StormGeo and GNS in voyage optimisation partnership

StormGeo and Global Navigation Solutions (GNS) have teamed up to provide advanced fleet insight and route optimisation for approximately a third of the global fleet.

GNS and StormGeo are combining their weather and navigation capabilities in a new partnership that will provide more than 20,000 vessels with fresh insight into voyage optimisation.

Under the agreement, GNS will extend its Voyager Fleet Insight online service to include important weather-related services to support shore-side operations and decision-making. The collaboration will also see GNS and StormGeo develop onboard solutions to deliver Electronic Navigational Charts (ENCs) direct to Electronic Chart Display and Information Systems (ECDIS) that are optimised for GNS’s Voyager HUB and Voyager Planning Station onboard software. The new solutions will automate the distribution and management of ENC updating and reduce the workload of the bridge team while enhancing navigation compliance and safety.

In addition, the partners will provide tailored route optimisation services that can be simultaneously imported, viewed and used ashore and onboard to support enhanced voyage operations. Both companies are confident that data sharing and system integration is a vital step in streamlining collaboration between ship and shore.

“In StormGeo we have found a weather partner that shares our strategic vision to harness the power of software and analytics in keeping our customers safe, compliant and cost-efficient. Our software is capable of working with other weather and route optimisation solutions, but this relationship with StormGeo will result in a more integrated approach that will be easier for customers to use and will deliver additional value,” explained Paul Stanley, CEO of GNS.

StormGeo’s partnership with GNS comes eight months after the weather intelligence and decision support services provider acquired maritime charts supplier Nautisk. Integrating Nautisk’s software for use in planning and navigation has allowed StormGeo to provide an all-in-one platform for optimising routes, obtaining appropriate charts, and creating a voyage plan without switching between disparate systems.

“We have a passion for delivering weather insights and the best route and vessel optimisation solutions to the global maritime community. We see a great potential in how we can provide increased value for our customers. Since we acquired Nautisk last year, now integrated in the StormGeo portfolio of solutions, we recognise that the global market for navigation is bigger than we could serve alone. Partnering with the leader in navigational solutions and services that share our strategy and vision for innovation makes good sense and reaches a larger share of the market with our solutions,” said Per-Olof Schroeder, CEO of StormGeo.

Paul Stanley, CEO, GNS
ShipInox receives AiP for OSV based LNG bunker vessel design


DNV GL has presented ShipInox with an Approval in Principle (AiP) for its new small-scale liquefied natural gas (LNG) carrier/bunker vessel design, marking the first class-approved design based on an offshore supply vessel (OSV). The vessel will be 92 meters in length and have a carrying capacity of 6,000 cubic meters.

DNV GL’s most recent forecast predicts that by 2050 over 20 per cent of total shipping energy will be provided by LNG. LNG is a low-sulphur containing fuel and is one option for shipowners and operators to comply with the IMO’s 0.5 per cent sulphur cap, entering into force January 1, 2020.

Rune Østbøe, CEO, ShipInox, commented: “The enthusiastic support we have received throughout the challenging development of this design makes us feel very humble. Not only DNV GL and the Norwegian Maritime Authority (NMA), but a diverse range of companies spanning innovation Norway, to the LNG-specialists at Torgy, and Fearnleys have all enabled us to deliver on this design. We are now in a position where we can help to accelerate entries into small-scale LNG with this fast-to-market and low-cost LNG carrier.”

“We are very proud that ShipInox asked us to be part of this interesting and innovative project,” said Trond Hodne, senior vice president at DNV GL – Maritime. “This design could be a viable option for owners looking to move into different segments in a challenging market, especially as the gas segment continues to gain importance in shipping.”

“This AiP is the result of an excellent cooperative process that included a feasibility workshop with the designers, the Norwegian Maritime Authorities, an OSV owner, and DNV GL experts,” stated Johan Petter Tutturer, business director for Gas Carriers, DNV GL – Maritime. “We have been able to ensure that this novel design is in full compliance with the 2016 IGC Code and with the relevant class rules. It is a testament to the expertise and engagement of all parties involved that we could realise this challenging concept, and we look forward to seeing the first projects hit the water.”

Karolina Lundgren, Norwegian Maritime Authority, confirmed: “Our strong focus on green shipping and fuel development and our experience in handling novel designs make us an asset in projects that challenge the standard set-up. We are pleased that ShipInox decided to involve us early in the process. For future developments, it is a great advantage that the most problematic issues have been carefully considered both by ShipInox and DNV GL and that the need for alternative designs has already been identified.”

Hyundai LNG-fuelled tanker design gets LR approval


Hyundai Mipo Dockyard (HMD) has received an approval in principle (AiP) from Lloyd’s Register (LR) for a liquefied natural gas (LNG) fuelled 50,000 DWT class MR tanker design. The development is the result of close collaboration between HMD and LR to aid in HMD’s compliance with the IMO’s 2020 global sulphur cap.

An LNG-fuelled propulsion system has been incorporated into the design, following technical cooperation with LR, ensuring that the design complies with the new IGF code as well as LR’s Gas Fuelled Rules, covering other applicable requirements. HMD is now reviewing various other types of vessels for LNG-fuelled application, such as bulk carriers and container ships.

“We have focused on developing both a technically reliable and commercially feasible solution for an LNG dual-fuelled propulsion system. We are glad to be one step closer to making this solution a reality,” said Jeon Seung-Ho, HMD executive vice president.

LR adopted a risk-based approach to review the novel design and facilitated a high-level hazard identification (HAZID) workshop for the LNG fuel supply system (and associated ancillaries) in accordance with the LR ShipRight Procedure for Risk Based Designs. The concept design was reviewed in conjunction with the result of the HAZID workshop, requiring several actions and recommendations, before receiving AiP.

“We are very pleased to grant AiP by working together with HMD to develop this commercially feasible LNG-fuelled MR tanker design. It will provide the shipping industry with more practical options to comply with the upcoming global sulphur in fuel oil limit where they can be confident with the safety and operability of the LNG burning system,” stated Jin-Tae Lee, Ph.D, LR’s Korea chief representative & marine manager.
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THE CRITICAL COMMUNICATIONS COMPANY
Deltamarin secures contract for dual-fuel ferry design

https://www.deltamarin.com/

Deltamarin has signed a contract with Rauma Marine Constructions Oy (RMC) for the design of dual-fuel and battery powered car passenger ferry for Kvarken Link AB, a Finnish-Swedish consortium.

The main source of fuel for the ferry will be liquefied natural gas (LNG) and liquefied biogas (LBG). The vessel will also be built to ice class 1A Super standards for navigating challenging ice conditions.

Deltamarin’s commission covers basic and detail design services for all hull and machinery areas. The value of the contract with RMC is about €4 million.

The work will be carried out over a period of 13-14 months at Deltamarin’s offices in Finland and Poland with the assistance of network companies. The ferry is planned for delivery in 2021 and will operate daily in the Kvarken region between the cities of Vaasa in Finland and Umeå in Sweden.

Wärtsilä secures design contract for hybrid propulsion polar ship

https://www.wartsila.com/

Wärtsilä has been awarded the contract to design and supply a state-of-the-art multi-purpose transport vessel with integrated propulsion and hybrid solutions for environmentally sustainable operations in Antarctic waters.

The ship has been ordered by Norway-based Aker BioMarine and will be constructed in China, at CIMC Raffles.

The 168 metres long, 20,200 DWT vessel will feature a Wärtsilä 31 engine, recognised by Guinness World Records as being the world’s most efficient 4-stroke diesel engine. Wärtsilä 20 engines will provide the auxiliary power. The engines will all be fitted with Wärtsilä’s NOx Reducer (NOR) to prevent nitrogen oxide (NOx) emissions when in diesel mode.

Wärtsilä will also deliver the power distribution system, including hybrid drives and a battery package, the gearbox, controllable pitch propeller and thrusters. A Wärtsilä Nacos Platinum Joystick system will be supplied to enhance the efficiency and safety of the ship’s operations. The integrated solution is controlled by Wärtsilä’s power and energy management system and propulsion control.

The vessel will also comply with the IMO’s Polar Code and be fitted with additional safety features for reliable operation in challenging Antarctic environments.

The ship will carry supply goods and liquids, as well as krill products from krill harvesting vessels working in the Antarctic area.

Lilli Chi, managing director, Ship Design, Wärtsilä Marine, stated: “We are proud to have been selected to design and equip this ship. It will be a customised vessel designed specifically to meet the owner’s operational requirements in a challenging environment. It emphasises once again Wärtsilä’s comprehensive strengths and capabilities, as well as our broad offering to the marine market.”

Protection of the environment is an absolute essential for us, and the design of this vessel has sustainability as a primary focus. It incorporates the latest energy saving and environmentally friendly technologies, such as the hybrid propulsion system, and an advanced heat recovery system that helps to reduce the carbon footprint even further,” commented Eldar Vindvik, director fleet renewal, Aker BioMarine.

The vessel is expected to be ready for the 2021 harvesting season.

ClassNK releases new PrimeShip-HULL software

https://www.classnk.or.jp/

ClassNK has released the latest version of its design support software PrimeShip-HULL (HCSR) Ver.6.0.0, developed in response to the IACS Common Structural Rules for Bulk Carriers and Oil Tankers (CSR BC & OT).

The new version incorporates the latest rule amendments to CSR BC & OT including amendments based on feedback from the industry.

Additional functions in the PrimeShip-HULL (HCSR) prescriptive calculation software and direct strength assessment software have also been added or improved.

The upgraded software includes an enhanced calculation report function in the prescriptive calculation software, making it possible to create reports for multiple sectional data all at once. The update also allows users to change output settings in detail, enabling the sorting of reports by section, evaluation item and more.

Furthermore, the enhanced data linkage function with 2D CAD data enables users to load the sectional data of outside cargo parts. It is now possible to load the sectional data of all ship parts.

The direct strength assessment software also now contains a “Zooming Analysis” function, which can be used for design examination and strength evaluation with partial models cut out from hold models.

The mesh refinement function found in the direct strength assessment software has also improved to allow better mesh quality, even for complex structures.

The upgrades and enhancements are expected to reduce man hours and deliver shorter design lead times.

IMO sub-committee discusses ship design and safe mooring

http://www.imo.org

IMO Secretary-General Kitack Lim has praised the work of the IMO’s Sub-Committee on Ship Design and Construction (SDC 6), held in early February, 2019. A number of very complex technical issues were on the agenda including the development of second-generation intact stability criteria and improving the safety of mooring operations.

Noteworthy achievements of the SDC 6, according to Mr Kitack Lim include:• Finalisation of the draft SOLAS amendments on safe mooring and three associated sets of guidelines. The draft SOLAS regulation aims to protect seafarers and shore-based staff from injury during mooring operations.
• Finalisation of draft amendments to SOLAS chapter II-1 to ensure consistency regarding the provisions for watertight integrity.
• Finalisation of the draft 2019 ESP Code.

Significant progress has been made on the development of second generation intact stability criteria, so that this work may now be finalised at SDC 7.

Progress was also made on development of mandatory instrument for the carriage of personnel on board vessels engaged on international voyages.

Mr Kitack Lim thanked the coordinators of the correspondence groups for their commitment, good-will and cooperation to progress the Sub-Committee’s work and achieve consensus decisions. He stated in his closing remarks, “Your Sub-Committee has indeed set the standards for important aspects related to ship design and construction, representing main contributions to the unique IMO knowledge which forms our heritage and ensures the continuous move towards better shipping for a better future.”

Mr Kitack Lim also addressed gender inequality in the maritime industry and said that it needs an “all hands on deck” approach. The IMO is planning a series of events and initiatives to promote the World Maritime Day theme, which is “Empowering women in the maritime community.”
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Getzner Werkstoffe offers sound-control solution for ships

Getzner has developed its own flame-retardant polyurethane material for ships’ flooring, Sylomer Marine. The product has a very low static to dynamic stiffness ratio and is, therefore, much more acoustically effective. The measure creates a box-in-box system, in which the inner hull is decoupled from the outer hull. This reduces the sound level on ships and is IMO/SOLAS wheelmark-certified. “The elastic bearings are maintenance-free and depending on the floor system, make it possible to lower the weight of typical floor constructions considerably without reducing efficiency,” explained Lukossek.

“The resilient, vibration-isolating bearings reduce wear, noise and damage to the infrastructure to a minimum. Propulsion engines and wheelhouses can also be decoupled using Sylomer Marine,” continued Lukossek.

The polyurethane vibration material has been verified in multiple assessments by external testing institutes. The vibration protection is also resistant to water, salt water, oils and greases, and free from plasticisers and environmentally harmful substances. A total of five different material types for various payloads are available in the Sylomer Marine product range. The entire range has been certified to IMO Res. MSC. 307(88) FTP Code 2 and 5 fire protection standards since April 2018 and is globally approved for use as “Primary Decks Covering” in line with SOLAS regulations.

https://www.getzner.com/en

A bridge for the future

Virtual Reality (VR) is helping LA Design to create technologically advanced bridges for the world’s commercial shipping fleet.

LA Design has been collaborating with Northrop Grumman Sperry Marine on the design of a new, ergonomically-designed desk for the bridges on modern ships and is using VR to help.

Virtual prototyping through VR technology can help customers and users to visualise a product. It can also lead them to a greater honesty about their feelings, which can help designers, believes Robinson. “Going back 30 years, we’d bring ideas from other fields that improve the user-experience into our designs, then we will,” he adds.

LA Design can call upon its portfolio of products from medical and scientific, commercial and industrial, consumer and communication products for ideas. A broad range of experience helps establish trust among customers and helps the agency bring fresh ideas to the process, Robinson says. For many designers, VR is considered an emerging technology, but LA Design has been using it for several years, inspired by Robinson’s enthusiasm for advancements that can be used to benefit clients. Introducing new technologies helps to maintain LA Designs pre-eminent position as one of the UK’s leading design consultancies and keeps customers coming back.

“Unlike most consumer goods, the product lifecycle for a lot of our clients can exceed 10 years. Maintaining contacts and investing in new technologies for our customers is essential in our industry,” Robinson says.

“The case study is an example of successful collaboration that uses technology to drive cost-effective design. It’s also an illustration of how new technology can transform and improve the relationship between designer and client, says Robinson. “Rapid virtual prototyping through VR is a huge benefit for us. It speeds up decision making, improves collaboration that uses technology to drive cost-effective design.”

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https://www.getzner.com/en

Sound control onboard ships to protect underwater life from vessels’ vibrations is an increasingly important concern for shippers. Presenting at the University of Rostock on February 21, Stefan Lukossek from Getzner Werkstoffe explained that flame-retardant vibration protection components in the floor construction can enhance sound control, as well as improve comfort onboard.

A Design has been thinking differently about product design for over 40 years. The agency boasts 300 years of collective design experience - and is using all of it to create a new ship’s bridge design for Northrop Grumman Sperry Marine, one of the world’s leading builders of commercial navigation systems.

With some container ships having overall lengths exceeding 400 metres, controlling these marine monsters is still down to the captain and crew who operate from the bridge. “The bridge environment in a modern ship is a mixture of a very traditional and the technologically advanced,” says LA Design founding partner and director David Robinson.

The world’s container ship fleet is undergoing an upgrade, with new technology and software being introduced to ships to help optimise operation and reduce costs. LA Design has been collaborating with Northrop Grumman Sperry Marine on the design of a new, ergonomically-designed desk for the bridges on modern ships and is using VR to help.

“We’re designing the physical desk itself and a VR representation of it,” says Robinson. “It’s helping us to rapidly prototype and refine complex designs.”

Creating the bridge of the future has involved reimagining the space, removing much of the instrumentation and electronic/mechanical systems commonly found, with many processes now automated and managed by software.

Bridges in modern container ships can themselves be up to 100 metres wide, making it impossible to create cost-effective physical models. Even CAD designs can fail to capture the nuances and complexities of a design, but strap on a VR headset, and you are plunged into a virtual world where you can visualise the scale and the view within the new bridge. “Through VR, you can truly visualise the scale of the new bridge,” says Robinson.

It’s an iterative and involved process, explains Robinson. The design work is the fundamentals of research and innovation, interface design and user-experience. “For example, using VR, in the seated position we can observe the human factors of design and the ergonomics,” says Robinson. Captains can see how the bridge looks, how it functions and how it affects perspective and view of the outside world.

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The Neoline maritime project, a ro-ro cargo project, was a natural choice for us”, said Asbjørn Halsebakke, director technical solutions, Marine Business, at Yaskawa Environmental Energy / The Switch. “We believe this is the first of many EBLs, and we’d like to thank our partners – shipowner North Sea Shipping and system supplier Wartsila – for their collaboration on this ground-breaking project.”

The final commissioning of the system took place in Haugesund, Norway, in the first half of March. North Sea Shipping is forecasting significant environmental benefits from the new hybrid solution, with estimated annual emission reductions of 5.5 million kg CO2, 30,000 kg NOx and 1,200 kg SOx.

Yaskawa Environmental Energy / The Switch is now targeting orders from marine customers across the board, with interest from segments including offshore, subsea construction vessel’s DC-Hubs, and ensure seamless operations. As such, the technology is at the heart of our long-standing relationship to reduce unplanned stoppages, save costs through engine performance optimisation and extend engine overhaul intervals,” said Rolf Stiefel, vice president of sales and marketing at WinGD.

“WinGD and ExxonMobil join forces to optimise engine performance

https://www.wingd.com/en/
https://corporate.exxonmobil.com/
In a new industry collaboration, WinGD’s Integrated Digital Expert (WIDE) predictive maintenance technology is joining forces with ExxonMobil’s Mobil Serv Cylinder Condition Monitoring service to provide enhanced insight into vessel performance and engine conditions.

“The cooperation comes 6 months before the IMO’s cap on sulphur emissions enters into force. The 2020 cap is expected to bring complex operational challenges for the marine industry, therefore understanding how a ship’s engine is functioning will be more important than ever to ensure safe and efficient operation. Today’s more technologically advanced engines and support systems also require enhanced levels of monitoring, with clear accuracy to ensure optimal engine performance. “Uniting our next generation cylinder condition monitoring service with WinGD’s data collection and analytics tools creates unrivalled insights into vessel operations,” said Steve Walker, global marine equipment builder manager, ExxonMobil. “This will give peace of mind to shipowners during the transition to compliant solutions.”

“By combining the output from WinGD’s Integrated Digital Expert with ExxonMobil’s Mobil Serv Cylinder Condition Monitoring lubricant analysis, we create an enhanced, bespoke, proactive maintenance programme. Combining these innovations will help shipowners reduce unplanned stoppages, save costs through engine performance optimisation and extend engine overhaul intervals,” commented Pamela Skaufel, director, Aviation and Marine Lubricants, ExxonMobil.

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Chevron white paper addresses IMO 2020 cylinder oil concerns

https://www.chevronmarineproducts.com

Relying on one type of cylinder oil lubricant will become a thing of the past once the global 2020 sulphur cap enters into force, confirms Chevron Marine Lubricants in its latest white paper.

The IMO’s sulphur regulation will require owners and operators to think carefully about the type of lubricant they use with their chosen fuel in order to protect the engine and avoid operational issues. In Chevron’s white paper, the company explains how cylinder oil lubricants protect the engine from acidic corrosion, something which is achieved by balancing the alkalinity of the cylinder oil (its base number/BN) and its feed rate. Fuels rich in sulphur produce sulphuric acid. This acid is highly corrosive and can severely damage the vessel’s engine.

It is therefore vital to match a marine fuel’s sulphur content with the correct lubricant BN and feed rate to avoid corrosion in the engine cylinder. “Under the rules of the global sulphur cap, fuels with <0.5 per cent sulphur content will drive demand towards lower BN cylinder oils, whereas use of HSFO with sulphur content potentially higher than 3.5 per cent, coupled with the use of scrubber technology, will drive the demand for higher BN cylinder oils,” explained Luc Verbeeke, senior engineer, Chevron Marine Lubricants.

In addition, original equipment manufacturers (OEMs) are expected to face some challenges. Previously the use of cylinder oils based on a 70BN chemistry have been favoured. However, Chevron’s white paper notes that changes in engine machinery, operational profiles and the types of fuel used have posed greater corrosive risk in the engine cylinders in the past decade. Different engine operational profiles in the past 10-15 years from vessels running at high speed high load to running at low speed low load has reduced feed rates and lubrication systems have become more efficient. The white paper states that this has created a significant impact on optimal cylinder oil use and in some cases with lower liner surface temperatures, allowing cold corrosion to form. Recently, cylinder oils with a BN of 100-140 have been needed to protect newer engines against cold corrosion under part-load conditions for those burning higher sulphur fuels.

“The BN level of the lubricant must be matched, and the correct feed rate applied to meet the fuel sulphur level content. As a general rule, the lower the fuel sulphur content, the lower the BN level required.”

“Moving away from the use of a 70 BN lubricant to other cylinder lubricant BN levels could be perceived as challenging, akin to making the change to using a different type of fuel. However, in reality, this isn’t the case when handled correctly,” explained Luc Verbeeke.

Chevron Marine Lubricants recommends that operators use drip oil analysis onboard to monitor and manage in-service operations in the transition to using different fuel types and cylinder lubricants. Drip oil analysis is the process of analysing unburned cylinder oil that has passed through the combustion chamber and passed the pistons and liners in the main engine. According to Chevron, it is an effective way to monitor corrosive and abrasive engine wear as it helps to maintain the correct sulphur-BN balance.

Chevron believes that drip oil analysis is an efficient and reliable way to accurately monitor changes that indicate BN levels or feed rates require adjustment in order to maintain optimal engine lubrication. This type of analysis allows crews to quickly understand what is going on within an engine, and subsequently take immediate action on identified issues.

“As an industry leader with one of the best supply networks in the world and a full range of products to meet the diverse range of needs of both today and tomorrow, Chevron remains committed to providing reliable solutions for the marine fuels of the future. To meet the uncertain demands of 2020, Chevron’s global supply network has been further strengthened to provide a robust, flexible and agile model to ensure supply in a changing landscape. From ship visits to FAST and DOT.FAST fluid analysis, Chevron’s world-class technical support team hold the expertise to help you transition to 2020,” stated Jan Thurloway, brand and marketing manager for Chevron Marine Lubricants.


CMA CGM orders LNG-powered and scrubber-ready ships

https://www.cma-cgm.com/

CMA CGM has ordered 10 new container ships from China State Shipbuilding Corporation (CSSC), five of which will be powered by liquefied natural gas (LNG) and five of which will be fitted with hybrid scrubbers.

The ships are expected to enter service in 2021. Further newbuilds of the same class are scheduled. The 47,800 GT cruise vessel, Viking Jupiter was built at Fincantieri’s shipyard in Ancona, Italy. Two further passenger ships, Viking Tella and Viking Venus are also being constructed at Fincantieri and expected for delivery in 2021. New builds of the same class have also been ordered for delivery between 2022 and 2027, though supply contracts have yet to be finalised.

The second agreement between the two companies is about cooperation to develop more efficient and eco-friendly propulsion systems. "The CMA CGM Group thereby reasserts its commitment for the protection of the environment and the energy transition of the shipping industry,” stated CMA CGM.

"In November 2017, the Group announced an order for nine 22,000-TEU container ships powered by LNG, becoming the first shipping company in the world to choose this energy source for vessels of this size,” explained Rodolphe Saade, chairman and chief executive officer, CMA CGM Group, signed on March 25 two strategic agreements with Leif Fanpei, chairman of the China State Shipbuilding Corporation (CSSC), in the presence of French president Emmanuel Macron and Chinese president Xi Jinping.

Five of CMA CGM’s new ships will be powered by LNG and five will be installed with hybrid scrubbers for IMO 2020 compliance. Image courtesy of CMA CGM.

Viking Cruises opts for seawater lubricated propulsion solution

https://www.vikingcruises.co.uk/ https://thordonbearings.com/

A sixth Viking Cruises vessel has been delivered with Thordon Bearings’ seawater-lubricated propeller shaft system.

The COMPAC system by Thordon Bearings is zero polluting as there is no need for oil. Fuel consumption and emissions are reduced as the viscous friction acting on the rotating shaft is lower with seawater than oil. COMPAC does not need a damage-prone aft seal and inspections can be made without shaft withdrawal, reducing maintenance and associated costs.

The 47,800 GT cruise vessel, Viking Jupiter, will also be fitted with a hybrid engine and has been designed with an optimised hull for maximum fuel efficiency.

Richard Goodwin, vice president, Engineering, Viking River Cruises, said: “From the outset, when we first entered the cruise market four years ago with Viking Star, we opted for water lubricated propulsion as a cost-effective means of reducing the impact of our operations on the marine environment. The COMPAC system has proven itself both commercially and operationally and we look forward to working with Thordon on future projects.”

Thordon Bearings’ president and CEO, Terry McGowan, added: “We congratulate Viking Cruises and Fincantieri on the successful and timely delivery of the sixth vessel in this class, a series of ships that have proven immensely popular with passengers and crew. We are delighted that both owner and builder continue to support the use of COMPAC water lubricated propulsion.”

Viking Jupiter was built at Fincantieri’s shipyard in Ancona, Italy. Two further passenger ships, Viking Tella and Viking Venus are also being constructed at Fincantieri and expected for delivery in 2021. Further newbuilds of the same class have also been ordered for delivery between 2022 and 2027, though supply contracts have yet to be finalised.
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New propeller technology reduces cavitation by 14 per cent

https://www.strath.ac.uk/
http://oscarpropulsion.co.uk/

A new technology that reduces propeller cavitation volume by nearly 14 per cent and underwater radiated noise (URN) by up to 21dB has been developed by Strathclyde University and UK-based innovation and technology transfer company, Oscar Propulsion.

The patented Oscar PressurePores system reduces propeller tip vortex cavitation by applying a small number of strategically bored holes in the propeller blades. These pressure-relieving holes enable ships to operate with a more silent propeller with a minimum of compromise on its efficiency or having to slow steam. Reducing cavitation also reduces its associated erosive effect.

David Taylor, CEO, Oscar Propulsion, explained: "Underwater radiated noise is one of the most adverse environmental by-products from commercial shipping, yet unlike other forms of marine pollution, there is no legislation yet in place to prevent this type of environmental damage. Increased levels of shipping noise, especially in the low-frequency range, disorientate marine fauna and disrupt their communication signals, leading to behavioural changes or local extinction. We now have a cost-effective, easy-to-apply solution to prevent this from happening. Introducing holes in propeller blades to reduce root cavitation, for example, is not in itself new, but achieving high levels of noise reduction by strategically placing relatively few holes, while maintaining efficiency, is new."

The technology was developed at Strathclyde using comprehensive computational fluid dynamics (CFD) modelling and cavitation tunnel tests. Further tests on the sub-cavitating propellers on the Princess Royal, a 19m research catamaran operated by Newcastle University, verified the 14 per cent cavitation savings and 21dB reduction on URN.

The original, unmodified model propeller was tested and used as a reference. Then CFD analysis and model tests were carried out on two propellers of the same design, one with 33 strategically-introduced holes in each blade, another with 17 holes.

The outcome showed that PressurePores technology substantially reduced tip vortex cavitation and URN. "Remarkably, it was found that the optimum number of holes could be as few as 17 per blade tip so long as they were placed in the most effective positions," said Taylor.

"It's not a case of simply drilling holes into the blades, as this will affect the propeller’s thrust capability. CFD modelling at Strathclyde allows us to know exactly where to place the holes for maximum efficiency and optimum noise reduction."

Professor Mehmet Atlar, research director, Department of Naval Architecture, Ocean and Marine Engineering, University of Strathclyde, said: "For a ship with non-cavitating propellers, the dominant URN is associated with the hull and propeller flow, as well as the ship’s machinery and electrical sources. As soon as the propeller incepts cavitation, the dominant source becomes propeller cavitation, whilst these other sources still contribute. As a result, a series of periodic tones at discrete blade rate (low) frequencies and its multiples, takes place. This is accompanied by a spectrum of broadband (high) frequency noise due to cavitation and its complex dynamics."

Propeller cavitation can generate as much as 180dB of underwater radiated noise and can be heard by marine life 100 miles away. Dr Stephen Simpson, associate professor in Marine Biology & Global Climate Change, University of Exeter, explained: "Noise levels in the ocean due to maritime activity has been rising for decades, from a growing number of sources, including shipping, motorboats, oil prospecting, offshore energy installations and military activity. Loud sound can cause irreversible damage to marine wildlife through stress, deafness, habitat displacement, reduced reproduction, lost feeding opportunities and even death. Any way to reduce our acoustic footprint in the ocean will benefit marine ecosystems."

Taylor added: "PressurePores has a major mitigating effect on propeller cavitation and URN and can be incorporated into new propellers or can be retrofitted to existing propellers either in dry-dock or possibly in-water. While PressurePores are suitable for all types of vessel, they are particularly suitable for naval vessels, fishing fleets, offshore vessels and cruise ships operating in sensitive environments. The technology can be applied to all types of propellers, including pods and thrusters."

Oscar Propulsion is now looking to partner with shipping companies and propeller designers or manufacturers to commercialise the PressurePores concept.

First order of Wärtsilä waterjets confirmed for high-speed ferry

https://www.wartsila.com/

Wärtsilä’s WXJ modular waterjets have received their first order for installation to a 100m long wave-piercing catamaran ferry being built for the Government of Trinidad and Tobago at the Incat shipyard in Tasmania, Australia.

The ferry will be powered by four Wärtsilä WXJ120 axial waterjets, which are single stage, compact, high performance systems that combine mixed flow properties with an axial construction. This results in much less space being needed on the vessel’s transom, and greatly increased waterjet cavitation margins for optimum vessel operational flexibility. For naval architects, the axial jet technology creates the possibility to apply a larger power density onto narrower hulls in order to achieve top vessel performance.

“We have worked with Wärtsilä for many years already, and we have complete confidence in their waterjets. The new WXJ series takes the performance to an even higher level, bringing even greater value to this exciting new vessel,” said Tim Burnell, CEO, Incat Tasmania. "We are proud to have been selected again to deliver our Wärtsilä waterjets for this new high-speed ferry. The well-proven design of Wärtsilä’s waterjets has led to a significant number of repeat orders from world-renowned fast ferry builders, such as Incat. Also, the Government of Trinidad & Tobago is already operating multiple catamarans powered by Wärtsilä waterjets, which means that both the yard and the owners are very familiar with the best-in-class quality and performance of our waterjet solutions,” explained Lars Anderson, director propulsion, Wärtsilä Marine.

The WXJ series was officially launched in early March. The booking of the first order within the same month of its release indicates that the benefits it offers are immediately recognised by the market. The series is a further development and upgrade of the Wärtsilä LXJ waterjets. Greater efficiency has been achieved, and the cavitation and underwater noise levels are lower than with the LXJ series. The small transom interface dimensions, and the best-in-class weight remain from the earlier series, but the overall performance is improved.

In addition to the four WXJ waterjets, Wärtsilä will also supply the Wärtsilä ProTouch operational control system. The equipment is scheduled for delivery in May 2020, and the ferry is expected to be handed over to the owners in late 2020. The ferry will be capable of a service speed of 36 knots. It will carry up to 1000 passengers and 239 cars, or a combination of trucks and cars.
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Shell launches lubricant to support IMO 2020

Shell Marine is introducing a new two-stroke engine cylinder oil designed specifically for use with engines running on 0.5 per cent sulphur content very low sulphur fuel oil (VLSFO).

The lubricant, Shell Alexia 40, has a Base Number (BN) of 40, and has been developed to optimise equipment performance and condition as shipowners and charterers prepare for the IMO’s 0.5 per cent global sulphur cap to enter into force January 1, 2020.

According to Shell Marine, most of the world’s shipping fleet will aim to comply with IMO 2020 by switching to fuels with a sulphur content of 0.5 per cent and below.

“Shell Marine can help shipowners and charterers be prepared as the world moves to a low emissions future. As a trusted partner, we will help our customers to have the right lubricants in the right place at the right time to take the uncertainty out of fuel selection,” said Joris van Brussel, Shell Marine global general manager.

After extensive testing at Shell’s Marine & Power Innovation Centre in Hamburg and working closely with original equipment manufacturers, Shell Alexia 40 has undergone thousands of hours of trials onboard four ships with the latest engine types, using representative IMO 2020 compliant fuels, to verify performance at sea. The new product will be available for use in Singapore from June 1, 2019 and will be gradually introduced to other main supply ports within the Shell Marine global network such as the US, China, United Arab Emirates and the Netherlands before January 1, 2020.

“Owners transitioning to the post-IMO 2020 marine fuels era need peace of mind over the condition and performance of their engines. To remove any uncertainty, Shell Alexia 40’s performance has been fully tested on representative VLSFOs and engines for the operating conditions owners will actually face,” said Shaw Siang Hiew, Shell Marine regional sales manager for ASEAN and South Asia.

The launch of Shell Alexia 40 will coincide with an introduction of the new Shell Alexia two-stroke engine oils portfolio, highlighting the relationship between fuel grade and recommended cylinder oil BN after the implementation of the IMO’s global sulphur limit for marine fuels. All Shell Alexia grades are fully miscible and compatible with the existing portfolio.

The five products in the Shell Alexia portfolio are now directly branded by BN as Shell Alexia 25, 40, 70, 100 and 140 to simplify the installation and commissioning process.

Canadian CG opts for SeaThigor seal for icebreaker retrofits

https://thorndonbearings.com/

Thorndon Bearings will provide the Canadian Coast Guard (CCG) with six SeaThigor shaft seals for retrofit to three purpose-built icebreakers.

CCG will retrofit its 5,910 GRT CCGS Pierre Radisson and sisterships CCGS Amundsen and CCGS Des Groseilliers, with two SeaThigor forward seals during scheduled dry-dockings over the next year.

SeaThigor is a seawater lubricated mechanical face seal. It has a safe return to work and no visible or minimum leakage, long life and high operational reliability, and can withstand heavy-duty ice-breaking operations.

According to Scott Groves, Thorndon Bearings’ regional manager – Americas, the vessels’ existing seals were leaking water into the machinery spaces.

The order, confirmed on the 1st of April, follows the success of the 2017 installation and subsequent operation of SeaThigor seals onboard the oceanographic and hydrographic survey vessel CCGS Hudson, for which a procurement agreement was signed with the Government of Canada under its Build in Canada Innovation Program (BCIP).

Due to the success of that first SeaThigor installation, the government permitted the Canadian Coast Guard (CCG) to deal directly with Thorndon Bearings without either party having to go through a competitive bid process, via the BCIP – Additional Sales.

“This is a significant order for Thorndon Bearings, marking not only the SeaThigor seal’s first reference onboard a purpose-built icebreaker but also the largest propeller shaft seals we have ever manufactured,” said Groves.

The 98.2m (322ft) long, 1200-class vessels are designed to Arctic Class 3 requirements and operate twin 674mm (26.5in) diameter shafts driving fixed pitch propellers. Propulsive power is generated by six Alco M251F main engines delivering 10442kW of power.

The seals supplied to the Pierre Radisson-class of ships will also be the first SeaThigors designed with a split casing.

“The limited space available in the vessels’ engine room prevented the installation of a SeaThigor seal with a conventional, fully encased bronze housing. So, we designed a seal with a split casing to simplify the installation and commissioning process, allowing engineers to access the underside of the seal. Many different departments – procurement, design, engineering and manufacturing – came together to really make this happen. It was a complete team effort,” said Jasmin Racioc, from Thorndon Distributor RMH Industries.

Topaz Marine adds Wärtsilä targetless DP sensor to fleet


Topaz Energy and Marine has completed trials of the first ‘targetless’ dynamic positioning (DP) sensor by Wärtsilä, designed to improve safety and operational uptime.

SceneScan, which was developed by the Wärtsilä company Guidance Marine, is a high-accuracy rotating laser sensor that requires no reflector target. It provides positional information to allow automated approach and/or station keeping relative to a structure or vessel. SceneScan is straightforward to operate and provides tracking information relative to natural or man-made structures within the sensor field of view. It tracks by matching its current observation of the scene against a map generated from previous observations of the scene.

SceneScan was connected to a Wärtsilä DP system already installed onboard the Topaz Citadel. Tests were carried out over 90 days, with Topaz confirming at the end of the trial period that it is to keep the system installed on the Citadel and begin a roll-out to additional vessels.

The initial order includes upgrading existing DP sensor systems onboard four of the company’s vessels. Wärtsilä will also provide installation and commissioning of the systems.

“Post IMO 2020, it is imperative for engine performance that customers can rely on the cylinder oils they choose,” said Joris van Brussel. Shell Marine also recognises that cylinder oil technical services that are tailored to the needs of owners are critical to the successful management of engine performance. “Lubricant condition tools, such as Shell LubeAnalyst and Shell LubeMonitor, will be vital for managing engine performance, but also for optimising lubricant feed rates and costs,” added Joris.

Paul Jarkiewicz, operations director, Topaz Energy and Marine, commented: “The installation onboard the Topaz Citadel was seamless, and the technical support that was provided by Wärtsilä throughout the testing period successfully determined the system’s overall effectiveness. We have no doubt that the SceneScan system will add considerable value to the DP operations of our versatile and digitised fleet.”

Andrew Stead, head of business development, Guidance Marine, added: “The testing and evaluation was carried out and proven under actual DP operations with offshore platforms in the Caspian Sea. The positive feedback provides further evidence of the efficiency and accuracy of the SceneScan system. This is fully in line with Wärtsilä’s Smart Marine vision, for which enhanced vessel safety is a key pillar.”
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ABB and partners test fuel cells for hydrogen ferry conversion

The tests will seek to provide answers needed for Norwegian shipyard Fiskerstrand to convert an existing ferry to run on a combination of batteries and hydrogen fuel cells.

ABB and the SINTEF Ocean laboratory in Trondheim will assess how fuel cells and batteries can best function together for short-distance ferry operations, and how Fiskerstrand can integrate them with other engine room systems. The tests will also provide insight into the introduction of hydrogen fuel cells for future reviews of the rules covering shipboard use of hydrogen.

The tests will simulate the conditions the ferry is expected to encounter on a high frequency 10km route to ensure that the propulsion systems including fuel cells are robust enough for repetitive, short-burst service duties.

“We expect to get a realistic view of what we need to do to achieve our objectives in delivering a ferry equipped with hydrogen fuel cell propulsion as part of our HYBRIDship project,” said Kåre Nerem, project manager, Fiskerstrand. “ABB’s system integration know-how, combined with SINTEF Ocean’s long-standing experience in the field of marine propulsion systems, as well as SINTEF Industry’s expertise in fuel cells technology will be key in solving the challenges ahead. This is a pioneering project, and together we will ensure the solution is optimised for the specific ferry route and vessel.”

The HYBRIDship project, started in 2017 and driven by Fiskerstrand Holding, is supported by Norway’s “Pilot-E” technology accelerator program funded by the Research Council of Norway, Innovation Norway and Enova Norwegian government enterprise. The project is envisaging a zero-emissions passenger ship retrofitted with fuel cells operating on a domestic route by the end of 2020.

“The project is a major step towards the practical use of the hydrogen fuel cell as a maritime propulsion technology,” stated Jostein Bogen, product manager for energy storage and fuel cells at ABB Marine & Ports. “Fuel cells combined with batteries are an important part of ABB’s ‘Electric. Digital. Connected.’ vision for a sustainable maritime future. The true significance of these tests will be in defining the optimum engine room configuration for hydrogen fuel cells to be installed and work day-in, day-out with other systems on board.”

ABB first invested in SINTEF Ocean’s hybrid marine laboratory in 2014, recently strengthening its collaborative commitment by injecting a second round of funding to expand the laboratory’s facilities for future development work. “Together with the Norwegian Fuel Cell and Hydrogen Test Centre hosted by SINTEF Industry, the extended hybrid lab will help us to further develop, validate and optimise control strategies for advanced maritime energy systems,” explained Anders Volland, research manager for maritime energy systems at SINTEF Ocean.

“The tests will help us refine the design of our hydrogen fuel cell systems. We know that they satisfy vessel design criteria and operational optimisation,” said Nerem.

ABB and partners test fuel cells for hydrogen ferry conversion

The companies are developing hydrogen fuel cell systems at SINTEF Ocean.

http://nedstack.nl/
https://www.gepowerconversion.com/

GE’s Power Conversion business and fuel cell manufacturer Nedstack are developing hydrogen fuel cell systems for powering zero-emission cruise vessels. The partnership will combine GE’s experience in cruise electrical power and propulsion with Nedstack’s experience in megawatt-scale hydrogen fuel cells technology to deliver highly efficient fuel cell solutions that eliminate emissions and make cruising a cleaner business.

Nedstack and GE have so far designed the concept for a two megawatt hydrogen fuel cell power plant on an expedition vessel. The review result has been highly positive and plausible. The ultimate goal is a completely zero-emission system that will enable the world’s first sustainable, clean cruise ships.

The companies envisage wide-scale use of fuel cell technology on passenger ships, replacing traditional diesel engines with fuel cells, and heavy fuel oil (HFO) with hydrogen.

Arnoud van de Bree, CEO, Nedstack, explained: “Existing clean power solutions are focused on reducing emissions. Eliminating emissions altogether demands a paradigm shift. Hence why GE and Nedstack have been working extensively on the ‘marinisation’ of fuel cell technology to create a total zero-emission alternative that truly meets the needs of tomorrow’s cruise industry.”

A frequent problem resulting from switching fuel cells on and off is reduced life expectancy. GE’s variable speed electrical drive system will be deployed as part of the system to optimise control and efficiency by directing and managing the electricity produced by the hydrogen fuel cells. The variable drive, fuel cell system architecture and dedicated PMS are engineered to limit the switch on-and-off frequency of the fuel cells when sailing or in port. This optimises the system and extends the fuel cells’ lifespan to cope with the five-year dry-dock intervals that cruise ships demand.

Ed Torres, CEO, Marine and O&G, GE’s Power Conversion business, commented: “We’re proud to be working with Nedstack on what we believe will be a game changer for the cruise industry. This partnership brings together a rich pool of expertise that’s spearheading much needed innovation. Given the marine transport and shipping sector’s changing regulatory landscape, this innovation could not be more timely.”

“Ships are increasingly being required to shut down their engines in port. We’ve seen this in California, for example, and China has introduced an emission control area in the Yangtze Delta. However, the trend is shifting from emissions reduction to total elimination. Achieving this will take deep expertise and innovation – and that’s precisely what this collaboration between GE and Nedstack will deliver,” added Azeer Mohammed, president and CEO, GE’s Power Conversion business.
In a world of fluctuating fuel costs and stringent emissions targets, we are passionate about operational simplicity. X-DF engines offer new marine propulsion standards with low-pressure gas technology.

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Low oil pressure blamed for Viking Sky engine failure

An investigation carried out into the loss of propulsion onboard the Viking Sky cruise ship on March 23, 2019 determined the direct cause of engine failure to be low oil pressure.

According to the Norwegian Maritime Authority (NMA), the vessel’s engines stopped working due to low lubricating oil in the tanks as the vessel sailed towards Hustadvika, Norway. The lubricating oil level was within set limits, however, the heavy seas in Hustadvika likely caused movements in the tanks so large that the supply to the lubricating oil pumps was cut off. This triggered an alarm indicating a low level of lubrication oil, which in turn caused an automatic shutdown of the engines.

The Viking Sky, a less than two-year-old 47,800 GRT ship was sailing in Hustadvika, Norway. The lubricating oil in the tanks as the vessel sailed towards the coast and a mayday was sent to the Norwegian Maritime Authority (NMA), and authorities praised the quick-thinking and calm behaviour of the crew onboard the Viking Sky, likely minimising the trauma and injuries experienced by passengers.

The NMA stated at the time of the incident, “What is temporarily clear is that once the incident occurred, the crew’s competence and effort have been an important factor in the success.”

The NMA continued to praise the efforts of the crew members in the follow-up and inspection phase. “We also want to point out that we have had good cooperation with them onboard the ship and that they have facilitated a good and constructive review.”

Following investigation by the NMA, the ship’s classification society Lloyd’s Register, the Viking Sky’s engine supplier MAN Energy Solutions, and the Accident Investigation Board, it was quickly determined that the immediate and direct cause of engine cut out was due to “low-oil pressure.”

The Norwegian Maritime Directorate prepared a general safety report to ensure the supply of lubricating oil to engines and other critical systems under expected weather conditions. The NMA warned that this should be done in collaboration with the engine supplier and taken in as part of the ship’s risk assessments in the safety management system.

“We greatly appreciate the rapid and effective investigations that the Norwegian Maritime Directorate has done, and we understand and recognise their findings. We have inspected the levels of lubricating oil on all our sister ships and we are now reviewing our procedures to ensure that this problem will not recur. We will continue to work with our partners and regulatory authorities to support them in their ongoing investigations,” stated a Viking Ocean Cruises spokesperson at the time of the incident.

The NMA is working closely with Viking Line and LR to understand in greater depth why the incident occurred.

“We are prepared to cooperate with the shipowner and other relevant agencies to find a solution to this,” stated Alvestad.

Ongoing work into the safety of other similar vessels will continue. The NMA says it will look at whether or not there are circumstances connected to the incident, technical or operational, that may be consequences to other vessels. NMA confirms it will be quick to provide information if any such circumstances are disclosed.

Viking Ocean Cruises added: “We welcome the prompt and efficient investigation carried out by the NMA and we fully understand and acknowledge their findings. We have inspected the levels on all our sister ships and are now revising our procedures to ensure that this issue could not be repeated. We will continue to work with our partners and the regulatory bodies in supporting them with the ongoing investigations.”

New control system extends marine engine life

A new approach to extending the lifecycle of engines and cutting operational costs by 100 per cent has been developed by CMR Group.

The automation and control system specialists for marine and energy applications developed E-Pulse, a new control system that can be installed on medium and high-speed engines operating in harsh marine and land-based applications and installations. No maintenance of the system post installation is required, achieving operational cost savings of up to 100 per cent.

Built around an integrated touch screen-operated local operating panel, main control cabinet and junction box microprocessor package, E-Pulse provides comprehensive engine alarm and monitoring, safety, control operational capabilities for 20 years.

While reproducing existing engine functions, the technology can be fully customised and configured to implement additional monitoring functions to improve and simplify the operation with a minimum investment cost.

E-Pulse can be retrofitted or installed on newbuild vessels.

Utilising the latest technology and open-source software (OSS), the interface to external propulsion systems, auxiliaries and vessel management technologies are hardened I/O, Modbus RTU and ethernet TPC/IP compatible, providing the user with an easy-to-use, reliable and fully independent engine control solution.

Gerard Baldellou, marine division manager, CMR Group, said: “CMR will offer a turnkey sensor, cabling and control system package for retrofit E-Pulse installations, while flexible and versatile system architecture ensures E-Pulse can be fitted quickly and easily for new engine installations.”

E-Pulse has proven to extend the lifecycle of engines and cut operational costs by 100 per cent.
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Nor-Shipping exhibitors preview

A roundup of what to expect at the Nor-Shipping Exhibition in Oslo

DEIF

DEIF is, among others, presenting the energy management system Blueflow at Nor-Shipping 2019. Blueflow takes eco-driving to a new level, presenting real-time data on fuel consumption. Saving fuel and energy is not magic. It is about hard work, training and motivation combined with a support system that enables follow-up of implemented measures. If done correctly, substantial fuel savings are realistic. At DEIF’s stand, you get to explore a business case with the Swedish shipowner Styrskölaget that achieved more than 20 per cent fuel savings after implementing Blueflow in its fleet of 18 vessels. The investment per vessel was paid back in less than a year and Blueflow not only reduces fuel consumption, but it also helps the shipowner in emergencies and to foresee maintenance.

Stand B04-30

I-Tech

Swedish bio-tech innovators I-Tech will showcase their anti-barnacle active agent Selektope, which has established a widely recognised position in the shipping market. When present in an antifouling coating, Selektope acts to repel barnacle larvae approaching the hull surface by temporarily stimulating their swimming behaviour and therefore preventing their attachment. Selektope acts to repel barnacle larvae approaching the hull surface by temporarily stimulating their swimming behaviour and therefore preventing their attachment. Selektope, which has established a widely recognised position in the marine environment. Selektope has been acknowledged for saving fuel costs and performance and has increasingly been engaged in research missions for the IMO. Selektope is the only all-in-one system delivered from one company and is significant news for ship operators and management because it improves the connection of the onboard navigational planning station to continuous shore-based analysis, advice and decision making.

Stand B02-20

Lean Marine

Based in Gothenburg, Sweden Lean Marine will showcase their FuelOpt system at Nor-Shipping 2019. FuelOpt is a system that automatically reduces ship fuel consumption in real time by controlling the propulsion system, making sure the propulsive power is optimised based on the direct commands from the bridge. This improves the ship’s speed management and introduces predictability of the propulsive power. Lean Marine will also present their Fleet Analytics software tool that can collect, organise and present performance data and voyage information automatically from a fleet. Fleet Analytics enables quick and easy reporting, powerful decision support. For environmental and emissions reports such as MRV, Fleet Analytics can facilitate the process. Visit Lean Marine at stand A01-68, where they will have a demo rig of the FuelOpt system that will allow visitors to use the technology in demonstration mode.

Stand A01-68

Shell Marine

The team from Shell Marine will guide visitors through the high performance marine lubricant options available in the run up to the new International Maritime Organization rules on fuel sulphur content, which come into force from January 1, 2020. Particular attention will focus on Shell Alexia 40. Shell Marine’s new two-stroke engine cylinder oil for engines running on 0.5 per cent sulphur content fuel oil. After extensive testing at Shell’s Marine & Power Innovation Centre in Hamburg and working closely with equipment manufacturers, Shell Alexia 40 has undergone thousands of hours of shipboard trials to verify performance at sea.

The arrival of Shell Alexia 40 coincides with a rebranding of the full Shell Alexia portfolio of cylinder oils, which are now identified by Base Number so as to minimise errors in lubricant selection and use. The full Shell Alexia range now includes products denoted as Shell Alexia 25, 40, 70, 100 and 140. Also, with the IMO 2020 needs of shipowners and operators in mind, the Shell Marine team will outline the group’s expanding technical services. These include its new Shell LubeAnalyst oil condition analysis portal and the Shell LubeMonitor performance monitoring service that helps to optimise engine performance, lubricant feed rates and cost.

Stand E02-37

StormGeo

StormGeo launches new versions of NaviPlanner BVS and NaviUpdate at Nor-Shipping, key offerings in the Navigator Solutions Portfolio. Navigator portfolio brings together the only single-source solution spanning navigational planning station to continuous shore-based analysis, advice and decision making. Also, with the IMO 2020 needs of shipowners and operators in mind, the Shell Marine team will outline the group’s expanding technical services. These include its new Shell LubeAnalyst oil condition analysis portal and the Shell LubeMonitor performance monitoring service that helps to optimise engine performance, lubricant feed rates and cost.

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ABS launches global sustainability centre to support shipping’s decarbonisation

https://ww2.eagle.org/en.html

ABS has launched the ABS Global Sustainability Centre in Singapore with a mission to help shipping decarbonise and transition to a sustainable, lower emissions industry. The Centre brings together industry leading ABS sustainability projects with a focus on:

• Studying the viability of alternative fuels and new energy sources in different shipping sectors
• Analysing decarbonisation pathways, the impact of seaborne trade growth and IMO targets on new designs
• Using digital technology to simplify transactions and increase operational efficiency
• Certifying, verifying and validating new technology

The facility is led by Gurinder Singh, ABS director of Global Sustainability, and includes a team of professionals with diverse backgrounds and expertise. "Today’s world is quickly changing, and the shipping industry is navigating a complex regulatory landscape and rapid technology changes. The IMO Green House Gas reduction targets will present an unprecedented challenge to the industry — as the targets cannot be achieved with today’s technology. The Centre has a vital role to play in helping the industry manage the transition safely," explained Singh. "Singapore is an ideal location for the Centre as we build upon our strong collaboration with leading Universities and Sustainability Centres of Excellence here. The Centre is a home for innovation and creativity that brings together industry and academia working hand-in-hand toward a sustainable future."

ABS chairman, president and CEO Christopher J. Wiernicki, said: “Decarbonising shipping is a challenge that will compel the industry to reach new technology frontiers. At the same time, it is an opportunity to transition to a more sustainable world economy enabled by efficient, low-carbon transportation. To facilitate the journey toward decarbonisation targets, ABS established its Global Sustainability Centre to coordinate initiatives that advance innovation and technology development focused on safety, practicality and the commercial viability of proposed solutions.”

The Centre also includes leading an industry education program, seminars and lectures, designed to raise awareness of maritime sustainability technologies and carbon reduction strategies.

Danish research project leads to significant fuel savings for J. Lauritzen and Torm

http://www.blalinn.dk/home/about-blue-innship

Shipping companies J. Lauritzen and Torm have saved a combined total of 37,900 tonnes of fuel per year thanks to their participation in a four-year research project that developed a new platform to help companies optimise technical and operational aspects of their fleets.

Under the Blue INNOship program, the Vessel Performance Decision Support platform was created to help address the challenge many shipping companies face of having no fully developed concept for how to harvest potential fuel savings. Danish company Vessel Performance Solutions (VPS), J. Lauritzen, Torm, FORCE Technology, and Aalborg University, recognised this situation and agreed to partner up to support the development of such a platform.

One objective of the platform was to identify the amount of excess consumption for a working fleet with drill down options to identify root causes for the excess consumption. Another objective was to develop an open standard for exchange of performance data. According to the project report, many shipping companies have large amounts of data but wish to have the freedom to exchange such data to different service providers. The partners believe that if all commit to the same exchange format, such exercises will be easy.

The result of the project is a modular vessel performance management platform that includes a vessel performance analysis engine (VPEa) that converts operational data into decision support, a platform for running performance reports or jobs, web-based presentation layer for display of decision support, and many other characteristics. The modular design and the results data base enable a shipping company to automatically transfer the results to its own data warehouse and BI solutions.

The platform is able to support vessel performance optimisation through change by introducing KPIs and providing a new and alternative approach to fuel oil consumption. Decision support is provided on hull and propeller performance, main engine performance, fuel balance, and data quality, amongst many others. The results are presented on a web platform with relevant information, including graphs and tables.

VPS and Aalborg University have also built a validation engine that allows users to identify problems with the quality of data coming from the vessels.

According to the final report published in May, the project has delivered on all parameters. Participating companies in the performance management platform now launched under the acronym “VESPER” (VESsel PERformance) are using the platform on a daily basis to improve the efficiency of their operated fleets. The open standard is on its way to being used by three different Danish shipping companies and the display of FORCE Technology is being used by clients.

J Lauritzen has committed to a total fuel saving of 4 per cent on its operated bulk carrier fleet over the project duration. Torm has also committed to significant fuel savings, achieving a 6.9 per cent yearly accumulation from a 2015 baseline. The results have been obtained by close monitoring and follow-up with vessels and a very close control of the vessels’ hull and propeller performance. The report also states that Torm’s high-quality dry-dockings, strategic hull cleanings and propeller polish have been key in achieving these results.

In total, on a yearly basis, the combined fuel savings sum up to around 37,900 ton per year (117,000 ton of CO₂/year) or a yearly saving of more than 90 million DKK or 117,000 ton of CO₂ per year (117,000 ton of CO₂/year). This translates to more than 37,900 tonnes of fuel saved per year thanks to their participation in the Blue INNOship project.

Ocean-going autonomous navigation system to be developed under industry MoU

https://www.lr.org/en-gb/

Lloyd’s Register (LR) has announced a Memorandum of Understanding (MoU) with ICT company ST Engineering (STEE), and Mitsui & Co. (Mitsui) to develop an ocean-going autonomous navigation system for the “World’s Largest Ocean-Going Autonomous Vessel Programme”, an initiative funded by the Maritime and Port Authority of Singapore (MPA).

The partners will collaborate on the Development of Ocean-going Autonomous Navigation System on a Maritime Asset”, developing capabilities in autonomous navigation systems and exploring ways of improving efficiency and safety using autonomous systems.

“LR’s involvement in this project builds on the capability and experience already gained from work done for the other industry-leading and world first autonomous projects,” said Andy McKeran, LR commercial director Marine & Offshore. “However, this project, a world first for the deployment of autonomous navigational technology to an ocean-going vessel for commercial operations, pushes the boundaries of autonomous technology and moves the industry towards deployment of autonomous navigation systems onboard vessels for enhanced performance and critically, safety.”

“Increasing interest in maritime autonomy and remote access/control technologies is a specific example of larger technological changes we are currently seeing in the maritime industry. Essential to the successful and safe adoption of these technologies is that robust use cases are established, for example to improve navigation safety, supply chain efficiency or operational costs of autonomous systems will also provide opportunities for skilled seafarers to focus on what they do best, and the safe and sustainable integration of autonomous systems relies on the appropriate engagement with seafaring professionals.”

He continued, “Working with STEE, who have already developed and proven this capability and are now looking to work to scale in the commercial marine market, is what sets this project apart; STEE provides an industry leader in autonomous systems and STEE will provide world-class technical expertise, technology and advanced learnings on autonomous systems in the marine environment. We will support with expertise on assurance, certification and regulation for the application of autonomy in the maritime environment as well as approval of systems where appropriate.”

INNOship program and is sponsored by Innovations Fonden, Den Maritime Fond and Orientes Fond. Its partners include Rederiet J. Lauritzen, Rederiet Torm, FORCE Technology, Aalborg University, and Vessel Performance Solutions.

The final report for the project can be viewed at https://www.dendanskemaritimefond.dk/
Equinor agrees cleaning deal with HullWiper

Equinor ASA has signed a hull cleaning frame agreement with HullWiper for its fleet of oil and gas tankers operating in Scandinavia, Far East, Middle East and Europe. HullWiper provides safe and eco-friendly hull cleaning solutions to boost vessel efficiency and cut fuel consumption by enabling smooth and resistance-free ship surface to water contact. HullWiper’s Remotely Operated Vehicle (ROV) system with adjustable seawater jets will remove fouling from Equinor’s vessels, without the need for abrasive brushes or divers. By eliminating brushes, the risk of damage to antifouling coatings is reduced. As no divers are required, underwater cleaning is much safer and can be conducted day or night, in most weather conditions, and whilst cargo operations are underway. Removed residues are collected by an onboard filter and deposited into dedicated drums onshore for locally-approved environmental disposal. The filter also reduces the risk of cross-pollination of waters with alien species.

Simon Doran, HullWiper’s managing director says the partnership with Equinor reflects his company’s commitment to proving the global shipping community with innovative, eco-friendly solutions at a time of increasing regulation. “We help shipowners and operators to act proactively to comply with ever more stringent rules and regulations governing the entry of vessels into ports and operations offshore.”

HullWiper was launched in Dubai in late 2015 and now operates from ports in Sweden, Singapore, Spain, Denmark, Norway, Egypt, Australia, Gibraltar and the UAE, as well as other key locations in the Middle East on an ad hoc basis. New operations in Panama and Mauritius are coming in the second quarter of 2019, with advanced discussions ongoing for other locations specifically.

Thorco increases visibility of charter party compliance with Navis Bluetracker

Copenhagen-based Thorco Projects has selected Navis’ Bluetracker solution to monitor and analyse the fuel consumption and vessel performance of its own and chartered vessels.

The Charter Monitor module of Bluetracker monitors the operational speed versus fuel oil consumption as agreed upon with the charter party, providing greater visibility of charter-party compliance. The system gives automatic notification if the speed consumption curve exceeds certain limits, which enables closer collaboration between Thorco Projects and its ship managers to continuously optimise vessel performance.

The system fosters closer internal collaboration between the performance and operations departments by both working with a single source of truth, easy to use and to share data. The system also runs a plausibility and estimation engine to ensure a level of high data consistency and quality based on data collection sources.

"Operating a mixed fleet of own and chartered vessels in a spot-market business is often a challenge, since the operational vessel performance data are being evaluated from different perspectives with different priorities," said Thomas Mikkelsen, CEO at Thorco Projects. “Establishing a multi-tenant source of truth that ensures the same level of knowledge about operational data in real-time of different stakeholders is a step towards effective operations in a dynamic market based on collaboration.”

"The availability of operational vessel performance data at any place, at any time, is seen as an added value – especially by the technical managers amongst our customers using Bluetracker,” said Selke Eichler, global director of customer support at Navis Carrier and Vessel Solutions.

The scope of the current initial agreement includes 12 contracted vessels.

Wallem CEO sets out strategy for change

Wallem has updated its corporate identity to mark the beginning of a profound shift in its service offering that will harness the latest technology to improve asset management transparency and efficiency in managing charter-parties, and making the relationship between owners and their ships.

The new corporate identity and logo reflects Wallem’s ambition to establish a fundamentally new approach in collaboration with vessel owners and deliver on its vision of being ‘the leading provider of technology-driven maritime solutions in a customer-centric and transparent manner’.

The refreshed strategy is built on three fundamental values: supporting quality through safety, transparency through technology, and service through support. Combined, these principles will enable Wallem to enhance its current offerings, including safety management and compliance, crewing, training, asset and commercial management, and ship agency, among others. They will also provide momentum for the introduction of new services required by vessel owners, such as technology consultancy.

Wallem CEO Frank Coles believes a lack of transparency is inhibiting collaboration and preventing owners from making the most of their vessels. “Giving owners a clearer view of fleet performance and operational status paves the way for building a more constructive relationship. Wallem has an opportunity to grow by taking the initiative in tackling the shortcomings of the traditional model,” he said.

“The new business model with technology also means that transparency is also needed in the new model in terms of business ethics and transactions for gaining business. This is not only about clarity of the operations but how you get the business in the first place.”

Coles added: “These are the issues we’re confronting as we head into the 2020s and the current approach to ship-management just isn’t competitive. By identifying what matters, our new vision sets us on a path to fix that disconnect once and for all.”

Coles believes that as Wallem positions itself for growth, the combination of transparency and technology is conducive to delivering a consistently high level of customer service around the globe. “There is no industry inherently more global in nature than shipping. In today’s interconnected world - both technologically and economically - there is no justification for regional variations in how owners are supported,” he concluded.

Windstar optimises load with NAPA solution

Windstar Cruises has chosen NAPA’s Loading Computer for installation across its entire fleet to manage stability and optimise fleet safety.

Star Breeze, Star Legend, and Star Pride, as well as the unique sailing cruise ships such as the 4-masted Wind Spirit and Wind Star, and the 5-masted flagship Wind Surf will all be retrofitted with the NAPA Loading Computer. It undertakes a wide range of calculations related to hydrostatics, intact stability, and ship longitudinal strength to optimise vessel load while minimising stress and safety risk. The system is installed onboard more than 2,000 ships across the global commercial and passenger fleets.

During our due diligence we were particularly impressed with the accuracy of NAPA’s 3D calculation engine, decision support capabilities, and comprehensive support, training and life-cycle services.”

Wind Star and Wind Spirit were retrofitted with NAPA Loading Computer and the installations on Star Pride, Star Breeze, Star Legend and Wind Surf were all upgraded recently.

Windstar and NAPA have also signed a service agreement that covers technical support and future life-cycle services to ensure trouble free operation. NAPA has provided onboard training services, and its Stability eLearning course to Windstar.

“Windstar takes its travellers on personalised cruises that are immersive experiences, 180 degrees from ordinary. We at NAPA are proud to support Windstar’s safe operations with our extensive expertise on passenger ship stability management solutions and expert services,” said Mikko Forss, Americas sales director for NAPA.
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Ship management in the digital age

Ship support companies should embrace tech and increase transparency to avert a race to the bottom and all the risks that entails, writes Frank Coles, CEO Wallem Group.

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hip management companies have earned a bad name by chasing market share at the expense of transparency, quality and customer service. Outsourcing the day-to-day running and maintenance of ships to dedicated asset managers was supposed to be a win-win: it would reduce the burden on owners – especially those holding a handful of vessels - while the manager could be using the economies of scale by pooling technical resources and building centres of competency.

Whether as an unintended consequence or by a wilful act of self-harm, instead we have arrived at a situation where reducing cost – and undercutting your competitors – has supplanted service delivery as the primary goal. Apart from the long-term commercial risks of the business becoming commoditised, this trend is worrying from an operational and safety perspectives. It might be possible to manage a diversified fleet on a shoestring budget when everything is running smoothly, but it leaves little margin for error and makes it hard to respond and cope in an emergency.

Some would argue that is the situation has been driven by the reluctance of owners to compensate for the value being brought. Or does this reluctance to pay for the value come from owners thinking managers are not transparent in their business. One thing is certain: not all managers are alike. Some clearly hold out for value and demand quality. Others have an agenda of growth for an ultimate exit. This creates a conflict between these approaches and safety, quality and customer support will suffer.

There is, however, a way-out of the predicament that can avert a race-to-the-bottom: and that is for ship managers to demonstrate to owners clearly and unequivocally the value they can and are providing. I believe the only way to achieve this is to increase transparency. If managers are hiding behind a veil of obfuscation, owners have every right to be sceptical: opaqueness invites suspicion, and in my opinion, is indefensible.

In earlier times, this smokescreen might have been ascribed to the technical challenges in collecting, codifying and presenting suitable performance metrics. Advances in technology and in ship-to-shore connectivity mean this is no longer a plausible excuse. It is now possible to monitor all the equipment and machinery systems that make a ship work in great detail. It is possible to get that data off the ship and in front of experts on shore quickly and easily. It is possible, thanks to algorithms and machine intelligence, to analyse it from more angles than ever before.

We shouldn’t stop there. Our plan is to make sure the insights gained from those processes are shared with owners. In that way, we can communicate the value we are delivering by showing the systems installed of vessels they’ve entrusted to our care. When areas of concern have been identified, we can demonstrate how we’ve grappled with and overcome those problems, and it gives us a tool for highlighting areas where, with the right support, further improvements might be made.

Allowing owners to compare their stats against the benchmark would not only confirm the value we provide but can be leveraged as a bargaining chip by owners to present their ships in a favourable light during negotiations to win new charters. As you can see, this approach not only puts the brakes on price-only competition but sets the conditions for reversing the direction of travel and creating a positive feedback loop.

It is also important we demonstrate that ships are being maintained by people who care. Similar technologies can play a role in helping maintain and continually developing the competency of ships’ crews - both the officers on board and the engineers working below deck.

The long-term goal here isn’t to turn human personnel into dumb automatons who only follow the instructions issued to them by some all-knowing machine. On the contrary, the aim is to empower and equip them with new skills and develop new aptitudes and problem-solving abilities to ensure they operate at peak performance and are ready to attend to more sophisticated and automated onboard machinery.

The common theme is to make technology work for us – whether in strengthening the interface between the crew and their ship or by forming a closer relationship with our customers, the owners – and not the other way around. The future of ship management does not lie in replacing crew with robots or exchanging the human touch in customer service for bots and apps. In fact, this is quite the opposite. By leveraging technology for a smarter conversation, we end up with a better level of service, a quality collaborative and consultative support infrastructure.

Digitalisation has been talked to death in many quarters. But let’s recall how it produced the advertised results because the implementation has been wrong. Ship managers – and, for that matter, owner operators – are forced into using too many systems from too many vendors. Each solution might be doing its individual job, but because they are not unified, the collective benefits of this technology stack are not realisable. Complexity and workarounds this multi-vendor approach necessitate subtracts values.

This ‘stack’ metaphor, which is commonly heard in IT circles, is remarkably apt for a company like Wallem, which in addition to technical management and crewing, offers services supporting the complete lifecycle of a vessel from newbuilding supervision to end-of-life recycling guidance, as well as an extensive portfolio of commercial, safety and compliance management and agency services.

Many managers, like Wallem, have industrial, media and marketing expertise in supporting owners with legislative issues. Wallem also is providing technology support and consultation to some of their clients.

As a full-stack service provider, I therefore find it astonishing that after a fleet reaches a certain size, owners often decide to bring technical management in-house. The benefits of outsourcing don’t diminish as a fleet grows in size; in fact, the opposite is true.

This behaviour is not evident in other industries. Businesses in all sectors happily outsource accountancy, HR and other functions. Airlines rarely care for their own aircraft anymore. In particular, today’s low-cost carriers wouldn’t remain in business long without third-party vendors able to carry out regular maintenance or periodic overhauls. In e-commerce, a new breed of online retailer doesn’t make or even touch products, instead using social media as a shop front and the likes of Alibaba and AliExpress to fulfil orders.

For the vessel owner acting primarily as an asset owner and commercial operator taking on technical services adds inertia to the business. It makes it harder to react to changes in the market to dodge downturns or seize new opportunities. Indeed, the complexities of the regulations, environment and operations of today would seem to demand an outsourced expert to support the business. Everyone else is doing it, but maritime has resisted it. Maybe the “third party ship managers” have to also change their model, to gain their credibility back.

Author: Frank Coles, CEO, Wallem Group

Sovcomflot rolls out Wärtsilä Fleet Operations solution

Sovcomflot is rolling out Wärtsilä’s Fleet Operations solution for its fleet of Arctic shuttle tankers to improve the efficiency and safety of operations in Arctic waters.

The solution, which is the result of a collaboration between Sovcomflot and Transas, a Wärtsilä company, provides a unique integrated infrastructure that combines the bridge systems, cloud data management, digital voyage planning and decision support tools, and access to real-time information.

The solution also offers operational cost reduction advantages.

The Fleet Operations solution agreement signed with Sovcomflot comprises the upgrade of the navigation systems installed onboard the company’s vessels operating in Arctic waters. The upgraded onboard systems will ensure real-time ship-to-shore data exchange, thus connecting the onboard equipment with Wärtsilä’s operation centre to enable shared-decision making.

The Sovcomflot shuttle tankers are operating year-round in Russian Arctic waters. The project implementation is expected to be completed by the end of this year. The fleet operation centre, located in the company’s St Petersburg head-quarters, has already been commissioned.

Wärtsilä will also provide a core solution for the company’s fleet operation centre. The order was booked in March 2019.

“We are happy to continue this cooperation with our longstanding partner Sovcomflot Transas, who always provides us with high quality and efficient products. For example, all our latest newbuild Arctic tankers, LNG carriers, and offshore supply vessels are equipped with integrated navigation systems from Transas. The Fleet Operations solution will support the crew’s decision-making, which is aimed towards sustainable development of our Arctic operations,” said Igor Tonkoviyd, executive vice president and chief engineer at Sovcomflot.

“TThe Fleet Operations solution is an important element within Wärtsilä’s Smart Marine Ecosystem approach, which employs high levels of onboard automation, integrity and computerised decision support for safer and efficient navigation. The solution is fleet-size. It enables smart situational awareness, automated voyage planning and optimisation, digital (paper-less) navigation, and remote technical support, all of which add considerable value to the fleet operations,” commented Vladimir Ponomarev, director, Voyage Solutions, Wärtsilä Marine.
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Martin Stopford: Prioritise performance measurement to meet IMO 2050

Meeting the IMO 2050 GHG emission reduction target is not impossible but will require shipping to think carefully about its strategy and focus on measuring every aspect of ship and cargo performance using digital technology.

Prioritising performance measurement in digital applications is the first place to start when it comes to achieving decarbonisation goals, says economist and president ofClarksons Research Services, Dr. Martin Stopford.

The IMO has set an “almost seemingly impossible target,” says Stopford, of cutting greenhouse gas (GHG) emissions by at least 50 per cent by 2050, compared with a 2008 baseline. According to the economist, meeting this target requires a reduction of 470 million tonnes of cargo emissions by 2050. He believes that if we carry on as we were with trade growing at the same rate it has over the last 20 years, by 2050 the carbon footprint will be at 3 billion tonnes, six times the 2050 target.

“How can you possibly get from 3 billion down to 470 million tonnes when there’s no nice and easy technology sitting there on the sidelines for us to look at and apply?” asks Stopford.

Stopford believes that the answer is in applying various digital technologies to each part of every ship to generate comprehensive information on a vessel and its cargo’s performance. This way, the industry can gauge a much better carbon footprint of any voyage and avoid unnecessary waste, which has occurred as a result of low freight rates and “cheap as chips” sea transport.

This requires the industry to rethink and change its behaviour of what and how we ship. Stopford says the first step to preventing wasteful shipping is to take a more discriminative approach. He says the industry doesn’t think about the carbon footprint of shipping a tonne of iron ore from Brazil to China than from Australia. “We don’t actually put a carbon footprint on each consignment. This is something the industry is going to have to look at.”

By being more discriminative and having higher value-added cargoes, Stopford believes that a 40 per cent cut in emissions is possible. Historically, the growth rate of trade is 3.2 per cent per annum. If this were to reduce to 2.2 per cent, then the 3 billion tonnes of carbon footprint could be reduced to less than 2 billion tonnes, achieving that 40 per cent emissions reduction target.

Another way to reduce emissions is to slow down the global fleet. Stopford says slowing to 10 knots from 12 could save almost 40 per cent of the carbon footprint. Dropping to 8 knots and lowering trade growth by 1 per cent could facilitate an 80 per cent reduction in carbon and GHG emissions, achieving nearly 80 per cent of the IMO’s 2050 target. Stopford confirms shipping companies are usually content with a slower voyage as long as they know exactly when the cargo will be delivered.

Digital technology can achieve very good delivery times, Stopford clarifies.

Integrating information on ports and cargoes into one system is another way that digital technology can be used to enhance performance. By giving everyone involved access to performance measurement information, communication and effective planning can occur.

Stopford also believes that using bigger ships on shorter routes will give a much greater benefit. “The benefit you get from adding 50,000 tonnes to a 300,000 tonne tanker is much less relatively than you get from adding 50,000 tonnes to a 30,000 tanker,” he explains. “In the dry cargo market, people are using supramaxes. They’re upsizing from 40,000 tonnes to 60,000 tonnes, and this is very environmentally effective.”

Stopford’s overall message is that commitment is critical, especially when it comes to navigating new territory that is the 2050 GHG emissions target. While there are so many things that can be done to improve the energy efficiency and sustainability of shipping, he urges shippers to “be goal orientated, narrow it down. We need very clear goals on what we’re trying to do.”

“The trick is to decide where you want to go, get your head down, and go,” Stopford concludes.

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NAPA partners with ChartWorld on AI-driven voyage optimisation

https://www.napa.fi/
https://www.chartworld.com/web/

NAPA and ChartWorld have announced a partnership to provide artificial intelligence (AI) driven voyage planning and optimisation. The solution developed by both companies includes modules for evaluating the operational efficiency of past voyages, and then using this data to optimise the efficiency of future transits where there are similar variables and trends. Past voyages are automatically evaluated via datasets collected from ChartWorld’s route network to find improved routes the vessel could have taken. These voyages are also automatically analysed by NAPA’s algorithms for operational efficiency, taking into account wave conditions, weather, and other factors that affect the voyage.

“In today’s era of constant regulatory change and cost volatility, vessel efficiency and safety are more important than ever. Through the integration of ChartWorld’s industry-leading voyage planning with NAPA Fleet Intelligence, shipping’s most powerful software for optimised vessel operation, we have created a solution that relies on giving owners and operators the information they need to make the most cost effective and time efficient choices for their fleets,” explained Oliver Schwarz, ChartWorld’s business development director.

“With the adoption of ECDIS, voyage planning has become increasingly complex. Best-practice risk management requires ‘four eyes’ on voyage planning, with the master verifying the second mate’s plans. Onshore personnel can use the MyRouteAppraisal (MyRA) solution to pre-check onboard navigation planning for additional certainty, as well as comparing different route alternatives for the same voyage,” Schwarz continued.

Risto Kariranta, director of services, Shipping Solutions at NAPA, added. “As a former mariner I know all too well how laborious voyage planning can be even on a clear day with calm seas. Our partnership with ChartWorld provides a solution I could only dream of having available when I was on the bridge. Additionally, by using our AI-based algorithms operators are able to reduce the cost of each voyage, execute it more safely and with far less work for the crew onboard.”

Under this partnership, ChartWorld has signed a re-seller agreement with NAPA allowing for a range of NAPA services to be provided as an integral part of ChartWorld’s MyRouteAppraisal (MyRA) platform. MyRA, combined with NAPA’s vessel performance enhancement modules provides charterers, ship operators, and onboard personnel with a range of advanced tools related to voyage planning. Charterers, for example, will be able to evaluate the cost of voyages for different destinations with different schedules. They also can share these plans in real-time with ship operators and onboard crew.

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Dr. Martin Stopford, president,Clarksons Research Services

ChartWorld’s Oliver Schwarz and NAPA’s Risto Kariranta

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When you opened your email today, there were likely at least a couple of articles on the latest digital technologies and trends changing the maritime industry. You can probably recall the panel discussion(s) at the shipping conference you last attended that talked about the digital disruption and how artificial intelligence, machine learning, augmented reality or some other amorphous technology is changing the game. More likely than not, your boss has also seen a similar flow of information that has found its way into strategic and operational discussions for your company, which you are supporting. Are you overwhelmed yet?

Don’t worry; you are not alone. There is no question that our industry is undergoing rapid digital transformation. The opportunities to leverage new (or enhanced) technologies to improve operations, commercial-decision making and fleet performance are endless and the benefits undoubtable.

Among the shipping executives we have spoken with in recent months who seek to improve vessel performance and analytics, for example, the issue is not in the options available. They face a more basic conundrum in separating hype versus reality – “where to begin”?

Tres has invested considerable time helping shipping companies answer this question. These owners are investing time and energy to identify the best solutions to solve a host of problems but face challenges in prioritisation, implementation or value extraction.

We think it boils down to being practical. Many organisations run into roadblocks if there is a disconnect between the needs of various stakeholders, lack of buy-in or if the identified solution greatly alters existing workflows from day one. These can all be driven by lack of adequate planning and sometimes trying to hit a home run on the first swing.

Tres developed a simple innovation ladder to help shipping companies navigate these challenges:

1. **Set the vision.** One of the biggest impediments to getting started is lack of a unified vision or competing interests. Projects never materialise due to lack of alignment among various stakeholders (e.g., technical, operations, commercial etc.). The vision doesn’t have to be perfect and it may change but at a minimum, everyone should be on the same page.

One of our bulk owner clients approached us with a clear vision – to increase productivity for vessels and shore operators by reducing noon reporting workload. They wanted to shift from five separate reports per day to one. Defining the vision in advance made it easier to develop a practical solution. We developed a holistic systems integration to achieve the vision, creating a single point of entry onboard then auto-populating all other mandated reports. This simple digital transformation saved more than two hours per day of manual work for vessels and operators. The effort also improved data quality and unsurprisingly, boosted morale.

2. **Identify the “why”?** We have met with a lot of owners who had grand visions for how to digitally transform their organisation. The innovation blueprint would make Apple proud. However, they unfortunately couldn’t answer the question of “why”? Investing heavily in technology simply because “that’s where the industry is going” or because “leadership wants to move in this direction” is often a precursor for a project’s failure. These projects struggle to gain momentum in the early stages or worse yet, fail apart after implementation given lack of buy-in or understanding of the benefits.

Once you identify the vision, ask yourselves why you are doing it. There will ideally be a pain point that you are trying to solve or greater insight you are trying to derive to improve your business.

A tanker owner client wanted a low cost means to stream high resolution data. The ‘why’ was to improve vessel efficiency and reduce energy costs. There were plenty of options but in doing their homework, they found that the cost-benefit rarely made sense. Traditional data logging solutions were expensive and mostly lacked insights that could help them achieve their vision.

Tres developed a low-cost integration using existing onboard VDR hardware and its TVA software platform. Instead of spending US $40,000 per vessel for a traditional solution, we identified a pathway at one-tenth of the price. By understanding the ‘why’ and then looking for practical ways to use existing systems/hardware, our client was able to increase granularity of its vessel performance data and drive optimisation projects that reduced excess consumption by roughly 10 per cent.

3. **Identify 1-2 simple priorities.** Whether we’re remodelling our home, sitting at an all-you-can-eat buffet or creating a vessel performance improvement strategy, we as humans tend to overcomplicate things. It is easy to overload our plates, identifying 5-10 things we would like to do to digitise our business, but this can quickly overwhelm you and those responsible for implementation and adoption.

It is important to agree on 1-2 priorities that are relatively easy to implement with the potential to drive the greatest impact. Is there a technology or integration that can streamline existing workflows and save your team/vessels time? Is there a tool that you can implement that provides simple analytics and diagnostics to your performance team, thus making it easy to monitor and reduce fuel consumption and emissions?

Another tanker owner has proven very pragmatic in this regard. They are keenly aware of the plethora of digital opportunities that exist, all of which have the potential to streamline vessel performance and operations. However, they have remained focused on rolling out solutions in bite sized chunks. This has allowed cost-saving initiatives to materialise and increased company-wide adoption of the technologies.

4. **Identify the appropriate solutions.** Once you prioritise projects, you have the enjoyable task of defining how you will execute. Will you build the technology or capabilities in-house? Will you outsource to an external provider? If you outsource, how do you choose between the various options in the market?

There are a lot of factors that go into making this decision, but in line with the theme of this article, try not to overcomplicate this step. It is easy to be lured in by all the buzzwords and fancy marketing, but your choice should come down to the level of impact on your organisation. Should you choose to outsource, your provider should be selling a solution not a technology. If they are unable to simplify your lives and solve a problem, then move on.

At the end of the day, technology should enable us to become more efficient and solve complex problems. Partner with a company that has the flexibility to adapt their technology to your organisation’s needs. Your workflows do not have to drastically change if you choose the appropriate solution.

A notable tanker owner was able to do this effectively when selecting a vessel performance analytics platform. Key stakeholders were highly engaged during the selling, closing and planning processes. Meetings often included the COO, key VPs and direct reports, who ensured their workflows were well understood and key priorities identified. This interaction allowed us to tailor performance analytics to their needs, which formed the basis for a successful partnership.

5. **Get started.** As a company, you now have alignment around the vision and the problem you are solving. The homework is...
complete. The only thing left to do is to get started. This is where company culture and leadership is extremely important.

Leadership should ensure internal and external messaging reiterate the importance of the new technology to their vision and strategic objectives. Back up your words with action – set KPIs to ensure you are driving impact from the efforts. Don’t be afraid to alter your performance management processes to support technology adoption.

We have several great examples of this in action. One shipowner client actively messages investors and team members about emissions-reduction initiatives that are supported by its analytics platform and processes. They have introduced initiatives that promote vessel efficiency while also donating money to environmentally-friendly causes.

The digital revolution in the maritime industry is upon us and it holds great potential, but do not be overwhelmed. The hardest part is always getting started but if you stay committed to the process and continuously communicate the benefits to all stakeholders, you will be amazed at how you can practically leverage digital solutions to transform your business. Resist the urge to boil the ocean and remain practical. With a few small wins under your belt, your organisation can move more confidently into the digital era.

**DNV GL and MPA lead JIP on 3D printing**

The goal of the JIP is to establish a list of commonly-ordered parts that are highly feasible for 3D printing with or without certification respectively not feasible for 3D printing. The findings aim to encourage more maritime players to adopt AM to optimise their spare parts supply, and overall to strengthen Singapore’s value proposition as a one-stop shop with port services supporting a diverse ecosystem of shipping lines and maritime companies.

To date, the challenges of marine parts inventory include not only inventory costs, low utilisation rates and parts obsolescence, but also complex supply chains and accompanying logistics costs. According to DNV GL, AM technology has the potential to revolutionise the way marine spare parts are designed, manufactured, and distributed to end users. In addition, on-site manufacturing for maintenance becomes an important application of AM.

“Additive manufacturing holds great opportunities for the maritime industry,” said Cristina Saenz de Santa Maria, regional manager South East Asia, Pacific & India, DNV GL – Maritime. “As the world’s leading classification society our aim is to explore this technology in a way that customers can have the same confidence in AM products as they have in any other approved by class.”

The Singapore Shipping Association (SSA) underlined the disruptive potential of AM, which so far has seen only a moderate uptake in the industry. “This technology can help not only to reduce costs of producing spare parts for vessels, but also to radically reinvent the production and logistics including using completely new and more suitable materials,” said Steen Brodsgaard Lund, chairman of the SSA Technical Committee. Elements potentially replaced by modern materials include brass components, he explained.

“We believe that the best way forward in the development of AM is collaboration across the ecosystem,” stated Kenneth Lim, director, Research & Technology and Industry Development Transformation at MPA. “As Singapore seeks to be the global maritime hub for connectivity, innovation and talent, we are excited to see that multiple stakeholders are together exploring the potential of how additive manufacturing can be applied in the maritime industry to create greater value.”

AM as an enabling technology for innovation and productivity improvements in the maritime sector is one part of Singapore’s Sea Transport Industry Transformation Map, to grow the maritime sector’s value-add by $4.5 billion and create more than 5,000 highly qualified jobs by 2025. In 2015, Singapore also saw the start-up of a National Additive Manufacturing Innovation Cluster (NAMIC) to speed up industrial adoption of AM.

“We are very proud to have been selected by MPA and SSA to spearhead this important work in collaboration with major stakeholders and contribute to helping Singapore develop a vibrant AM ecosystem,” said Brice Le Gallo, regional manager DNV GL - Off & Gas and Director of the Global Additive Manufacturing Centre of Excellence in Singapore which was opened by DNV GL last year. The incubator’s main aim is to push forward AM development in the offshore, marine and oil & gas sectors.

**V.Group urges proactive approach to 2020 compliance**

V.Group has urged shipowners and operators to take a proactive approach to 2020 compliance to avoid fines, penalties, detention, delays, and further consequences of operating an ‘unseaworthy’ vessel.

The IMO’s global sulphur cap will enter into force in less than seven months’ time. “While there remain many questions around policing and enforcement, the IMO has made it very clear that any vessel that does not meet these requirements risks being declared unseaworthy. This could result in heavy fines, penalties, detention, delays, and in the event of an insurance claim, even affect charter party and or indemnity cover,” explained John Kerr, global head of technical for ship management, V.Group.

It is predicted that most ships will burn ultra-low sulphur fuel oils (ULSFOs) to comply with the sulphur cap legislation, switching from high sulphur fuel oil (HFO) to ULSFOs with a sulphur content at, or below, 0.5 per cent, unless equipped with scrubbers. New on the market, it is essential to understand how these fuels will impact vessel systems and engines, with common concerns centring around stability, compatibility, and cat fires.

Ship Implementation Plans (SIPs) have been recommended by the IMO to help manage each vessel, understand exactly what needs to be done, empower the crew, start purchasing and loading compliant fuels, and ensure that the vessel is prepared and ready to operate on these new fuels. According to V.Group, there has been a growing number of shipowners and operators developing SIPs to mitigate risks and minimise disruption.

The IMO has made it very clear that a PONAR does not represent a ‘get out of jail free’ card to use or carry non-compliant fuel, however, a SIP can be taken into consideration by the Administration and Port State Control when verifying compliance with the 0.5 per cent sulphur limit, which could be particularly important if safe compliant fuels are unexpectedly unavailable during the initial weeks of implementation.

“As the 0.5 per cent global sulphur cap looms large, knowledge is power, and preparation key to a smooth transition into 2020 and beyond. Compliance is achievable, but the right measures need to be put in place in a timely fashion. Ship Implementation Plans provide an effective means to achieve this, as well as providing evidence of environmentally compliant operations. We’re seeing increasing numbers of shipowners and operators adopting this approach and a significant proportion of our fleet is now 2020-ready,” said Kerr.
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The vision we set out at Michael Kyprianou & Co, LLC, is for our shipping department to understand the industry’s needs, embrace it’s pulse, appreciate it’s importance. Dominating 90% of world trade, shipping is so much more than ships; it’s about people, the environment, the sea.

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When seafarers were being lost as sea because of leaking wooden hatch covers, MacGregor solved the problem by inventing and manufacturing the industry’s first watertight steel hatch covers; lives were saved and cargo protected. Almost a hundred years on, and whilst the hatch cover issue is essentially remedied, many more challenges remain. Currently none more so than the protracted depressed market conditions which are affecting shipowners’ commercial activities and very survival in economic terms.

These issues require practical solutions, much like the ‘see-it and solve-it’ approach to replacing unsafe wooden hatches that were a clear choice for operators a century ago. In the age of digital advances, are there equally obvious solutions for shipowners and operators to turn to now? MacGregor believes there is, and that similar significant advantages are available today through the value that digitally-enabled capabilities can offer. Their use is standard practice in other industries on mission-critical equipment, so why not in the maritime sector?

If there was a generation of operators that could really benefit from the commercial advantage of digitally-enabled equipment maintenance and the optimising of cargo space, it is this one. So one might consider why uptake is slow? Often when we talk about digitalisation, accelerated learning and intelligent solutions, it is part of a wider discussion dominated by theoretical-level or longer-term concepts, such as fully autonomous vessels, so realisable near-term advances sometimes become lost in the dialogue.

At MacGregor we are involved in visionary discussions, which are important and relevant. However, focusing on blue-sky thinking and talking about what digitalisation can do in the broadest terms only serves to drive a wedge between shipowners and operators and access to these near-term benefits, particularly in current market conditions.

Creating solutions customers need and understand

MacGregor is offering a pragmatic approach. We are ‘doers’ and well known for our engineering capabilities. We listen to customers, design equipment and whole solutions that meet the requirements of a specific ship and its operations. We can also do this in the digital arena, creating a solution that the customer needs, understands and will gain benefit from.

MacGregor has chosen to focus on a select few, commercially impactful digital solutions to bring to the market. Drifting a little away from visionary stories about where the market could go and moving towards the provision of real services that have a tangible operational impact. This gains credibility as our intelligent cargo handling applications translate into valuable, commercially viable solutions.

A population of experts

In line with an accelerated development approach, we completed our first ‘Google design sprint’ during March. These have a sophisticated methodology, where a maximum of seven people gather in one room to consider a specific problem, in our case a challenge that a customer is facing. The group comprises different MacGregor engineering and software specialists and customers, all working together, so a population of experts. They participate in a disciplined, time-based process over a week from Monday morning until Friday afternoon. The objective is to experiment at speed and with a very high focus on taking the initial idea to a customer valuable concept and digital mock-up.

We have simulation software that our engineers use to pre-design and analyse how, for example, an offshore crane works in reality. A Google design sprint consists thinking about how such a digital simulation platform can help to prepare for and advise real-time operations, with higher efficiency and increased operational windows within its safety margins. We are asking customers to join us because we believe that with more enriched information, especially weather data, currents and wave heights, the simulation platform will be able to deliver much greater prediction and safeguarding accuracy.

Our objective is to reach a point where we can confidently advise a customer that a crane could operate for half an hour longer than would have been previously possible, because more relevant data will help to mitigate against taking a more conservative approach.

So, in this sense, we have the underly- ing technology, but you might call it a rough diamond. Polishing it with enriched data delivers a solution that helps customers earn more money from their ships.

Moving from a conceptual remit

Our approach is breaking down traditional barriers, and our experience is that customers are willing to share information that has previously been considered as commercially sensitive. We are demonstrating our intention to be practical and share our knowledge, moving our digital advances out of a conceptual remit. The idea that companies must disrupt or be disrupted to survive has relevance for us all. If we are not thinking along the lines of a tangible digital agenda, you can be sure that others will be. These companies are smart and agile and we are alert to their capabilities, but what they do not have is our extensive operational knowledge. Our cargo and load handling experience is second to none. A newcomer cannot easily or automatically create something in this area that it fully understands the market and operating environment. MacGregor has a very strong position and we are able to translate our operational and technical knowledge into valuable, new solutions.

Having said this, we are also open across all of our digital developments to collaborating with start-up companies, particularly in the area of profitable weather analytics, the use of on-board devices to support capacity optimisation and the ability to analyse offshore crane data. These capabilities can provide actionable insights and help accelerate the development of new services for our customers.

We are not promising the world because we know how difficult it is to deliver that, but we are ambitious for our customers and ourselves. We are taking encouraging cases, working closely with customers and learning from each other to deliver commercial value.

MacGregor also benefits from being part of the Cargotec family, a company committed to being the leader in intelligent cargo and load handling, which provides the financial capability to invest in new technologies and take full advantage of the Group’s capabilities.

Four focus areas

When it comes to digitalisation, MacGregor is focused on helping customers to enhance their operations either through earning more money on the ship, or to build and operate more efficiently and with lower costs.

Our digital agenda is concentrated in four specific areas, predict, safeguard, optimise and automate. These are ‘category’ words referring to the potential value we can create by applying or deploying digital technologies.

To explain this further, our ‘predict’ category includes elements such as enhanced maintenance capabilities. Here, for example, we can use our knowledge to develop algorithms that can predict when certain equipment requires maintenance, based on use and condition rather than conventional ‘time based’ service schedules.

The offshore crane and associated Google design sprint work referred to earlier is a relevant example within the ‘safeguard’ and ‘optimise’ categories. MacGregor’s proven Cargo Boost service is included within the ‘optimise’ category. Over the past three years, more than 100 containeroptimisation upgrades have been completed for highly reputable owners and the benefits demonstrated in service.

Applying this knowledge, we have started a development programme to tailor our optimisation algorithms for breakbulk ships focused on increasing capacity utilisation and accelerating the stowage process. The next application will be to help RoRo customers remove discharging process flaws onshore and optimise offloading operations.

The fourth category is ‘automate’. Good examples of activities in this area are our autonomous offloading crane technology and automated mooring systems, the latter currently under development, which apply technological advances from a robotics domain.

Scalable solutions, available to many

The MacGregor digital agenda is valid for one vessel or an entire fleet. The kernel of a solution must be as widely applicable as we can make it so that it is scalable and of benefit to the many, not the few. There will always be a degree of customisation required but, by minimising this, we are able to offer cost-efficient solutions to shipowners, operators and shipbuilders today.

Author: Dennis Mol, vice president, Digital and New Business Transformation, MacGregor

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Author: Dennis Mol, vice president, Digital and New Business Transformation, MacGregor
Why data is key to a clearer view of vessel safety performance

Port State Control inspection records suggest safety standards are improving, but a closer examination reveals areas for improvement, says Paul Stanley, CEO, Global Navigation Solutions.

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ransparency of data is key to improving safety in shipping and at first sight, the statistics suggest that the industry is on the right course in terms of compliance. In 2018, Port State Control inspectors in the USCG, Paris and Japan MOUs made more vessel inspections and found fewer deficiencies.

In fact, the number of annual inspections has risen by 4 per cent over the last four years while the number of deficiencies has fallen by 8 per cent over the same period.

It’s evidence that the effectiveness of Port State Control has improved since authorities started sharing data and making it publicly available, because deficient owners have fewer places to hide from inspectors, enforcement bodies - or ship-pers and charterers.

This data, which GNS collects and analyses for use with our clients also demonstrates that while the headline figure is encouraging, there are issues that lie behind the results that need continued vigilance. It also demonstrates the continued importance of data to the safety management process for shipowners and operators.

As the shipping industry becomes more digitized and expected, lifelong use of data sharing in order to achieve a "digital business mindset", so the need for accurate data and actionable information grows too.

Last year’s Global Maritime Forum meeting in Hong Kong identified data sharing as having the potential to overcome the fragmentation in maritime safety and how shipping could establish a platform that enables international bodies to collect, analyse and publish safety-related information.

From the PSC data GNS has analysed, sourced from the combined MoU organisations, there is a clear need for this global data stream - and to make it as widely available as possible if we are to achieve further improvements in safety performance.

As might be expected, life-saving appliances and fire safety measures were the biggest causes of deficiencies in 2018. Some 39 per cent fewer navigation related deficiencies were recorded last year compared to 2014, suggesting that the move to digital navigation has made it easier for vessels to comply.

Issues with Nautical Publications were the third most likely cause of a deficiency in 2018, accounting for 39 per cent of navigations-related deficiencies, perhaps because they are easiest to identify. However, whereas paper chart-related deficiencies fell by 66 per cent over that period, issues related to ECDIS and Electronic Navigation Charts (ENCs) increased by a factor of nearly four as more of the fleet transitioned to digital navigation.

Managing ENC data should be relatively straightforward – though our research has shown that many operators tend to buy too many ENCs and not always the data they actually need.

However, it is clear from digging a little deeper that the industry still has an issue with navigational safety. If we combine all the defects reported in the Safety of Navigation categories, they dwarf the top two categories, despite being much easier to rectify.

It seems obvious that ships will benefit from a single view of their environment in terms of availability of critical voyage and safety data. But according to our research the missed opportunity goes beyond failure to capitalise on just-in-time delivery of navigation data for operational reasons.

Vessel inventories are often not being regularly reviewed against routes, Flag, Port State or technical library requirements and the software installed onboard to help navigate safely isn’t being fully exploited.

The core of what we do is about safety and compliance; enabling our customers to benchmark their performance and providing tools that make it easier to identify and rectify problems. Instead of having to sift vast tracts of data, we provide information as a management tool that can be acted on, for every vessel worldwide, whether or not they are a GNS customer.

Using this data even enables GNS to provide clients with information on which vessel types - and which flags - are most likely to have deficiencies recorded. We can also demonstrate the ports at which inspection activity is strongest. Between 2016 and 2018, vessels sailing into Singapore, New Orleans Louisiana and Novorossiysk were most likely to receive the attention of the inspectors.

The first quarter of 2019 has tragically demonstrated how much work is still needed to improve shipping safety. Our belief is that the digital trend is so well established that more owners are recognising the advantage that data gives them, not just in operational efficiency, but in safety too.

For that, shipowners need the full picture on inspection data and the ability to establish connectivity between reported issues. By creating a detailed picture, vessel by vessel across a fleet, it is possible to identify defects and spot trends - and put resources in place to address issues before they become deficiencies.

Author: Paul Stanley, CEO, Global Navigation Solutions

Eckerö Line opts for ABB situational awareness solution

Eckerö Line has chosen ABB’s situational awareness solution, ABB Ability Marine Pilot Vision for installation onboard its cruise ferry MS Finlandia.

ABB’s technology will enable the Finlandia to move and dock safely by providing multiple real-time visualisations of the vessel’s surroundings, generating images of the ship’s operational environment in ways beyond the capabilities of the human eye.

A virtual model of the ship is superimposed on real surroundings measured using various sensor technologies. This allows for monitoring the vessel and its surroundings from a birds-eye view and switching to other views instantaneously.

The solution makes it easier to predict vessel motions with respect to the actual surroundings and gives the user visibility of previously hidden obstacles.

ABB’s Marine & Ports Digital Service teams will also support the crew to maximise the value from the system and integrate the additional tool with their current bridge team operations.

“Our goal is to improve environmental performance and safety, and we worked with ABB to achieve greater efficiency in docking and high traffic situations. Our customers demand high levels of safety in all conditions and this solution enables our crew to provide a reliable service that doesn’t compromise their expectations,” said Daniel Olen, technical manager, Eckerö Group.

“Digitalisation provides solutions for existing and newbuild ships alike,” said Jyri Jussilin, head of global service, ABB Marine & Ports. “This retrofit does exactly that. Enhancing docking safety and efficiency will also allow Finlandia’s crew to support their schedule, in conditions that can vary from bright sunlight to dark icy conditions throughout the year.”

The cruise ferry is operated by the Finnish shipping company Eckerö Line and makes return voyages three times daily between Helsinki in Finland and Tallinn in Estonia.
The three P’s of vessel performance optimisation

Columbia Shipmanagement has a vision for fully connected vessels with near real-time information exchange, strengthened processes, decision-making and value creation for customers through end-to-end voyage optimisation. Pankaj Sharma, Columbia Control Room manager believes that there are three important things to consider for achieving this vision. They include implementing a scalable platform, ensuring the right people are working for you, and facilitating robust processes of business.

High-speed data at competitive prices is facilitating the rapid digitalisation of the shipping industry. The quantity and quality of data available today has dramatically changed the ability for ship and shore to communicate, but the most critical change it has brought, according to Sharma, is the way vessels are operated. In-depth insight into ship performance is possible thanks to advanced digital technologies that measure, report, and analyse a vessel’s operation at any given time. While this kind of feedback is critical to improve the safe and efficient operation of a vessel, Sharma says that having the correct platform, the right people, and the necessary processes are the determining factors when it comes to maximising vessel performance.

The Platform

The first component to improving vessel performance is to ensure a scalable, integrable, and smart platform is in place. Data are being generated far more quickly than previously and this requires a constant reassessment of the operational situation. "You have to go through a test of value to know what you’re doing, why, and how you’re doing it to really understand where gains can be made,” Sharma explains. A digital platform that aims to help with decision-making needs to be able to adapt to whatever environment is being operated in and continuously improve many processes of a job.

The platform also has to be smart and drive a proactive nature among workers. “Whatever we are shown, whatever we visualise, it has to make us proactive. It has to create leading indicators, such as alerts, that show us there has been a change. We need to be given information in real-time. Information that helps us know when, where, and how to intervene,” says Sharma.

A platform also requires smart techniques to manage the increasing amounts of data generated. "While you can generate a lot of data today, you need smart techniques and machine learning to predict trends almost instantly, that would have taken a long time to predict years ago. In Columbia’s new performance control room, which opened in Cyprus in December 2018, self-correcting models and machine learning enable comparison of years of historical data with real-time data to predict vessel performance trends in a matter of minutes, compared with the decades it would have taken to provide several years ago.

The People

In addition to having the right platform in place, ensuring that the right people are doing the right thing is essential. The right people will be the ones that are skilled, but also that have a positive attitude and motivation towards the task at hand and have a desire to contribute to the current mission, whether that be fuel performance, safety, or any other aspect of a vessel’s operation. Sharma strongly believes that people that understand why an improvement needs to be made are more likely to be motivated to implement the changes.

However, this understanding and motivation often stems from having the right support. “Support is essential,” Sharma confirms. At Columbia’s control room, which is open 24/7, experts are constantly giving advice to the captain and his team. Sharma refers to this as ‘A proper support system’. "Say there is one captain onboard and he is trying to make a decision that he is not fully sure about. What does he do?" Via Columbia’s control room, a captain in such a situation can get access to the opinions of other captains to help with his or her decision making. According to Sharma, this kind of approach and shared knowledge provides support for onboard crew responsible for the vessel’s operation, but it also encourages a culture of ‘why’ and ‘how’ thinking.

Sharma also believes it is important for people to constantly assess whether they are moving in the direction they want to be. They must ask themselves, "are we moving in vain? Are we making anyone’s life easier? Are we helping our technical department get more information more quickly? And are we helping our marine department do a quick analysis of what just happened onboard? You have to assess the value of what you are doing and why you are doing it and the need for doing it.”

The Processes

Optimising your processes is “very important but easily to forget about once you have the system and the people in place.” Robust processes are key for end-to-end optimisation and an understanding around why a platform is being developed and how it is going to deliver value is essential.

Often there is this idea that once you have the information in place, you can figure out where to go from there. You can work out what you will do with the data and how you will use it to improve vessel performance. But this isn’t the right way to work in Sharma’s eyes. All of this should be figured out beforehand and factored into the budget.

Sharma believes that capturing data to obtain insight into engine performance and fuel consumption is only useful if you analyse the data smartly. And simplify it. He says that often there is too much data and it is too complicated. "Simplifying data means to understand what is going right and what is going wrong. You need a traffic light system where you begin by focussing on the things you want to see, largely related to compliance, and then you look in detail at full performance, propeller performance, etc. Compliance is a huge cost, so you need to simplify the data and see simply what it means for compliance.”

Once the data is simplified, there is the advantage of actually being able to understand it and then use it to optimise performance. This is the first stepping stone in developing a platform that will aid in performance optimisation. “We need to know the reason why we are developing a platform and how it is going to deliver value.”

Columbia Shipmanagement’s Performance Optimisation Control Room was officially opened in December 2018. Image courtesy of Columbia Shipmanagement
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Performance optimisation limited by data misinterpretation

Digital technology in the shipping industry is granting owners and operators access to more and more data, but according to Mr Rajat Saxena of Epic Gas, the data is not always accurate and reliable.

Data that are misreported and misinterpreted are leading to under-performing ships and inefficient fleets, says Rajat Saxena, manager, performance & efficiency, Epic Gas.

When it comes to using data to improve fleet performance, garbage in = garbage out. During Saxena’s time managing the efficiency of fleets at Maersk Tankers and Epic Gas, he too often saw incorrect conclusions drawn from poor-quality data, leading to losses rather than gains in fleet performance. Much of the time, vessels report data without a true understanding of what the data is useful for or how it will be applied to improve vessel efficiency.

Referring to one example, Saxena highlights the importance of a good speed vs fuel consumption curve. Not only does it show how much fuel the vessel is consuming at a certain speed, it also “lets me know how honest my crew are in reporting fuel consumption and speed,” he confirms.

In figure 1, fuel consumption has been reported within a certain band (10-14 MT/day) at different log speeds at a certain draft, indicating that there has been inconsistency in crew reporting. Saxena says this kind of feedback also shows a crew training issue. “Your crew needs to understand the importance of the data that they are reporting and how will that data be used. When they have this understanding, hopefully they will be more careful while reporting data,” Saxena tells VPO Global.

The performance and efficiency manager urges shipping companies to look at the quality of data that they are using to make decisions. If the data is unreliable the possibility of the decisions made on that data being correct is also low. Data needs to be validated first at the source of entry before being sent ashore and then re-checked ashore with higher precision to ensure that it is usable. Sometimes the volume of data is good enough to reject bad data, but in some cases when the volume is low, one must be extremely careful while using such data. A possible alternative is to use auto-logging but if the crew understands the importance of what is being reported then this cost can be avoided. The idea behind using manually reported data is that the person who checks this data onboard before transmitting it, must realise that something is in-correct or not working correctly and take action accordingly. This inculcates a mindset of continuous monitoring and improvement.

With respect to visualisation of data, to ensure that right decisions are made on the performance of a vessel, you must present the right data to the right people in the right format. Saxena says that staff in management will not be interested in looking at individual graphs on engine speed, log speed, and observed speed. They will be more interested in the monthly averages across a whole fleet. His advice on data representation is to categorise based on end users. For instance, showing senior management overall trends of improvement and areas of no improvement. While collection of high-quality data is important, Saxena verifies that what most people fail to realise is that one of the most critical parts of gaining high-quality data is thorough training of the crew. The people who are actually handling the fuel and reporting the data - these people require the right training and understanding of what they are doing in order to be motivated to save fuel. "If that is not done correctly then no matter which technology you have, it is going to fail. You need to start by making sure the crew understand why you are doing what you are doing, how it is going to work, how will it impact them and what is in it for them.”

He explains further, “At the end, if you are improving your performance, you need to quantify it to show the result to people who have actually worked for it, because when you let a vessel’s crew know that the company or vessel has saved a certain amount of fuel due to their efforts, it could possibly give them a sense of happiness and achievement and probably also motivate the workers.”

Simultaneously, baselines of current performance need to be created and targets set for the future. A plan of how to get there and how to improve then needs to be implemented. “This is where companies miss out. Once they have outsourced their performance management to a third company they believe their job is done.” However, companies are far from done at this point. A third-party company will only collect the data, analyse it, and give it back to the company. “This is where the area of opportunity lies. It is you and your company that has to work on it and move it further.” Saxena believes that unless dedicated teams are in place to do so, to take control of the performance improvement once they have the data and data analysis, vessel and fleet efficiency improvements will not be made.

Wallem opts for BASSnet fleet management suite

Wallem Group has selected a complete suite of integrated software from BASSnet Fleet Management Systems to manage its entire fleet of more than 180 ships.

Wallem will use the BASSnet suite of products as a total solution for maintenance, safety, operational and financial management and more on a fleet-wide basis. BASSnet products incorporate modular features with progressive and responsive web applications and mobile apps. The fleet management systems provide an overall bird’s eye view of fleet performance and highlight areas for improvement. “This makes BASSnet the ideal one-stop solution to streamline and increase fleet efficiency, asset management, and safety,” said Per Steinar Upsaker, CEO and managing director of BASSnet.

The integrated nature, functionality and technological strategy of BASSnet are reported as key elements in Wallem’s decision to sign with BASS. For BASS, this partnership marks a key milestone and signals a wider move to complete enterprise solutions in the maritime industry as a means to effectively standardise ship processes.

“Having run several maritime software companies and considering the complexities of operations, compliance and the regulatory environment, I was keen to not reinvent the wheel,” said Frank Coles, CEO of Wallem Group. “We have chosen to install a cloud-based COIS solution, without customisation. Exactly how digitalisation is supposed to be done. We are going to defy the myth that ship operations and management needs to be different, or somehow special. It does not need all the disparate or heavily customised homegrown systems. This is the stuff of myths created by a lack of understanding or appreciation and old-fashioned operational techniques.”

In my view, offering transparency, analytics and business intelligence is the way forward for high-performance fleet management, and implementing a complete enterprise solution from BASSnet will allow us to integrate the power of big data with our business processes,” added Coles.

“BASSnet Fleet Management Systems is a complete solution that removes the reliance on multiple vendors for piecemeal software,” noted Per Steinar Upsaker. “We have prioritised a well-thought-out strategy that is forward-looking, comprehensive and puts BASSnet in a unique position. This includes the incredible convenience and security of managing an entire fleet using a single database on a state of the art platform.”
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Technology of the Month – Blueflow Energy Management

Each month, VPO Global selects a technology that is accelerating energy efficient shipping. For May’s Tech of the Month, we spoke with Peter Knudsen, managing director of Blueflow Energy Management to find out how the Swedish company is giving crew the power to improve vessel performance.

Stockholm based Blueflow Energy Management has developed a tool to manage and optimise fuel consumption of marine vessels by enabling the crew to access and understand data, giving them the power to improve vessel performance. Up to 30 per cent fuel savings may be achieved.

The system comprises Blueflow Onboard, which provides real-time information like fuel economy, load, trim, relative wind and other important parameters for efficient propulsion. It can be integrated with other systems and sensors onboard a vessel to give a complete view of fuel and energy consumption.

Data collected by Blueflow Onboard are sent to Blueflow Online for reporting, analysis and verification. Reports on ship performance are generated and sent to the user, giving them full control over performance optimisation. Various displays can be installed for eco-driving and monitoring of energy consumers.

Strong Nordic partnership
The Danish company DEIF A/S also believes in Blueflow, and the two companies partnered up in 2018. Being one of the world’s leading suppliers of power management solutions, bridge and switchboard instrumentation, DEIF A/S is confident that Blueflow will save their customers a lot of money on fuel consumption both on newbuilds and retrofit projects and regardless of vessel types.

“We believe that Blueflow has great potential, and it fits perfectly with our overall energy management concept. Partnering up with Blueflow Energy Management was the right decision, and we experience massive interest in the system”, explained Edzard Janssen, DEIF Marine & Offshore manager.

Blueflow Energy Management is responsible for maintaining and developing new system features, and DEIF A/S manages sales, installation, and integration of the Blueflow Onboard system to both power management systems and consumer load management systems.

Standout features
Speed optimisation - Blueflow automatically builds a profile of a vessel’s fuel consumption over different speeds.

Engine consumption monitoring – Each engine’s fuel consumption is displayed on the dashboard to provide detailed insight into where the most and least fuel is being used.

ECO-trip – this new function enables the driver of the ship to get instant feedback of the vessel’s fuel and energy consumption. The graphical interface compares the current trip with the last trip on the same route, and different driving techniques are directly comparable. All historical routes are compared in a list, and average values are calculated and presented.

History graph – This newly launched function calculates and presents real-time costs for operating the ship. Actual fuel prices and maintenance costs for each consumer are taken into account, and a total vessel operating cost is presented to the crew. This allows for changes in running configuration with instant feedback of improvements.

A tool designed for the crew
Blueflow Onboard is explicitly designed with the crew in mind. It provides data and analysis that learn the crew how to optimise the ship’s fuel economy by providing a breakdown of the fuel consumption per distance, the impact of various generator loads and number of generators started, and more customised views depending on what the crew is interested in looking at.

Blueflow specifically allows crews to evaluate their driving behaviour and see how different ways of operating a vessel affect its fuel consumption. “If they (the crew) see what they can do, they will be affected, and they will start to compete with themselves,” Peter Knudsen, managing director, Blueflow Energy Management tells VPO Global. If technical solutions save 1-5 per cent, mental awareness will save 10-20 per cent.

Case studies
Bildouslandsbolaget’s Sjöbris and Sjögull, two archipelago ships in Stockholm, have been fitted with Blueflow, which is now monitoring the ship’s three Scania engines. This type of ships will typically save between 10-20 per cent of fuel, simply by giving the crew awareness and possibility to follow up different driving techniques. Bildouslandsbolaget’s Östan has also been fitted with Blueflow Online.

Destination Gotland’s Visborg is number three in the fleet of Blueflow vessels. All parameters are collected from the automation system, and relevant information is presented on the bridge and in the machine room for energy situation awareness. The ship is also fully equipped for automatic MRV and IMO DCS reporting.

Waxholmsbolaget has newbuild hybrid electric propulsion vessel, the Yxlan, was integrated with Blueflow from the start. All in total, Waxholmsbolaget is now running Blueflow on twenty of its vessels.

Vessel Performance Optimisation June 2019 page 35
How much is accurate speed through water data worth?

Introducing Miros Speed Through Water, cutting-edge technology from Miros delivering accurate speed through water measurements, available in real-time, to any device, both onboard and onshore.

To find out more, attend the Miros technology showcase with CTO Gunnar Prytz at the VPO Forum Oslo, 14:30, Thursday June 6th.

“Miros Speed Through Water can decrease daily fuel consumption by tons of fuel for a single ship.”
Four maritime start-ups to watch out for in 2019

The 2020 global sulphur cap is only 6 months away from entering into force and fuel efficiency is high on the shipping industry’s agenda. Here are four start-ups that have developed innovative technologies to improve fuel efficiency and reduce emissions.

**i-Tech**

I-Tech is a Swedish company responsible for introducing a unique biotechnology to the maritime sector. The organic, non-metal molecule known as Selektope has previously been used as a sedative in drugs for humans and animals but is now an ingredient used in marine paints and coatings that eliminates antifouling by stimulating the receptors of any barnacle larva as they come in to contact with it on the surface of a ship. The result of Selektope is resistance-free ship surfaces, more efficient vessels, driven by a non-harmful and non-toxic ingredient.

One example of improved efficiency in a vessel using Selektope containing antimicrobial paints was a cruise liner called M/S Lurin Maritime’s chemical and product tanker, Calypso. The vessel operated in biofuels hotspots for twenty-four months. Calypso’s increased total resistance was calculated at 7 per cent, compared with a benchmark new vessel that would typically see an increase in resistance of 10-20 per cent. Speed losses were found to be only 2 per cent when compared with sea trial performance.

The introduction of Selektope into the maritime sector has been the culmination of a fifteen-year process for the company but hasn’t been without its challenges. Philip Chaabane, CEO, I-Tech previously told VPO Global in an interview that they faced many issues getting through the regulatory scheme. "It really was difficult to manage the regulatory environment in a system that is adapted for something completely different. This was a true challenge and we are really proud we made it, but it’s been more complicated than we ever could have envisioned.”

The Swedish company is continuously working with paint manufacturers to develop Selektope further. “As a company we continue to push the boundaries of antifouling innovation and are not afraid to challenge the status quo. In 2019, we will reap the benefits from strategic acquisitions made in 2018 to strengthen our supply chain that allow us to meet rising demand for our antifouling technology Selektope. We will also welcome the launch of brand new antifouling coatings containing Selektope and the growing sales of products already on the market. Over 300 ships are currently sailing with Selektope-pow- ered antifouling coatings and according to volumes of Selektope on order from global paint manufacturers for delivery in 2019 thus far, the number of ships protected against hard fouling thanks to Selektope is set to significantly increase next year,” Chaabane explained to us.

Since listing on the Nasdaq First North stock exchange in May 2018, I-Tech has become the 2nd best performing company in Sweden in 2018 with an outstanding share price increase of 232 per cent. Many ships rely on noon reports for monitoring, which does not give a full analysis of ship efficiency. WeSea’s founder Dan Veen believes that his company’s solution fills the gaps left by noon reports and improves accuracy to a minimum of 95 per cent compared with noon reports. In one sea study, a company made fuel savings of 13 per cent following 6 months of sea voyage analysis by WeSea. In other pilot projects, WeSea has proven that using data analysis can cut fuel costs up to 20 per cent.

**Bound4Blue**

Spanish start-up Bound4blue has developed an innovative wingsail system with the aim of integrating onto a wide range of vessels. The system is a complementary propulsion system, which produces effective thrust from existing winds, reducing the main engine power required and delivering fuel savings of between 5 and 40 per cent. Bound4Blue’s case studies prove fuel savings capabilities. David Ferrer, co-founder and project manager, Bound4Blue explained to us that fuel savings are calculated on each specific case as the actual savings will depend on several variables such as the vessel, its engine, route, wind, number and size of wingsails, sailing speed, days at sea and other factors. One specific case study involving a 19,350 DWT chemical tanker, 20.69 per cent fuel savings were found to be achievable by installing 3x600m wingsails operating in the Seattle-Yokohama route, at 13knot, 208 days/year. Due to achievable fuel savings being highly dependent on existing winds along the route, Bound4blue calculates the expected average savings, accounting on all wind conditions along the year. In order to do this, the savings calculated take into account the last 10-year wind historical data along the route. Ferrer said the figures obtained represent the average savings that the vessel would have obtained those past 10 years if the wingsail system were installed.

The integration of the foldable system ensures a payback period under 5 years, it does not reduce the available cargo volume and does not require an additional crew to operate.

The system protected by 4 patents (Europe, USA, China & Japan) and 3 patents pending.

**Lean Marine**

Another Swedish company, Lean Marine, has developed several fuel optimisation software and hardware products. Of note is FuelOpt, a solution that reacts directly to data from sensors already installed onboard a vessel, automatically adjusting a vessel’s running parameters to optimise fuel consumption. Fuel savings of between four and 20 per cent have been proven.

Linus Iedegård, director of development and product management, Lean Marine, explained to VPO Global that FuelOpt helps optimise vessel performance, regardless of crew experience. Those with less experience can simply give the command for the system to kick into action, analysing vessel performance parameters and adjusting them where necessary to optimise fuel use. They can do this without having to wade through various feedback reports or charts. Those with more experience and understanding of the situation can also use FuelOpt to see where the inefficiencies lie and what can be improved in real-time. This allows them to make manual changes if they prefer to do so.

Lean Marine believes that by hiding the science, engineering, technology one layer away from the user it simplifies fuel optimisation for maximum gains in efficiency.

**We4Sea**

We4Sea is a Dutch company that has developed a fuel monitoring solution to measure ship performance by collecting operational data from the ship such as position, draft, speed, and heading. According to the company, fuel savings of up to 20 per cent have been proven.

The solution requires no new software as it takes data from already installed sensors, meaning that implementing the solution is quick and straightforward. Monitoring can be up and running within 24 hours of selecting the solution. Data is sent to shore and combined with other data sources, such as weather conditions, wave heights, currents, and wind. We4Sea then uses Digital Twin technology to turn the data into information that can be used to optimise the actual operation and configuration of a ship.

The system extends to the use of digital technology to simplify transactions and increase operational efficiency and the certification, verification and validation of new technologies. “Today’s world is quickly changing, and the shipping industry is navigating a complex regulatory landscape and rapid technology changes. The IMO’s greenhouse gas reduction targets present an unprecedented challenge to the industry, since the targets cannot be achieved with today’s technology,” said director of Global Sustainability Gurinder Singh.

ABS believes class has a vital role to play in safely managing the transition to a low and ultimately zero carbon industry framework. In addition to the specific project focus, ABS plans initiatives including an industry education program, seminars and lectures, designed to raise awareness of maritime sustainability technologies and carbon reduction strategies.

**ABS to focus on 2030 and 2050 challenges at Nor-Shipping 2019**

At Nor-Shipping 2019, classification organisation ABS will focus on its efforts towards meeting the challenges of 2030 and 2050, together with shipping indus- try partners. Earlier this year ABS opened its Global Sustainability Centre in Singapore to bring together multiple projects around the decarbonisation of shipping.

These include studying the viability of alternative fuels and new energy sources, analysing decarbonisation pathways, the impact of seaborne trade growth and IMO targets on new vessel designs. The programme extends to the use of digital technology to simplify transactions and increase operational efficiency and the certification, verification and validation of new technologies.

“Today’s world is quickly changing, and the shipping industry is navigating a complex regulatory landscape and rapid technology changes. The IMO’s greenhouse gas reduction targets present an unprecedented challenge to the industry, since the targets cannot be achieved with today’s technology,” said director of Global Sustainability Gurinder Singh.
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DeepSea Technologies utilises state-of-the-art Artificial Intelligence, to monitor the behavior of your vessel and report the insights directly to you.
As the most universal method of electronic communication yet devised, e-mail is inescapable – even at sea. Yet its ubiquity makes it an attractive target for hackers. Fortunately, GTMaritime has plenty of ways of stopping malicious mails stowing away on vessels.

Dealing with email is an additional cognitive burden on crew who already shoulder responsibility for ensuring the safety of multi-million dollar vessels.

- says Jamie Jones, head of service, GTMaritime
A smart approach to bunker management

When the 2020 global sulphur cap enters into force, owners and operators will be limited to purchasing distillates or specific 0.5 per cent fuel blends, unless using a scrubber onboard. VPO Global spoke with Christian Plum, co-founder of BunkerMetric about the 2020 fuel scenario and how shipowners can save on average three per cent of fuel and related costs by optimising their bunker management strategy.

Sources compatible and cost-efficient bunkers in a timely manner is often a challenge for shipping companies. Operating with specific routes in mind, budgets to stick to, regulations to comply with, and in a time pressured environment, finding suitable and economical fuel is not always an easy task. Access to transparent data on fuel price and availability can help to optimise the bunkering process and mitigate the challenges and rising costs associated with the IMO’s 2020 sulphur cap.

The 2020 fuel challenge

“Many of the rules of thumb that are used for bunker planning today will not be valid in the next 24 months as the entire pricing structure for the bunker market will change,” Plum explains. “Shipowners, operators and fuel payers may be confident today that they can plan their bunkering around well-known ports to obtain good quality and reasonably priced fuel, but in the coming three to 24 months, these typical choices and bunkering plans may not be so good due to the changes in bunkers that are available and the different price structures that are likely to exist.”

Those in charge of bunker purchasing will need to be more analytical and be able to assess where they can buy compatible fuels at a good price.

Plum believes that inefficiencies in bunker purchasing are further exacerbated by the fact that not all shipping companies are aware of how much the bunker procurement process can be optimised. “The problem is that sometimes there is one person owning the ship, one person operating the ship, one person managing the ship, one person buying bunkers, and decisions can fall between the buyer, operators, manager and owner, creating further inefficiencies,” he says.

Purchasing compliant and quality fuel in the right place at the right time is a challenge that is set to test shipowners further as uncertainty around fuel compatibility and availability heightens with IMO 2020 around the corner.

Smart bunker management

One way to adapt to the changing bunker market, remain compliant, and avoid operational troubles is to ensure an optimal bunker management strategy is in place. This includes improving visibility and transparency on fuel prices and availability, providing a clear picture of the market so that vessels can bunker time and cost efficiently.

Several years ago, Plum and his business partner Fernando Alvarez observed a gap in the market for a solution that could do this. They realised that a solution able to analyse current fuel prices and recommend the most cost-efficient way to purchase bunkers based on a vessel’s individual needs, its planned route, and the cost of bunkers at nearby ports, might be a handy tool for shipowners and operators. When they examined the bunker management situation further, Plum realised that many owners were making plans to optimise vessel performance but always pushing bunker management far down the list. “The bunkering process seemed archaic in many ways with a lot of manual processes and a lack of sharing information, even within the same company. There are so many issues that could be addressed with the digital tools available today, but they are not being properly utilised.”

Plum and Alvarez began work on a technology that could optimise the purchasing of bunkers. After two years of developing the initial idea and 6 months of collaboration with the Danish Maritime Fund, Plum and Alvarez launched a tool to help shipping companies gain greater insight into fuel prices and availability in real time. The tool, known as BunkerPlanner, is based on an algorithm developed by Plum and Alvarez themselves, with Plum’s previous experience at Maersk Line where he built similar tools and algorithms helping him to develop a clear focus of what he wanted this new service to achieve.

“The purpose of BunkerPlanner is to look beyond the standard and typical choices a shipping company makes, provide a wider range of options for bunker purchasing, and determine the best choice for purchasing these bunkers,” he said. “The long-term goal of such a tool is to help owners and operators to understand the changing bunker market structure, enable them to adapt over time, and deliver faster decision making and savings on bunker costs.”

Once Plum and Alvarez started trialling their newly formed tool, they found that on average three per cent of fuel could be saved; representing potentially tens of thousands of dollars per vessel, based on varying levels of fuel consumption.

BunkerPlanner works by first collating fuel prices from a bunker pricing structure that the shipowner has chosen themselves. This is typically a structure the owner is confident in, such as Ship & Bunker or BunkerIndex. BunkerPlanner automatically collects this pricing data and combines it with vessel specifications given by the shipowner or operator. These specifications include how much fuel the vessel typically consumes, fuel price forecasts, trade patterns and routes, vessel speed, product specifications, whether it has a scrubber installed, time spent in Emission Control Areas (ECAs), sailing margins, and tank sizes, costs related to deviations, port calls and barges, and whether it is laden or ballast. Based on the current fuel prices and the vessel’s parameters, BunkerPlanner’s algorithm generates a scenario for the vessel that gives the most economical way to buy bunkers. The suggested bunker purchasing scenario considers the actual price of all available bunkers in real time, the time it would take to reach these bunkers, the cost of deviating from a planned route to obtain cheaper bunkers, the cost of bunker barges, port calls and any auxiliary costs related to that particu
lar bunkering strategy. Operators, charter-
ers, and dedicated bunker buyers obtain daily emails and a report directly from BunkerPlanner with the various bunker purchasing scenarios outlined.

“The algorithm can be geared to any number of prices including LNG, MGO, HFO, LSFO, 380, 180, any prices that are available,” says Plum. While most clients stick to HFO or MGO, Plum confirmed to us that new 0.5 per cent blends for compli-
ance with the 2020 sulphur cap will also be added to the tool to give a complete overview of the bunker pricing market in real time. In addition, BunkerPlanner con-
siders the different bunkering needs of vessels fitted with scrubbers.

A new customer can determine poten-
tial fuel savings of using BunkerPlanner by giving BunkerMetric access to 12 months of operational data of their chosen vessel. BunkerPlanner’s algorithm looks at the vessel’s operation and influencing factors on its bunker consumption, including weather and route, and compares it with alternative bunker purchase scenarios. A report is generated showing how fuel con-
sumption may have differed if BunkerPlanner was used. Following this a live trial is carried out. This involves the creation of a scenario where the shipowner purchases bunkers as they normally would, then runs BunkerPlanner to estab-
lish where and how bunker savings could be achieved. “Shipping companies can also carry out any scenarios they like on their own. For instance, taking the last bunker plan and doing a ‘what if’ analysis to deter-
mine the impact on bunker costs.”

**Challenges and preparing for change**

While Plum and Alvarez’s tool is gaining significant interest from the industry, there are many challenges they face as a start-up that Plum believes are common in new projects. “Using big data is definitely an issue, while obtaining the right resources and funding, and scaling up are just some of the challenges we have faced.” Such challenges are ones that Plum is certain they are not facing alone as a maritime start-up. Shipping’s conservative nature has also led to some additional barriers in the adoption of new technologies and strategies, but Plum is confident that the industry is now embracing digital tools and new solutions. “I have been in ship-
ning for ten years, but I think this has real-
ly changed in the last couple of years,” he tells VPO Global.

**LuminUltra launches digital portal to manage fuel test data**

https://www.luminultra.com/

Microbiological testing company LuminUltra Technologies has introduced a cloud-enabled digital platform to manage the microbiological quality of all ship-
board fuel and water systems.

LuminUltra Cloud, available both online and offline, allows end-users to control the data from all sampling, testing and analyses carried out onboard, and to create custom compliance reports that can be shared between ship and shore-based personnel.

Data from LuminUltra’s rapid micro-
biai test kits are inputted on the spot, elim-
inating transfer time from paper to com-
puter. Ship and shore staff can then access the data, in real time, via LuminUltra Cloud which instantly alerts the user to any microbiological problems.

Users can also set custom supplemental data alarms to reflect their own paramete-
s, and the platform automatically gener-
ates analytical reports based on the user’s configurations.

“LuminUltra Cloud is a real game-
changer for assessing and reporting the microbiological content of fuel and water onboard ships. Users can now have the information available on which to base accurate and immediate corrective action where and when necessary. The platform also provides trending analytics across all water and fuel tests,” explained Pat Whalen, LuminUltra Technologies’ president & CEO.

“For operators of shipboard ballast water management systems, the digital platform is particularly useful for ensur-
ing compliance information is immediate-
ly available for port state control authority inspections,” said Carine Magdo, business development manager, Ballast Water Monitoring Solutions, LuminUltra.

One of the benefits of the BunkerPlanner tool is that it is an ‘off-the-shelf’ solution that is tailored to different vessel types. Little training is required and all shipown-
ers and operators looking to make use of the bunker analysis tool are offered a three-
month trial on up to five vessels.

**FUELTRAX confirms compatibility with Opsealog**


Electronic fuel monitoring systems (EFMS) supplier FUELTRAX has announced for-
mal compatibility with data integration service provider, Opsealog.

FUELTRAX is a smart, self-contained, marine fuel management solution, which protects assets and ensures security of fuel, compliance, and optimised vessel performance.

Opsealog works in partnership with customers to integrate with FUEL-
TRAX data and to generate additional analysis and controls for upstream level management.

Opsealog and FUELTRAX currently work together on three vessels, and through formalising this compatibility, both organisations expect this number to expand amongst their mutual client base.

“I am proud to say that we’ve always been compatible with Opsealog, and this new partnership formalises this to the industry. The market is recognising the need for automated digitalisation in fuel management. Partnering with Opsealog helps us provide these benefits to our mutual clients, and assures that precise, real-time fuel data will be available to Opsealog,” said chief executive officer, Anthony George, FUELTRAX.

Managing director, Arnaud Dianoux, Opsealog, said: “As a data integrator, we are currently developing our data supplier network across various IoS sensors onboard, to generate efficiency based on data and analysis. We are proud today to confirm FUELTRAX compatibility with our growing supplier network for the benefit of our mutual clients.”
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Keppel and DNV GL partner to boost uptake of LNG


DNV GL and Keppel Marine and Deepwater Technology (KMDTech), a subsidiary of Keppel Offshore & Marine (Keppel O&M), have signed a framework agreement to boost the uptake of liquefied natural gas (LNG) as marine fuel.

The agreement covers potential new-building projects involving LNG bunker vessels, small-scale LNG carriers and floating storage regasification units (FSRUs), as well as LNG related assets employing battery and hybrid technologies.

The LNG carriers are each designed to carry up to 7,500 cubic meters of LNG in Type C tanks. An optimised deck arrangement for the modular LNG gas supply, filling and safety systems increases the cargo capacity and efficiency of the vessels.

The vessels are equipped with engines that can run on both diesel and LNG and will also have a class notation for bunkering, which enables the provision of LNG bunkering services if required.

DNV GL will issue Approval in Principle (AiP) certificates for two LNG bunker vessel designs from KMDTech as the first delivery in the agreement:

- A 7,500 cbm small-scale LNG carrier with bunkering capabilities.
- A 7,500 cbm small-scale LNG carrier with bunkering capabilities and hybrid battery propulsion.

“The signing of this agreement signifies another milestone in the close partnership between DNV GL, as the leading classification society for LNG ships and offshore assets, and Keppel Offshore & Marine, a world leader in conversion projects for FSRUs and floating liquefied natural gas vessels (FLNGVs) as well as for new-building of small-scale LNG carriers and LNG bunker vessels,” said Cristina Saenz de Santa Maria, DNV GL’s regional manager for South East Asia, Pacific and India.

Ahb Bakar Mohd Nor, managing director of Keppel O&M for Gas and Specialised Vessels, said: “We are pleased to partner with DNV GL in developing a suite of LNG related vessels that are ready to meet the needs of the market as the adoption of LNG as ship fuel increases. Working with DNV GL enables us to demonstrate the strength of our vessel designs and the viability of LNG forshipowners. We have a strong track record in delivering LNG solutions including the first FLNGV conversion as well as LNG fuelled vessels.”

“One of the objectives of our collaboration with Keppel is to facilitate the increased supply of LNG bunkering infrastructure by being future ready through design approvals of different sizes of LNG bunker vessels, and LNG-related assets such as small-scale LNG carriers and FSRUs,” said Johan Peter Tutturen, business director Gas Carriers in DNV GL.

The collaboration is also intended to further advance asset design by optimising machinery and systems configuration to increase fuel efficiency, using advance simulation tools such as DNV GL’s COSMOS.

Additionally, the parties will work together to establish round table discussions involving all stakeholders in the LNG-as-fuel value chain, including gas and LNG bunker suppliers, designers, shipbuilders, shipowners and operators, in an effort to increase the uptake in demand for LNG bunkering in Singapore and beyond.

The design and engineering collaborative office will be located at KMDTech Singapore, with Keppel O&M’s yards to undertake the project execution.

MoU to study feasibility of green hydrogen for BP refinery

https://www.bp.com/

BP, Nouryon (formerly AkzoNobel Specialty Chemicals), and the Port of Rotterdam have signed a Memorandum of Understanding (MoU) to study the feasibility of making green hydrogen via water electrolysis for BP’s refinery in Rotterdam, the Netherlands.

The refinery currently uses hydrogen made from hydrocarbons, to desульphurise products. Replacing this entirely with green hydrogen produced from water using renewable energy could potentially result in a reduction of 350,000 tonnes of CO2 emissions per year based on current circumstances.

The parties will examine the capabilitiess of a 250 megawatt water electrolysis facility to produce up to 45,000 tonnes of green hydrogen yearly using renewable energy. It would be the largest of its kind in Europe.

Nouryon would build and operate the facility based on its leadership position in sustainable electrochemistry. The Port of Rotterdam would facilitate local infrastructure and investment for further development of a green hydrogen hub in the area. The partners intend to take a final investment decision on the project in 2022.

“BP is committed to advance a low carbon future. We have committed to reduce emissions in our operations, improve our products to help customers reduce their emissions and create low carbon businesses.

The use of green hydrogen, made from water with renewable energy, has the potential to deliver significant emissions reductions at Rotterdam. Working with Nouryon and the Port of Rotterdam will allow us to explore and fully understand the technical, operational and financial dimensions of this potential opportunity,” said Ruben Beens, CEO of BP Netherlands.

“This partnership builds on our expertise in electrolysis technology to open up new value chains. With green hydrogen, we can provide sustainable solutions to our customers ranging from low-carbon fuels and industrial processes to new forms of circular chemistry,” added Knut Schwalenberg, managing director, Industrial Chemicals at Nouryon.

“Development of large-scale electrolyser connected to offshore wind farms is vital for making solid progress with the new energy system in order to realise our climate goals. This 250-megawatt electrolyser is a key proof point that Rotterdam has the ability to be a frontrunner in the energy transition, which is an important differentiator for the port industry,” stated Allard Castelein, CEO of the Port of Rotterdam.

20 ports confirm no plan to ban open-loop scrubbers

20 ports confirm no plan to ban open-loop scrubbers

https://www.cleanshippingalliance2020.org

The Clean Shipping Alliance 2020 (CSA 2020) has received written approvals and no objection letters from several Port Authorities around the world indicating they have no intention of banning the use of open-loop scrubbers in their waters.

Following successful meetings between port officials and CSA 2020 Executive Committee members, the ports approached indicated that they do not intend to submit any papers to IMO pertaining to scrubber operation unless new, compelling research comes to light.

Members of the CSA 2020 Executive Committee presented to the ports scientific evidence concluding that the wastewater generated by the exhaust gas cleaning process was environmentally acceptable and well within regulatory limits.

“After research carried out by the Ministry of Land, Infrastructure, Transport and Tourism (MLIT), Japan has now stated it will not ban the use of open-loop scrubbers in its waters and we hope to have more written confirmations in place soon,” said CSA 2020 Executive Committee member Akihiko Nagai, managing director, general manager, environment and sustainability, Oldendorff Carriers.

According to CSA 2020 Executive Committee, no objection letters from more than 20 ports covering Europe, the Americas, Asia and Australasia have been received.

While the number of global ports with declared restrictions remains low, those that have decided to ban scrubbers are beginning to have second thoughts.

“It appears that some ports are revoking their earlier decisions to restrict open-loop scrubber use now that more academic studies have been made publicly available,” said Fee.

CSA 2020 Committee member William Nugent, vice-president and head of ship operations, International Seaways, added: “With a significant number of world ports having now assessed the evidence and decided not to ban the use of open-loop scrubbers, we encourage other Port Authorities to consider the independent research and analyses before making any decisions.”

In February, DNV GL verified a three-year study based on 281 wash water samples from 53 different scrubber-equipped vessels, concluding that the samples were well within the allowable IMO criteria, as well as within the limits of other major water standards.

A study carried out by Japan’s Ministry of Land, Infrastructure, Transport and Tourism (MLIT) has also concluded that no short-term or long-term effects on marine organisms can be caused by the use of the technology.

King’s College London also recently launched a research project that aims to monitor the effect of emissions on 250 school children in the London area. Air pollution has been found to cause low lung function and is often associated with other health problems, including cancer, cardiovascular and dermatological diseases.

“While this study does not relate to ship emissions, in particular, it does help in reminding us all why we need to remove these airborne toxins from ports and harbour communities around the world,” said Alliance executive director Ian Adams.

CSA 2020 chairman, Mike Kaczmarek, vice-president, Carnival Corporation, said: “The industry must not lose sight of the reason behind the introduction of the global sulphur cap and the effect sulphur oxide emissions has on human health. Marine exhaust gas cleaning systems are the best tool for reducing shipping’s environmental impact by preventing air pollution whether a ship is at sea or in port.”

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**FUELS & EMISSIONS**

Hapag-Lloyd sees downward trend in emissions ahead of IMO 2020

https://www.hapag-lloyd.com/

Hapag-Lloyd’s latest sustainability report outlines some of its 2019 achievements and its visions for the future, including reducing its fuel consumption and emissions across its 227 vessels in preparation for the IMO’s 2020 global sulphur cap.

**CO2 emissions:**
The IMO 2020 regulation is a challenge for many shipowners and operators and will entail significant costs, but Hapag-Lloyd believes that the directive is necessary. The company is currently preparing to meet the target by 2020. According Jörg Erdmann, senior director, Sustainability Management, Hapag-Lloyd is also testing other options and will be the first to convert a large container ship to liquefied natural gas (LNG). In 2018, Hapag-Lloyd decreased its fuel consumption and specific emissions using a variety of fuel efficiency measures. “This puts us on track to achieve our target of a 20 percent reduction by 2020,” Jörg Erdmann said.

**Sustainable development:**
Hapag-Lloyd has incorporated the Sustainable Development Goals (SDGs) of the United Nations for the first time. The SDGs consider all three dimensions of sustainability – the economy, the environment and social commitment, and help companies do their business processes to be sustainable over the long term. Hapag-Lloyd’s activities contribute to 6 of the 17 overall goals. For example, measures aimed at optimising the structure of the fleet have contributed to lower fuel consumption and thereby contributed to the goal of climate protection.

**Digitalisation:**
Within Hapag-Lloyd’s Strategy 2023, the company is continuing to use digital solutions to improve efficiency and service quality. The company has initiated a pilot project with customers, aiming to facilitate live tracking of containers in the future. The Hapag-Lloyd Digital Hub was also created in 2018 to raise employee awareness and promote dialogue on digital topics via a web-based platform. The Digital Hub provides articles and other content to facilitate active participation of employees in the company’s digital growth.

**Route optimisation:**
Hapag-Lloyd’s Fleet Support Centre (FSC) has been used to help achieve bunker purchase savings and increase capacity utilisation of its ships. The FSC has also helped to ensure routes are provided as scheduled, improving adherence to timetables and helping to ensure customer satisfaction. Data is shared with relevant business partners to improve transparency and fleet performance.

**Quality and environment management:**
Hapag-Lloyd’s quality and environmental management (QEM) system also achieved double certification according to ISO standards 9001:2015 and 14001:2015 in 2018. For the first time, the Middle East region was included within a short time frame. The QEM includes all activities of Hapag-Lloyd’s door-to-door transport worldwide.

Read the full sustainability report at https://www.hapag-lloyd.com/

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**Denmark deploys drones to monitor ships’ sulphur emissions**

https://www.dma.dk/

The Danish Maritime Authority is deploying Remotely Piloted Aircraft Systems (RPAS) to monitor ship emissions around the Great Belt where tankers transit on their way to and from the Baltic Sea.

The RPAS will specifically measure the ships’ sulphur emissions to check compliance with EU rules governing the sulphur content of marine fuel. The RPAS is fitted with a gas sensor, known as a sniffer, capable of measuring individual ship’s sulphur emissions. By flying in the plume of the ship, the RPAS can estimate the amount of sulphur in the fuel. This data is transferred immediately to the Danish authorities for follow-up and reporting in THETIS-EU in the event that the ship may not be complying with the sulphur rules and the Danish Maritime Authority is responsible for enforcing the sulphur directive.

Bunker Connect launched a quality control module

https://bunkerconnect.com/

Bunker Connect has added a quality control module to its services to help shipowners and operators prepare for and comply with IMO 2020.

Bunker Connect provides shipping companies and suppliers with information on bunkers, including price and type at available ports. Bunker Connect acts as a liaison between buyer and supplier, offering impartial advice to find mutually beneficial solutions.

Bunker Connect connects buyers directly with physical suppliers where they can obtain quotes on current bunker prices. All local suppliers are able to bid and the bunker buyer is completely informed in the process.

The module is also separately available as a standalone service.

“We are excited to launch this additional module to our services, especially the sharing capability can be of big value for shipowners dealing with the uncertainties involved with the IMO 2020 regulations and bunker in general,” said Konstantin Kaminski, director, Bunker Connect.
A consultant’s environmental view on scrubber technology

There is much debate around the use of scrubbers to control sulphur emissions from ships. One environmental consultant believes scrubber technology is not the way forward.

It is a universal truth that sulphur emissions cause severe health problems to humans which result in premature deaths; let alone the effects of acid rain on the marine environment and land areas.

I hope most environmental scientists, if not all, will not dispute the following argument: there is no point in using open loop scrubbers as the release of sulphur in the air or the water has the same or similar effect. This must be the supporting argument for the countries which banned wastewater effluent discharge of exhaust gas cleaning systems in their national waters.

Very few ships compared to the size of the global fleet have scrubbers installed and the expectation regarding more vessels retrofitting such installations seems ominous. It is quite challenging not only cost wise due to the couple of million required for the installation but also regarding the investigation and preparation for it and its subsequent operation.

Scrubber technology involves a big effort to install and maintain. On a floating factory as all modern ships are, the introduction of an additional parametric system would not only introduce extra work for officers and crew but would further affect the operation of the ship significantly. The operation on heavy fuel oil (HFO) would be 100 per cent dependent on the performance of the complete scrubber installation and would thus require the scrubber to present in principal minimal to no downtime at all. Only then can the benefits be reaped for such an installation; with continuous operation on heavy bunkers.

But just a few years later, what will we be saying regarding a ship with a scrubber? Does it have a positive impact on the vessel value or all the maintenance needed, the operating costs and the use of space are detrimental to its resale value? What will be the story once the market has found its balance?

On the other hand, scrubber technology is long standing, but this moment cannot be considered disruptive by any means. It does not affect the current market situation. It did and still does promise a competitive advantage in the short future albeit there are shippers with scrubbers installed admitting they would not perform the installations now.

Usually in our world, legislation leads and industry follows the rules set but being ill-prepared is very true in this case. Is this the answer or can we solve the problem at its root?

In this era when sustainability on our planet has been adopted as a key issue making world leaders sign agreements, is fitting thousands of scrubbers onboard vessels a good answer? It is very important to speak to refiners regarding this and why they did not take the decision to invest in scrubber technology. Cost goes hand in hand with how we manage resources; on a global scale.

Any idea why didn’t refiners invest in being able to serve the maritime industry? Through discussions with people in the oil industry, it is clear that most refineries are not dependent on marine fuel. But then again, why didn’t even those who are dependent or have a substantial profit margin in the marine industry invest in it?

Simply because marine fuel is not what drives refinery balance sheets. Up until 2020 that is because simply the impact of the sulphur cap demanding the global fleet to use other fuels than HFO, will ramp up the demand for those fuels to something that seems unpredictable. Just one VLCC burning 104 tons of HFO per day will need to use 104 tons of another fuel oil or distillate or marine gas oil with sulphur content equal or less than 0.5 per cent.

Chaotic shift? Volatility in the oil market?

It is a no-brainer to understand sweet crude prices will rise. It is though rather impossible to make proper predictions of bunker premiums. Analysts have more to say but various delta calculations ranging from 110 $ to 550 $ for the options alternative to HFO, can only give rise to profound scepticism. Is it tens of dollars difference per ton the industry will face or is it hundreds? And even then, one hundred is another reality compared to four hundred per ton. This is the truth much to everyone’s disappointment.

The ultimate goal is and should always be sustainability. Is it correct to say the best use of resources would be to fit all ships with scrubbers so we can continue running on HFO? Or maybe we should choose to tackle the problem at its root and help everyone comply? Forecasts of non-compliant ships can only harm our industry.

The purpose is not to undermine an industry which has historically been and still remains so fundamental to our world that we cannot imagine it without it. Moreover, control over approximately 700 refinery locations worldwide would prove easier, faster, far more efficient, ultimately better and for sure friendlier to optimisation in terms of space, capacity, maintenance time, spare parts delivery, energy consumption and probably cost. Taking the parameters into account for this equation will impose the smallest possible burden and provide the way forward.

Unfortunately, much to my own disappointment, almost all voices claim it is too late for all that.

And if the marine market is not using anymore heavy fuel or in any case not as much as in the past, what are the refineries going to do with it? Are they going to desulphurise it themselves or sell it on land to someone who has a scrubber?
Daniel Skjeldam, CEO of Norwegian expedition cruise company Hurtigruten firmly believes that alternative fuels and clean propulsion technologies are the future of shipping. The company wants to ban heavy fuel oil (HFO) and is proving that sustainable low-emission shipping is possible by constructing the first hybrid expedition cruise vessels that will reduce fuel consumption and emissions by 20 per cent.

Named after the Norwegian explorer who led the first expedition to the South Pole on December 14, 1911, the Roald Amundsen is the first of two hybrid vessels developed by Hurtigruten. The vessel features Rolls-Royce engines and will run on low-emission diesel, switching to battery power when sailing in the Arctic or Antarctic for zero-emission and noise-free sailing. The hybrid propulsion is combined with advanced hull construction and onboard electricity to reduce fuel consumption and emissions by 20 per cent. Described by Hurtigruten’s CEO Daniel Skjeldam as ships that will change the industry and push boundaries, the vessels represent the single largest investment for Hurtigruten in history. Speaking with VPO Global during our visit to the remote shipyard in Norway, Skjeldam told us that he expects these ships to “change the global cruise industry down a much more sustainable path.”

Presently, Roald Amundsen has two 627 KW Corvus Energy battery packs installed. There is space in the battery room for batteries five times this, but Hurtigruten’s belief that the technology will advance significantly over the next few years means the company is in no rush to fill the space now. Skjeldam told VPO Global that upgrades and investment will “depend on the technology development of batteries.” He explained further, “We think that the technology will be more effective, so that in the future if you use this area for batteries, it will be at least three times more effective than it is today. We expect demand to increase significantly going forward.”

The expedition cruise company also has plans to use 100 per cent natural biogas in the future as it is the “most environmentally friendly fuel you can have with 60 per cent less CO2 emissions than LNG,” Skjeldam told us. “This is basically waste from the fish farming industries, or forestry industries that would otherwise go to waste.”

Due to an insufficient supply chain, Hurtigruten is collaborating with several partners on developing liquefied biogas (LBG). “We are hoping to develop a sufficient demand for suppliers to start producing more and by this we are creating the space for biogas in the future. We believe it is the finest fuel form you can have today, but there is too little of it and we need to develop this,” said Skjeldam.

Skjeldam confirmed to us that the biogas used for marine fuel is completely free from palm oil. Palm oil is a cheap resource often found in biofuels. However, it is not a sustainable resource as extracting and processing it directly contributes to rainforest depletion and environmental degradation, most substantially in parts of Indonesia and Malaysia.

In addition to the two vessels in construction, Hurtigruten plans to convert six ships to biogas, LNG, and battery power, which Skjeldam hopes will give the company experience in operating with alternative fuels. “We will then consider investing into other ships, but first we need a supply network and we are able to build this in Norway. Where Roald Amundsen and Fridtjof Nansen will operate, the supply network is not there yet and we don’t see it coming for a while so to use diesel and batteries in these ships are by far the best solutions as there are no other technologies or fuel supplies available at the moment.” Roald Amundsen is expected to launch in the late spring of 2019. The 500 passenger and first hybrid cruise ship will be sailed by 54-year old Mr Kai Albrigtsen.

The second hybrid vessel, Fridtjof Nansen is expected to launch in 2020.
Optimising vessels is ultimately about learning what works better & understanding the results of what you did.
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