, protect against the risks of current leakages and labor (industrial) accidents, respectively.

The certification of type-approved marine transformers MAR/TC comes from Lloyd's Register.

Building cyber resilience in the maritime industry as attacks reach three-year high



by **Jamie Jones**,
Operations Director at GTMaritime

With new IMO regulations now in effect, vessel owners must act without delay to ensure cyber-security is incorporated in their ISM Safety Management Systems.

The increasing number of stakeholders acknowledging that cyber threats to ships risk business continuity has been sufficient to prompt most ship owners into action in time for entry into force of the IMO2021 regulations.

The IMO guidelines on maritime cyber risk management provide the basis for a safer, more secure, and resilient cyberspace for shipping operations. They offer a framework to identify and mitigate current and potential vulnerabilities and advise all ship owners and operators to develop rigorous hardware, software, and crew training defences against the influx of cyberattacks targeting ships at sea.

The guidelines also highlight that compliance is not simply a tick box exercise and instead needs to be proactively managed and continuously monitored as technology and threats become more sophisticated. They emphasise how “risk management is fundamental to safe and secure shipping operations. Risk management has traditionally focused on operations in the physical domain, but greater reliance on digitalisation, integration, automation, and network-based systems has created an increasing need for cyber risk management in the shipping industry.” IMO recommends that cyber risk management be part of an organisation’s existing risk management processes and incorporated into their ISM Safety Management Systems.

BIMCO’s 2020 survey offered little by way of surprise when it came to the most frequent source of cyberattacks. Around two thirds of respondents had experienced phishing, while nearly two in five reported having been prey to its targeted and more dangerous variant, spear phishing. One third of incidents were triggered by malware.

Regardless of the industry sector, phishing remains one of the most common forms of cyberattack, owing to the relative ease with which it exploits security gaps and its high levels of success in causing data breaches. Written in industry lingo from legitimate-sounding sources, such messages are more convincing



and less easy to spot – particularly by seafarers juggling multiple tasks in the frantic hours before arriving in port.

Technical solutions are available to stop the vast majority of these attacks in their tracks. GTMailPlus from GTMaritime, for example, can protect vulnerabilities by sifting incoming message traffic using the latest anti-phishing and virus detection technologies to prevent damaging or fraudulent messages ever reaching a vessel’s mail server. Last month the GTMailPlus Advanced Threat Protection feature blocked a staggering 29,406 unknown malware attacks, which equates to one in every 510 emails.

Such solutions are doubly important because ships often have PCs running older operating systems that haven’t had the latest updates applied. Simply displaying a message containing a dangerous payload can be enough to activate certain kinds of malware. The UK’s National Cyber Security Centre highlights hackers’ awareness of these vulnerabilities and how continuing to use out-of-date software dramatically increases the likelihood of a serious cyber incident. The absence of the latest protection can also make breaches harder to detect.

In fact, a single piece of out-of-date or obsolete software can create an entry point. One way to address this is to have processes in place to ensure all software is automatically updated and redundant software removed from systems. In doing so, the attack surface and number of entry points available to hackers can be significantly reduced.

For this scenario, GTMaritime has developed GTDeploy specifically to meet the demands of satellite connectivity. Managed through a dashboard, GTDeploy enables ship owners and operators to update and patch systems easily, fix and remove bugs, and add new features automatically across all vessels and computers on-board. Running in the background, it allows companies to prioritize and control updates remotely, protecting systems integrity, minimising risk, and ensuring business continuity. Today, we know how malevolent payloads reach inboxes and understand the behavioural cues that are likely to drive users’ reaction to them. If, therefore, keeping ship system software up to date and regularly reviewing its status is increasingly vital due to the interdependencies of systems within systems, so is crew vigilance.

After all, with more IT hardware and infrastructure on-board, and greater connectivity than ever before, vessels are becoming complex cyber ecosystems that are increasingly within striking distance in real-time.

VANOS S.A. now distributes MGC Triple-C: The next generation of Portable Gas Detectors

VANOS S.A., as an Authorized Reseller of Mar-tek Marine, announced distribution of the MGC Triple-C, a portable gas detector affixed with the MED wheel mark and certified as Intrinsically Safe & IP68 by DNV GL, which is suitable for all types of vessels, especially tankers.

The Triple-C rivals all existing portable gas detectors with its cutting-edge infrared LEL sensor technology, making it immune to sensor poisoning and drift. This advance in technology means no calibration is required. It is the first and only portable gas detector designed with 3 years of battery life and up to 90 seconds of alarm each day, meaning that it needs no charging, maintenance, or spares replacement.

The Triple-C comes with a lifetime warranty while it meets all below regulations:

- IMO Regulation XI-1/7 - Atmosphere testing instrument for enclosed spaces in the International Convention for the Safety of Life at Sea
- TMSA Resolution A. 1050(27) – ‘Revised Recommendations for Entering Enclosed Spaces Aboard Ships’
- ExxonMobil MESQA 2010 Requirements



Triple-C also complies with the following Regulations & Standards:

- Regulation (E.U.) 2020/1170
- Item No. MED/3.30. SOLAS 74
- Regulation II-2/4, VI/3, XI-1/7
- FSS Code I5
- MSC.1/Circ.1477
- IMO MSC.1/Circ.1581

VANOS S.A. serves the general industry and marine supplies industry as a representative and distributor of high-quality, reputable, and competitive products. The company’s main offices and 12,500 sq.m. warehouse in Piraeus employ more than 100 people. VANOS S.A. is constantly growing by entering into new partnerships, representing new companies, enriching its product portfolio, and expanding in every possible way.

Cobham SATCOM appoints Tototheo Maritime as its new authorized agent and service partner in Greece

Cobham SATCOM, the market leading provider of radio and satellite communications solutions, has appointed long term partner Tototheo Maritime, a leading maritime technology and services provider, to be its representative in Greece.

“We have no doubt that Tototheo is the right choice for us,” said Christian Kock, SVP Maritime Sales & BD at Cobham SATCOM. “Our values of putting the customer and industry needs first, are fully aligned, and for this reason we could not be happier with this cooperation”, he added.

Tototheo Maritime co-CEO, Socrates Theodosiou stated that: “It is a privilege to be so highly valued by an organization, which has shaped the technological face of our industry over the years. With Cobham SATCOM, we will continue to innovate and offer the solutions our industry needs today and for the future.”

“With the appointment of Tototheo, we strengthen our position within SOLAS and GMDSS solutions in Greece even fur-



ther,” said Erik Nieuwmeijer, Sales Director EMEA at Cobham SATCOM. “Maritime safety has always been at the heart of everything we do right from the early beginnings in 1953 and continues to be a focus area as we enter the era of digitalisation in the future,” he added. “Our appointment as official Cobham SATCOM distributor in Greece is the next evolutionary step for us to meet the needs and demands of our customers. Through our closer collaboration with Cobham, we further enhance our dynamic approach to a very demanding market,” said Tototheo Chief Commercial Officer, Constantinos Spyrou.

Prevention at Sea Beyond paper: the e-recording and e-logbook era



by **Evagoras Charalambous**,
Chief Technology Officer, Prevention at Sea

The business of shipping keeps the world moving and has done so very successfully for centuries. Until recent years, operational models and practices have more or less remained the same, with changes occurring gradually and daily routines and workflows remaining largely unchanged over time.

However, in recent years, the tightening of regulations concerning safety and environmental impact within a relatively short timeframe has meant that new regulations and reporting requirements are simply being added on top of evolving existing regulations.

The volume of what needs to be recorded and the frequency and details in logbook entries have increased and this while seafarers juggle an already time-stretched workday at sea where challenging and stressful conditions are the norm, exacerbating the lack of adequate rest and fatigue.

Paper logbooks can be found onboard all ships, basically unchanged since the commercial shipping's earliest days. However, their use is being challenged by the power of digital software that can facilitate electronic record-keeping and submission. The time burdens associated with paper record-keeping

alone significantly promote the uptake of digital software for this purpose.

As a maritime technology & marine risk prevention firm, Prevention at Sea leads the way in the transition from paper to electronic record-keeping and reporting. Our constant effort to design and develop innovative software solutions has made us proud to launch unique software solutions that fulfil the need to change and adapt to the increasing demands for the digitalization of records and reports to the market.

One of these software solutions is the Lloyd's Register-certified MORSE platform (Maritime Operations Records Suite for e-logs) - a unique and centralized cloud-ready, state-of-the-art platform that offers a variety of regulatory and operational ship logbooks in electronic format. MORSE will soon be communicating with other Prevention at Sea software products, including N.e.MO. (EU MRV/IMO DCS monitoring) and the RH Manager (work/rest hours) provide a unique combination for effective monitoring and reporting on the performance and daily operations recorded in logbooks.

We have also developed the multiple award-winning e-ORB (electronic Oil Record Book) in order to support the industry's transition from paper to using electronic systems for oil record books. In addition to being certified by Lloyd's Register, e-ORB is also certified by Class NK and China Classification Society and has obtained several approvals from major flag registries.

All vessels are required to keep manual records of all oil storage, discharges, and incinerations in an oil record book (ORB). Switching to using e-ORB, as opposed to using traditional paper ORBs across a fleet, reinforces the transparency, credibility, and traceability of vessel reporting. This is because the e-ORB prevents log entries' falsification and the automated calculations prevent vague entries and mistakes. It also guards against potential and practical ORB inconsistencies.

As part of our continuous innovation and e-log upgrades, Prevention at Sea and Rivertrace have initiated the 'SENSEAS' project, resulting as a first step in the development of SMARTSAFE

e-ORB. A new module on the e-ORB software is now capable of automatically collecting data from the ship's OWS content meter, which ensures accurate ORB entries and enhanced monitoring from ashore.

With e-ORB currently in use onboard over 700 ships, we have welcomed its significant uptake by the industry alongside great successes achieved during the recent completion of two vessel inspections by AMSA with no remarks. We look forward to other PSC authorities supporting the digitalization of ship record books.

Prevention at Sea is proud to be leading the transition from paper to electronic record-keeping and reporting as digitization sweeps the industry with very positive results.





Urgent repairs and replacements of propulsion and rudder equipment

Cold straightening with class approval

Urgent repair workshop with a big growth strategy

MarineShaft in Denmark repairs rudder arrangements and propeller equipment and has a market niche in class approved cold straightening of rudder stocks and propeller shafts.

Our strategy is always to have the capacity for urgent repairs” “says CCO Lisa Hjermitsev “We know the importance of time when you deal with unplanned damage due to incidents and others, and we receive equipment from customers worldwide for repair.”

This strategy required fully equipped workshop facilities, and MarineShaft has 3 workshops at three locations in Hirtshals.

The workshop at Silvervej is 1600 m², and it is being extended with 60 meters. Almost doubling the size of the workshop with a new 1400 m². The lifting capacity will be increased from 100 tonnes to 200 tonnes.

“The workshop extension has recently been completed and is ready for use very soon” says CCO Lisa Hjermitsev.

And what do MarineShaft plan to use the extra 1400 m² for? “We install a new 27-meter long SKODA lathe and we also needed space for our biggest hydraulic press”, tells Lisa.

The hydraulic press Lisa refers to, has a max press capacity of 8,000 tonnes and can cold straighten shafts up to 1,5 meters in diameter.

New Manufacturing with short delivery time

MarineShaft stock raw material to meet any request for new manufacturing.

”We also specialize in the manufacturing of new rudder stocks and propeller shafts, and we want to be among the best and fastest suppliers”, says Lisa Hjermitsev.

Whether the inquiry is for a huge round bar, stainless steel or bronze liners in long lengths, plates MarineShaft is known to have in stock. And everything comes with class certificate!

Last year they increased the stock with raw material for propeller shafts and intermediate shafts in many different sizes.

MarineShaft keeps a large stock of material right outside the workshop ready to be taken into the workshop for machining and meet any request from a vessel owner.



Energy & Natural Resources

Qatar Petroleum constructs the world's LNG project ever

Qatar Petroleum (QP) took the final investment decision for developing the North Field East Project (NFE), the world's largest LNG project, which will raise Qatar's LNG production capacity from 77 million tons per annum (MMTPA) to 110 million tons per annum.

In addition to LNG, the project will produce condensate, LPG, ethane, sulphur, and helium. It is expected to start production in the fourth quarter of 2025, and its total production will reach about 1.4 million barrels of oil equivalent per day.

2020 - a record year for wind energy in Greece

Wind energy in Greece broke a series of records in 2020, both in terms of power produced by wind parks and penetration levels in the country's energy balance record.

According to the "Wind Energy Statistics in Greece for 2020" released by the Hellenic Scientific Association of Wind Energy (ELETAEN), wind power exceeded the landmark of 4,000MW, reaching 4,114 MW as in 2020, 200 new wind turbines with a total output capacity of 517.5 MW were connected

to the network. This is a 14,4% increase compared to the end of 2019.

Edited by:
Giannis Theodoropoulos

At the level of Regions, Central Greece remains at the top of wind park installations as it hosts 1678 MW (41%), followed by the Peloponnese with 619 MW (15%) and Eastern Macedonia-Thrace where 485 MW (12%) are located.

On the occasion of the release of the "Wind Energy Statistics in Greece for 2020", the President of ELETAEN Panagiotis Ladakakos stated:

"The increase in wind investments in 2020 is a significant success thanks to the efforts of companies operating in Greece and their executives. After many years of efforts in an extremely volatile and complex regulatory environment, they have succeeded in developing and licensing a critical mass of projects that are now being implemented. Currently added to these adversities are the restrictive measures against the pandemic, which slow down the pace of licensing and construction of wind farms across the country. 2020 is the second-best year for wind energy in Greece after 2019, which was also a record year. The number of wind turbine installations is twice the 10-year average, which is extremely positive. 2020 will be recorded as the year in which the country's Interconnected System proved it could respond without problems to these large penetrations, which on an hourly basis reached 70%, something that once seemed unrealistic. However, these successes should not obscure the problems as much remains to be done to achieve the country's energy and climate goals."

Wind Industry Closes Record 2020 With Strongest Quarter Ever

The U.S. wind industry had its strongest year ever in 2020 as the amount of new wind power capacity added increased by 85 percent over 2019. The industry added 16,913 megawatts (MW) of wind power capacity to the grid in 2020—enough to power more than 5 million American homes. Most of this growth came in the fourth quarter, when developers commissioned 10,593 MW of capacity, smashing all quarterly records. With these additions, there are now 122,478 MW of operating wind power capacity in the United States, providing enough power for 38 million American homes.

Project owners commissioned 54 new wind projects across 20 states in the fourth quarter, including two of the nation's largest, single-phase wind projects in history in New Mexico and Texas. On the heels of this activity, another 34,757 MW of wind projects are either under construction or in advanced development. Direct utility ownership of wind power continued to grow, while corporate power purchase agreements (PPAs) lagged due to uncertainty caused by COVID-19.

These findings and the latest industry data are highlighted in the newly released ACP Market Report Fourth Quarter 2020 by the American Clean Power Association (ACP).

The record-breaking growth was due to several factors, including strong continued demand from American consumers for clean energy to power their homes, as well as technological improvements that have allowed renewable energy prices to become more and more competitive in the marketplace. Corporate demand also continues to play a part, as more companies turn to renewable energy to cut costs and help them achieve their sustainability goals. In the fourth quarter specifically, the anticipated expiration of federal tax incentives led many developers to target the end of 2020 for project completion.

Wind capacity additions were up 94 percent in the fourth quarter of 2020, compared with the same period in 2019. The strong quarter lifted wind project installations in 2020 to a total of 90 projects across 26 states, totaling 16,913 MW for the year, an increase of 85 percent over 2019.

The prospects of Greece as a liquid hydrogen hub

Dr. George Kremlis, the Greek Prime Minister's chief advisor on energy, climate, and circular economy, presented the main pillars of the government's energy policy at the first session of the "Green Liquid Fuels of the Future" two-day conference, entitled "Green Deal: Decarbonization by 2050 and the key role of liquid fuels", of which he was a keynote speaker. The two-day conference was organized by the Institute of Energy for SE Europe (IENE) on 11 and 12 February 2021.

Dr. Kremlis emphasized the importance of the Circular Economy and stressed the need to promote clean energy and find ways to make the most of green liquid fuels such as liquid hydrogen, which he said could play a crucial role.

"Greece can become a hub for liquid hydrogen," he stressed, while also referring to the importance of biofuels and their interconnection with conventional fuels.

In his speech, the Minister of Environment and Energy Costas Skrekas referred to the Greek government's strategic plan for climate and energy issues, including a general roadmap to green fuels and the transition to green energy, which he described as crucial for achieving climate neutrality by 2050. The Minister reminded that Greece was one of the first EU member states to strongly support the Commission's policies to achieve the 2030 and 2050 climate targets. He also referred to the government's de-lignification policy, making particular reference to The National Energy and Climate Plan (NECP), which "has been judged as one of the most ambitious" in the EU" as he said

The crucial role of green liquid fuels in energy transition and achieving the climate neutrality target by 2050, as set

out in the European Green Deal, was at the heart of the conference's speeches.

The conference opened with Mr. Costis Stambolis, Chairman and Executive Director, IENE, Greece, and Ms. Lianna Gouta, Group Director Energy Policy & International Affairs, Hellenic Petroleum Group, and Chairman of the Downstream Committee at IENE.

As Mr. Stambolis pointed out, although the general impression is that oil and gas will be a thing of the past, the truth about future energy choices is somewhat different, as, in 2019, 80% of the world's energy needs were met by a combination of fossil fuels (coal, oil, gas). "Therefore, oil and gas will continue to play an important role for many years to come, and so we are obliged to consider all the different options available that will allow the production of liquid fuels with a low carbon footprint," said Mr. Stambolis.

South Korea: Full-steam ahead for the construction of the world's largest offshore wind farm

According to a Reuters report, South Korea has unveiled a KRW48.5tn (\$ 43.2 billion) plan to build the world's largest offshore wind farm by 2030, as part of an effort to promote an environmentally friendly recovery following the COVID-19 pandemic.

The project is a key component of the Green New Deal initiative -a program launched last year by President Moon Jae-in to reduce fossil fuel dependence and make Asia's fourth-largest economy energy-neutral by the end of 2050.

The South Korean president attended the signing ceremony in the southwestern coastal city of Sinan, where the 8.2 gigawatts facility will be located. In his statement, among other things, he stressed the importance of the project in accelerating the country's energy transition.

The ceremony was also attended by utilities and construction companies, including Korea Electric Power Corp, SK E&S, Hanwha Engineering & Construction Corp, Doosan Heavy Industries & Construction Co., CS Wind Corp Samkang M&T Co. According to Reuters, the companies will provide the 47.6 trillion won needed to finance the project, with the government covering the remaining 0.9 trillion won.

The project is expected to create up to 5,600 jobs and at the same time contribute significantly to achieving the goal of increasing the country's wind energy capacity to 16.5 GW by 2030 from the current 1.67 GW.

It is worth noting that the envisaged 8.2 GW corresponds to the energy produced by six nuclear reactors. At the same time, its contribution to reducing carbon emissions is equivalent to the planting of 71 million pine trees, according to officials.

To date, the largest offshore wind farm in the world is Hornsea I in Britain, which has 1.12 GW capacity.



Aviation Industry

News from the aviation world

Edited by:
**Konstantinos
Giannakopoulos**

Athens-New York: “Confrontation” of aviation giants

American Airlines will be launching the 2021 summer season with a new direct daily flight between Athens and New York, starting on 3 June 2021. Interested travelers have already begun making reservations for this new flight.

The new route will be serviced by a 777-200 aircraft. The flights will last until 30 October 2021 and will increase American visitor traffic to our country. The company also announced that it is focusing on the wider region, and in this context, it will be launching a new daily flight between New York and Tel Aviv as of May 2021.

Delta has already announced two daily nonstop flights from New JFK to Athens for the summer of 2021, while both Emirates and United will be operating daily flights from Newark Airport to Athens.

Although these are the above companies’ original plans, it is now clear that they may not be implemented, at least in their entirety, if the pandemic conditions do not improve and vaccinations are delayed.

Qantas and BP in strategic partnership to advance net zero emissions

Qantas and BP announced a strategic partnership to further advance their shared net-zero ambi-

tions. Through this collaboration, the companies will work together on opportunities to reduce carbon emissions in the aviation sector and contribute to developing a sustainable aviation fuel industry in Australia.

The two companies have agreed to explore ways in which bp’s global capabilities, skills, and knowledge can support Qantas’ industry-leading sustainability and environmental strategy.

The teams will jointly explore opportunities and projects in areas including advanced sustainable fuels, advocacy for further decarbonisation in the aviation sector, renewable power solutions and generation, carbon management, and emerging technology.

83% drop in passenger traffic at Greek airports

In January 2021, there was a significant drop in passenger traffic through Greece’s airports, as shown by the CAA statistics.

More specifically, the total number of passenger traffic amounted to 383,463 passengers, marking an 83% decrease compared to the 2.25 million in the same month last year.

Over the same month, Greek airports handled 10,015 flights – 7,448 domestic and 2,567 international – marking a 56.3% decline against 22,900 flights in the corresponding 2020 period.

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As regards foreign passenger arrivals, in January 2021, they fell by 90.3% to 60,018 passengers compared to January 2020 when foreign arrivals had reached 617,814 passengers. This sharp drop in passenger traffic and flights was to be expected given that in January 2020, no restrictive measures had been imposed on travel and flights as the pandemic in Greece occurred at the end of February 2020.

United Airlines to invest in 200 “air taxis”

United Airlines announced that it had completed an agreement to work with Archer air mobility company as part of the airline’s broader effort to invest in emerging technologies that decarbonize air travel. Rather than relying on traditional combustion engines, Archer’s electric vertical take-off and landing (eVTOL) aircraft are designed to use electric motors and have the potential for future use as an ‘air taxi’ in urban markets.

Under the terms of the agreement, United will contribute its expertise in airspace management to assist Archer with the development of battery-powered, short-haul aircraft. Once the aircraft are in operation and have met United’s operating and business requirements, United, together with Mesa Airlines, will acquire a fleet of up to 200 of these electric aircraft that will be operated by a partner, which are expected to give customers a quick, economical and low-carbon way to get to United’s hub airports and commute in dense urban environments within the next five years.

The SIA Group operate first flights with a full set of vaccinated pilots and cabin crew

All three passenger airlines within the SIA Group - Singapore Airlines (SIA), SilkAir, and Scoot - will be among the world’s first carriers to operate flights with a full complement of vaccinated pilots and cabin crew.

The first services with a full set of vaccinated crew are SIA flight SQ956, which departed Singapore for Jakarta, Indonesia on 11 February 2021 at 0930hrs local time (GMT+8), Scoot’s TR606, which departed for Bangkok, Thailand at 0930hrs, and SilkAir’s MI608 which departed for Phnom Penh, Cambodia at 1630hrs.

The Singapore government has prioritised the aviation sector in the country’s vaccination exercise. This reflects the sector’s importance and the SIA Group’s crucial role in Singapore’s economic recovery and the fight against Covid-19.

Operating crew within the SIA Group have responded very positively to the exercise, with more than 90% of cabin crew and pilots signing up for the vaccine to date.

Mr. Goh Choon Phong, Chief Executive Officer, Singapore Airlines, said, “We are very encouraged by the strong take-



up rate for the vaccine by our colleagues. Vaccinations will be key to reopening borders and enhancing travel confidence, in tandem with robust testing regimes and the wide-ranging safe management measures in place on the ground and in the air. They offer greater protection for our people and provide an added layer of assurance to our customers”.

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Maritime Numbers

58

the number of LNG carriers that crossed the Panama Canal in January, according to the Panama Maritime Authority

2,500,000

the exported tonnes of US soya beans transported by containers in the first four months of the 2020/2021 US marketing year

80%

the percentage of ports missing out on the benefits of digitalisation

202

the number of cruise ship arrivals in Greece in 2020, according to the Hellenic Ports Association

1,382

the number of containers lost at sea each year, according to World Shipping Council

96.1 MB/D

the expected oil demand in 2021, according to OPEC

20,000 CBM

the cargo capacity of "Avenir Allegiance," the world's largest LNG supply and bunkering vessel

5.5%

the growth rate of the global economy predicted for 2021, according to the IMF



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equipment
managed by
our dedicated,
responsive and
dynamic team
of professionals.*

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Marine Trust Ltd

Over 40 years of experience
in the maritime industry

Quality Management
(ISM, ISPS, MLC, ISO9001, ISO14001,
ISO50001 & OCIMF TMSA3)

Safe Operation with
4-point focus: Environment,
Human Resources,
Cargo and Vessel

In excess of 30 million tons
of cargo transported annually