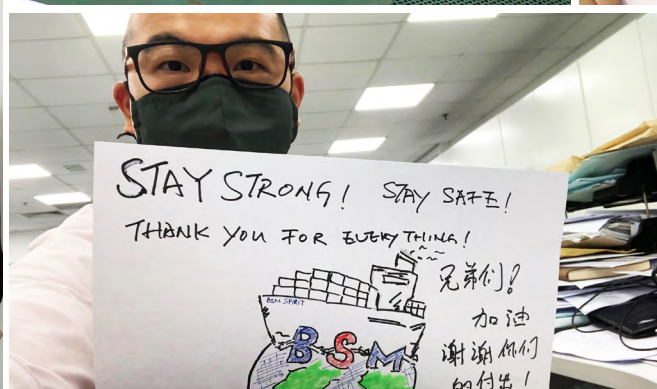
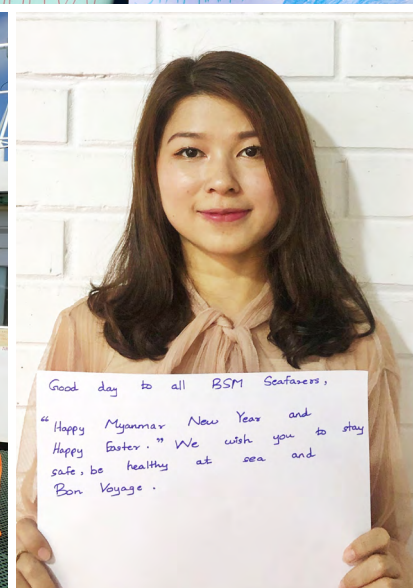
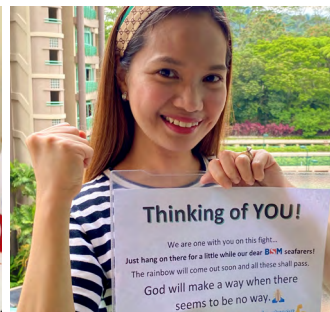


# BSM highlights

ISSUE 2  
2020



CONFRONTING THE CHALLENGES OF CREW CHANGE AMID COVID-19

SHIPPING'S VOYAGE TOWARDS NET-ZERO

ARTANIA CRUISE SHIP: EXCEPTIONAL TEAMWORK IN THE COVID-19 CRISIS

WINDEA JULES VERNE INSPIRES THE NEXT GENERATION OF SOVS

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# WELCOME

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Dear customers, business partners and present colleagues,

Together with the editorial team, I am pleased to present you with BSM Highlights Issue 2 2020. The world has changed greatly over the last months, gripped by the shattering effects of the COVID-19 pandemic with lockdowns and social distancing becoming the new norm, which you will also find reflected in the following pages.

The COVID-19 pandemic has had a tremendous impact on the world economy and consequently the maritime industry. It has led to great uncertainties and burdensome working conditions for seafarers around the world. The industry is facing a historic test and its results will shape the future after the COVID-19.

In an opinion piece, Eva Rodriguez, Director, HR Marine, points out some of the key challenges our colleagues on board and ashore have been facing over the past months and shares some tools that have proven helpful in mitigating the threats to seafarers' health and safety. In one of the feature stories, you will learn what happened when the virus broke out aboard the *MS Artania* and which measures BSM Cruise Services took to gain control of the situation successfully.

As it is still unpredictable how massive the economic disruption caused by the pandemic is, we must not lose sight of the environmental challenges that were already laid out some time ago. In an opinion piece, Angus Campbell, BSM Director Energy Projects, shares his view on shipping's journey towards net-zero, pointing out which emerging solutions are the most promising on the road to decarbonisation.

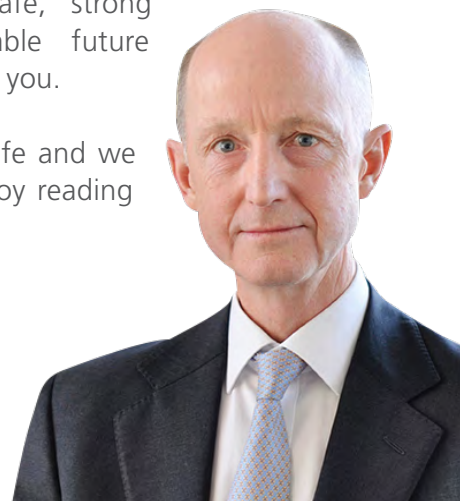
Despite these challenging times, BSM Offshore Services proudly took delivery of the battery hybrid

Service Operation Vessel *Windea Jules Verne* on 24 June further adding to its state-of-the-art fleet. Also in June, BSM and the Cyprus Marine and Maritime Institute signed an MoU to launch the initiative "True North 72", aiming to encourage innovation across the maritime industry and deliver sustainable solutions to solve customers' challenges throughout their businesses.

The current crisis has accelerated the pace of digitalisation and we remain focused on our digital agenda, tapping into new solutions that will further optimise operations. MariApps Marine Solutions entered into a joint venture agreement with Finnish maritime clean tech company Navidium PLC to develop innovative and scalable solutions focussing on vessel performance optimisation and enhancements provided by real-time analytics. Further, we are seeing the first results of our work in the field of Artificial Intelligence with the introduction of a new hull performance measuring software.

As Albert Einstein said, "In the midst of every crisis, lies great opportunity." With the many new skills we all adopted over the past months, we are confident that we can indeed emerge from this crisis even stronger and excited to continue shaping a safe, strong and sustainable future together with you.

Please stay safe and we hope you enjoy reading Highlights!



*Ian Beveridge*  
Schulte Group CEO

## Mission impossible: Confronting the challenges of crew change amid COVID-19

**Seafarer rotation has taken an unexpected and difficult turn because of the coronavirus outbreak, leading to hundreds of thousands of exhausted and frustrated workers in the maritime community, who are trapped on board vessels or at home. As the entire world grapples with the unprecedented COVID-19 crisis and its broad-reaching impacts, ship managers are dealing with the challenge of carrying out crew changes in a timely and efficient manner to ensure the health and safety of seafarers while supporting business continuity.**

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What used to be seamless routine work, done by shore personnel for seafarer colleagues, has become extremely complicated and cumbersome, almost like Tom Cruise's 'mission impossible'. When you contend with state-imposed lockdowns, flight cancellations, closed consulates, problematic schedules, and stringent protection requirements, a feeling of 'mission impossible' is not far-fetched.

To effect crew changes in today's reality, ship managers need to take into account many factors that are beyond control – including crew nationality, port rotation, immigration requirements, and health protocols – and these factors vary per country and even per port, wherein some have more restrictions and others more unpredictability.

Given these limitations, crew changes between March and end April had to be suspended. This resulted not just in seafarers unable to leave ships but also colleagues who are significantly delayed in joining vessels. The accumulating backlog is taking a toll on shore employees as well, with their proven track record in 'talking the talk and walking the walk' when it comes to assisting their seafaring colleagues.

After months of hard work on the high seas, seafarers

are eager to go home and immensely excited to be with their families and loved ones. But these colleagues find themselves having to agree, albeit reluctantly, to extend their employment contracts and remain at sea considerably longer than initially planned.

When crew changes are finally possible, constantly changing travel requirements in the different geographies often turn the journey home into an almost ridiculous odyssey. The same applies for new joiners who would like to relieve their colleagues on board but find themselves trapped at home for much longer than intended with no income or chance for career progression.

With more time passing but no real prospect of change, the situation is taking its toll on the overall morale of seafarers around the globe, impacting not only their safety aboard but also overall business continuity in the long run.

### Communication is key

Uncertainties in crewing abound and will continue for the foreseeable future, even as ship managers are able to carry out effective but limited crew changes under special circumstances. Therefore, Bernhard Schulte Shipmanagement's (BSM) primary focus is to boost seafarer morale and take care of their overall wellbeing during these difficult times.

Since the COVID-19 outbreak, the Fleet Departments of BSM have been working closely with all seafarers presently deployed through vivid, transparent, and effective communication – key to managing the situation.

The communication is partly funnelled through stories and posts on our Seafarer Blog and Portal. With the proliferation of fake news and negative stories in social



media and the internet in general, it is important to ensure accurate information and updates are available to our diligent seafarers.

Through BSM's membership in the International Seafarers' Welfare and Assistance Network (ISWAN), ship crews and their families can speak confidentially to a trained professional through a helpline that is available via multiple channels, including telephone, e-mail, WhatsApp, and live chat, 24 hours a day, 365 days a year, and with multilingual capabilities.

BSM's customized work transcends to seafarers stranded ashore. Since the COVID-19 pandemic has made delayed joiners financially vulnerable, BSM has set up an initiative allowing them to apply for cash advances that can be repaid once they are on board vessels.

Options for professional development are offered via online training and seminars. With almost no possibilities for traditional physical recruitment activity, BSM offers online processes and tools, such as the BSM Seafarer App.

### **Making mission impossible possible**

Despite the rotation disruption wrought by the pandemic, BSM successfully facilitated movement for 14,208 ship crew in 73 countries and 425 ports as of 1 September, in strong partnership with the company's

main port agency, Waypoint, and local authorities across the globe. Moreover, the BSM fleet continues to be COVID-19 free with extremely few exceptions, which can be attributed to the implementation of approved health procedures.

To this day, however, almost 3,000 BSM seafarers who already have completed their tours of duty are still waiting to be relieved. While the colleagues at shore are doing everything in their power to make repatriation happen, the ongoing pandemic is creating a different reality.

While several countries have made amends and designated seafarers as key workers, the situation remains complex. When designation only applies to nationals of a country, but restrictions still apply to seafarers from other countries, foreign crew is still unable to transit through that country for repatriation.

BSM supports the International Maritime Organization (IMO) and the International Labor Organization (ILO) in urging public and private sectors to recognize seafarers as 'key workers' to enable seafarer movements globally by relieving those who have extended their stay and be replaced with fresh crews. Only by having stranded seafarers relieved by fresh crews, will the industry be able to protect seafarers' welfare, promote maritime safety, and ensure continued global trade.

3



*BSM crew on board CL PEARL RIVER*

**TOTAL NUMBER  
OF CREW MOVED  
SINCE MARCH 23RD:**

**14,208**

**7,006**  
**SIGNED ON**

**7,202**  
**SIGNED OFF**

**Roldan R. Agbayani, Chief Engineer, overdue joiner**

*"Crew changes are extremely difficult or even impossible due to the travel restrictions imposed in many countries. I myself am stuck ashore waiting for reemployment and I got family to feed and have not paid yet my house bills until now."*

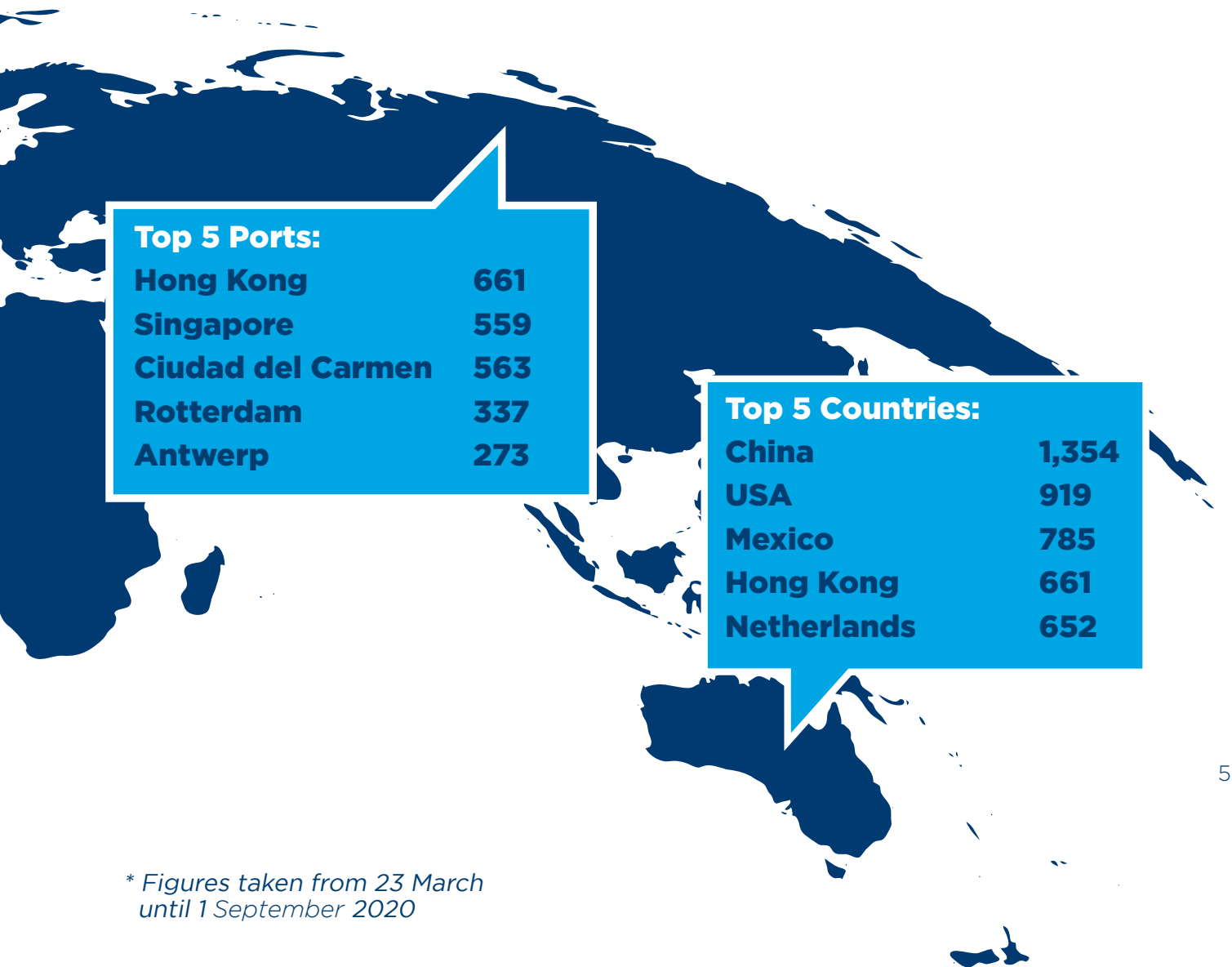
**Rafal Wydmuch, Head of BSM Crew Service Centre Poland**

*"There is no playbook ready for such events, that's why as industry leaders we have obligation to work with peers and governments to find new solutions to bring crew home safely."*

**Lucian Dragomir, Master, successfully repatriated**

*"My reliever had to fly on a special flight from Kaliningrad to St. Petersburg, was driven to the Russian-Belarus border, walked over the border, and was then driven to Minsk airport. He then flew to Amsterdam and joined the vessel in Rotterdam. This happened on the background of often cancelled flights and a restriction for non-European citizens to enter the EU."*





5

\* Figures taken from 23 March until 1 September 2020

**Ashik Rahman Khan, 3rd Engineer, currently at sea**

*"Certainly, all seafarers working on board are worried. We are worried about ourselves as well as our families. Despite all, we seafarers have to work on board, everybody must continue his duties and responsibilities. Because a ship must sail, and we are the key to that."*

**Gobindeep Singh Dhanoa, Chief Officer, successfully repatriated**

*"Keeping everyone in a good mental space is challenging especially when you yourself are going through the same feelings. After all its a demanding profession and keeping up to it with an exhausted mind and body is very difficult."*

**Nikolay Yakushkin, Chief Officer, overdue joiner**

*"The COVID-19 pandemic is having a huge impact on my life. I am a seafarer. I must work at sea, and not sit on the shore for a long time. Sitting on the shore, I will lose my sea service, that I have earned for such a long time at sea."*

# Shipping's voyage towards net-zero

**With shipping accounting for more than three percent of global CO2 emissions and around 80 percent of world trade travelling by sea, the industry holds significant potential to help create a carbon-neutral economy. When this will be possible, is still subject to much debate, but how this goal can be reached is rapidly becoming clearer.**

It is difficult to open a newspaper, or any media outlet, these days without encountering commentary on climate change affecting the entire world with extreme weather conditions such as droughts, heat waves, and heavy rain, and the consequent need to reduce humanity's carbon footprint.

Every country, industrial sector and company is expected to play its part in achieving the target set in the Paris Agreement. The historic agreement sets out a global framework to avoid dangerous climate change by limiting global warming to well below 2°C and pursuing efforts to limit it to 1.5°C.

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In turn, the shipping industry must play its part. Today, shipping is responsible for over three percent of global man-made carbon dioxide emissions. As cargo volumes and the distance travelled grow, the percentage emitted will increase substantially in the years to come.

The shipping industry faces increasing regulation designed to reduce emissions and increase efficiency per tonne mile of cargo carried. In 2018, the International Maritime Organisation (IMO) adopted an initial strategy on reduction of Green House Gas (GHG) emissions with the vision to at least halve GHG emissions from shipping by 2050 compared to 2008 and to phase them out as soon as possible within this century.

While regulatory pressure to encourage and drive change is to be expected, there is another powerful force at work. Those that charter ships have increasingly stringent sustainability targets. Carbon accounting is now measured across the entire value chain, so emissions are calculated from a commodity's point of origin to end use.

Hence, charterers have a strong incentive to hire the most efficient ships, accelerating the transition to

lower carbon shipping. This is becoming an essential business criterion for leading companies. Environmental auditing of progress on sustainability is used, to avoid the risk of reputational damage if they are accused of 'greenwashing'. Shipping must also employ strict controls to prove that GHG reduction claims are real.

## Navigating the road ahead

How shipping will navigate towards 2050 is without doubt a question that has many different answers, with specific solutions for deep sea, short sea and harbour operations. The most important factor today is, how can the existing fleet on the water now and, given an average lifetime of a vessel of 20 to 30 years, potentially in service for the next two decades, contribute to emission reduction. The cost of retrofitting to enable ships to utilise different technology and fuels would, in most cases, be prohibitive.

Fortunately, 'drop in fuels' that have a lower carbon footprint are being developed and will become widely available. In time, this will allow ships to bunker lower carbon fuel and consume it in the same way as the hydrocarbon fuels bunkered now. This will be achieved by adding various 'bio' components classed as renewable or, eventually, replacing fossil hydrocarbons with a compatible and improved synthetic fuel. As an example, ExxonMobil announced they will have available low carbon fuels produced using cultivated algae by about 2023.

The existing fleet will continue to adapt, using operational and technological fine tuning to increase efficiency and reduce ton mile emissions. This may include state of the art wind sails, slow steaming, accurate weather routing and port coordination to enhance voyage optimisation. Other efficiencies may include the use of battery technology to reduce generator consumption plus cold ironing in port using cleaner shore power.

For new ships, future solutions will be determined by the energy requirement which, in turn, will suggest propulsion technology and fuel choice. While small volume short sea trades may look at electric propulsion, if the appropriate infrastructure with frequent, conveniently located charging stations is made available,



or perhaps fuel cell technology using pure hydrogen, or a suitable chemical carrier.

### Fuelling a greener future

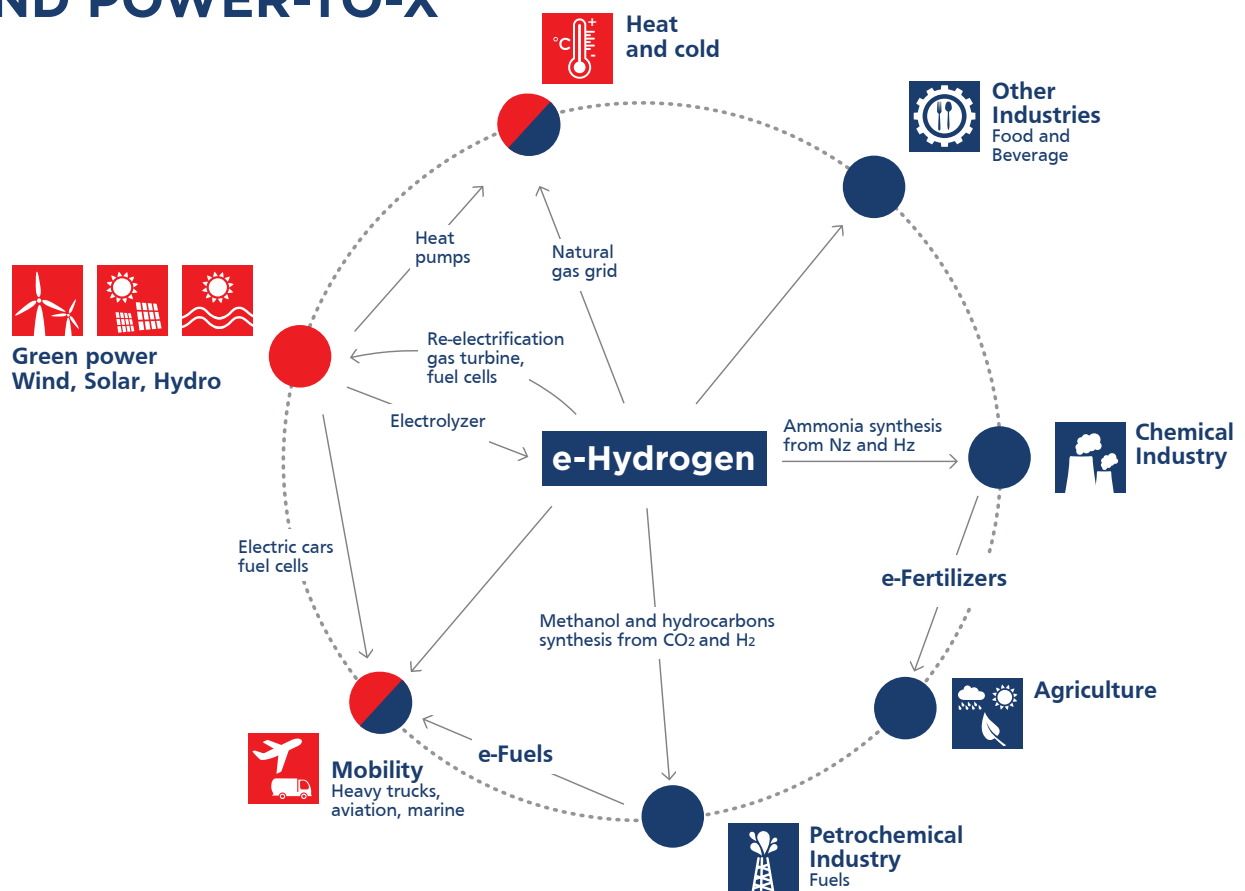
Shipping does not operate in isolation to other energy consumers and is not the only industrial sector trying to reach the essential net zero objective. As the energy transition gathers pace it appears increasingly likely that the 'green' hydrogen economy will replace the fossil derived hydrocarbon economy.

Renewable energy that cannot be fed into the power grid is used to produce hydrogen and oxygen through electrolysis. The generated green hydrogen, sometimes also referred to as e-Hydrogen, can be easily stored and further processed in many ways, including carbon-neutral fuels such as e-Methane, e-Methanol, e-Diesel, e-Gasoline or e-Jet fuel.

When developed at scale, using electricity generated from renewable sources to electrolyse water efficiently, the cost will drop dramatically. This green hydrogen, produced globally, will form the foundation of the zero-carbon hydrogen economy. The significant infrastructure investment will be shared across all sectors. From a maritime perspective, this would enable shipping to utilise hydrogen or ammonia as zero carbon fuels, or provide synthetic LNG, methanol or synthetic hydrocarbons as low carbon alternatives.

To reach this outcome, it is inevitable that carbon pricing will be introduced to level the playing field while the green hydrogen economy develops scale and drives down costs. This is being actively introduced by the European Union under the established Monitoring Reporting and Verification (MRV) regulations: [https://ec.europa.eu/clima/policies/ets/monitoring\\_en](https://ec.europa.eu/clima/policies/ets/monitoring_en). It is very likely that

## SECTOR COUPLING AND POWER-TO-X



*Sector coupling refers to the idea of connecting the energy consuming sectors such as mobility and other industries with the power producing sector. Power-to-X describes methods for converting electrical energy into liquid or gaseous chemical energy sources, such as hydrogen, through electrolysis and further synthesis processes. The "X" in this terminology can refer to Power-to-Gas, Power-to-Liquid, Power-to-Heat.*

shipping will shortly be included in the EU Emissions Trading System (ETS), which will involve carbon cap and pricing to encourage cleaner operations.

### **With challenge comes opportunity**

As the world emerges from the dreadful human loss and economic disruption caused by the COVID-19 pandemic, governments are looking at how to focus financial support. Many have chosen to develop packages which prioritise the green agenda, making sure that the urgent challenges of climate change are still seen as important.

For the shipping industry, the next decades will certainly involve steady change as it accelerates towards a cleaner energy future. As made famous by Plato, "necessity is the mother of invention". The game is afoot and first new ship designs and technologies are already emerging to lead the industry into the net zero carbon era.



*Angus Campbell  
Director Energy Projects*

Providing safe, reliable, and cost-efficient vessel operations, while leading the way to a more sustainable future is of utmost importance to all members of the Schulte Group. Always looking for ways to meet and where possible exceed the expectations of clients and other stakeholders, the group has founded a designated decarbonisation team. This dedicated group of experts is examining the potential clean fuel pathways that are likely to become widely available and commercially viable. Those fuels are linked with suitable propulsion and storage technology that may dominate shipping by 2050. In parallel with this work, the team is looking for new shipping opportunities, developed from the introduction of the green hydrogen economy, which may suit the wide maritime solutions expertise that they hold within the group.





# FEATURE

## Artania cruise ship: Exceptional teamwork in the COVID-19 crisis



**All around the world the COVID-19 global pandemic has caused unprecedented disruption to business operations and to everyday life. The cruise industry has been one of the most severely affected business sectors, with vessels around the world suspending operations as the situation worsened.**

**The *MS Artania* is a 1,200-passenger cruise ship managed by BSM Cruise Services, which was in Sydney, Australia when the World Health Organization (WHO) declared the global pandemic on 12 March of this year.**

Every vessel managed by BSM has an outbreak prevention response plan, but faced with rapidly changing circumstances, the BSM Cruise Services team has had to adapt, react and manage an extreme situation that no one anywhere in the world had prepared for.

As soon as the pandemic was declared, ports around the world started to close and *MS Artania's* cruise was cancelled. The operator immediately offered the passengers on board the ship – most of whom were German – the option to fly home or to sail back to Germany with the ship.

For those remaining on the ship, the BSM Cruise Services team implemented rigorous screening protocols for any crew member or passenger joining the vessel, enhanced the sanitation measures and introduced daily checking of passengers' and crew's temperatures alongside monitoring for coronavirus symptoms.

"This has been an extraordinary and ever-changing situation", says Martin Springer, Managing Director BSM Cruise Services, "involving the most outstanding teamwork between our onshore support staff and the crew on board the vessel. Our Designated Person Ashore (DPA), Sinah Lucius, was basically speaking to the ship 24/7. We have been in constant communication with the owner, our P&I club, the regional authorities and all those affected. This has required exceptional coordination and all of our staff have gone above and beyond, working to manage the situation safely."

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The ship had just left Sydney on 18 March when the operator received a call from a passenger who had flown home, advising that he had tested positive for COVID-19. BSM immediately appointed a specialist medical services provider, but given the infectious nature of the disease, it was not long before other passengers and crew were also showing symptoms.

The next port call was Freemantle. Initially the ship was scheduled to visit more Australian ports, such as Melbourne and Adelaide, but these ports closed whilst *MS Artania* was enroute. The Government authorities were initially reluctant to let the vessel stay, but BSM's team on board and all other business partners involved had already taken significant steps to implement a rigorous cleaning regime, including increased cleaning frequencies, an increased mixing ratio of the cleaning agents, increased hand sanitation for passengers and crew in various outlets, all in accordance with BSM's Outbreak Prevention and Response plan. The Australian



Medical Assistance Teams (AUSMAT) and the Western Australian Health Authorities supported BSM regarding the situation as a crisis and agreeing with BSM that the health and safety of passengers and crew must come first.

Working in 24/7 communication with AUSMAT, everyone showing symptoms was tested, anyone testing positive was taken straight to hospital and anyone with symptoms but testing negative was placed in a hotel for a quarantine period. Planes were then chartered by the operator, and as many passengers and European crew as possible without symptoms flew home.

On board the ship, the BSM team and the rest of the staff from other service providers instigated a full 14-day quarantine, led by Captain Morten Hansen. They separated the ship into a red zone for the crew members still performing essential deck and engine tasks, and a green zone for the remaining crew who would be in quarantine, complete with one-way system of walkways through the separate areas to minimise contamination.

In just 24 hours - working with AUSMAT - a professional cleaning company had been hired and external catering companies were engaged, one to cook food for those in quarantine and another to deliver it to those on board. One cleaning company was hired to do night cleaning and another to handle any medical waste.

Frank Oertel, Director Operations at BSM Cruise Services, adds: "The cooperation between our onshore team, the onboard crew and the authorities was excellent. The authorities had an experienced emergency team, who, to be fair, thought of absolutely everything. Added to which, the Captain was instrumental in maintaining the crew's morale, managing the implementation of the quarantine,

liaising with the authorities and updating those on board on the latest news every day over the public address system."

"It was vital to support those on board so they didn't feel alone, so we set up a communication channel, the AUSMAT team contacted regularly and everyone had to report daily on their health. Any crew member who showed symptoms during the quarantine period was taken off the ship. At the end of the quarantine the crew, which was assigned to maintain the ship's operation during the quarantine period had to leave the ship and was placed in the quarantine hotel in Fremantle before we were able to send them back home. Some of the crew remained on board and even some passengers returned to the ship, while some others were repatriated by plane. Thereafter, the ship set sails to Indonesia and the Philippines to disembark the remaining crew and sail further with the skeleton crew and the few remaining passengers to Europe."

Sadly, during the outbreak two passengers with underlying health problems died of COVID-19 and a third died from causes unrelated to COVID-19.

Tragically, a BSM Cruise Services motorman also fell ill and passed away due to COVID-19. "A rating in the engineering department, he is remembered by all his colleagues as a cheerful, smiling companion. His death came as a huge shock and he will be sadly missed by all those on board and on shore," Martin says. BSM's Crew Service Centre (CSC) supported his wife in the Philippines as his health worsened, and a caring Filipino nurse in the hospital assisted with communications between the couple.

Martin adds: "The COVID-19 pandemic has been an exceptional event for the whole industry. Looking back, I genuinely don't think we could have done much differently, all of our team have done their absolute best given the circumstances and information available, BSM is a family company and we've all really come together like a real family to support each other as we find our



way through this. I am very proud to be a member of this team – and with team I mean the crew, the customer, the other service providers on board and, of course BSM Cruise Services.”

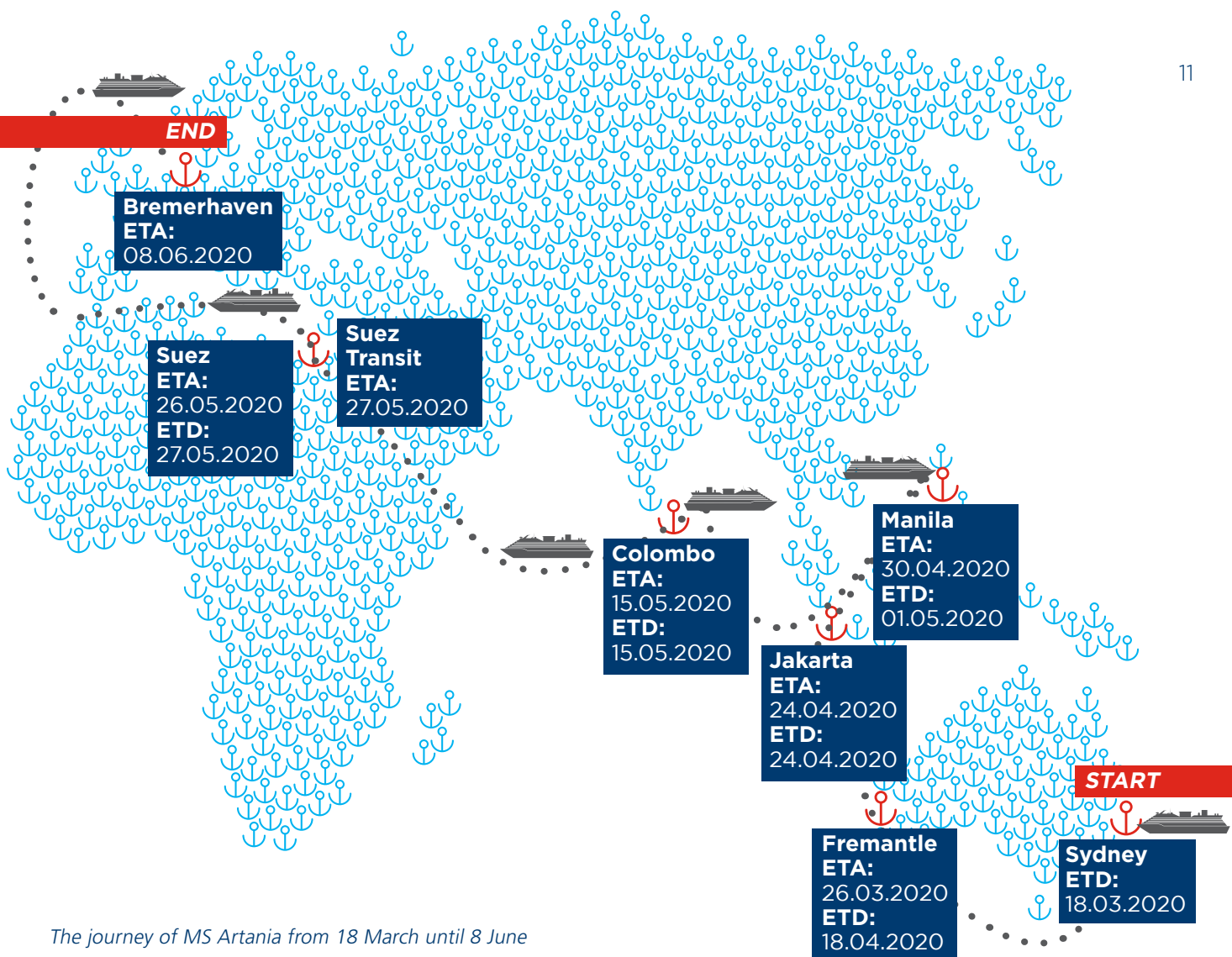
“Crew changes are currently a massive issue and challenge for the whole industry and the *MS Artania* has been no exception. Thanks to our constant liaison with local agents, the work of our port agency Waypoint and our exceptional Crew Service Centre network, the ship was able to berth in Indonesia and the Philippines allowing several crew members to return to their homes. For others it has been a longer process, the last of the passengers flew home on June 13 and the last two remaining crew flew home to India soon after. The ship returned home and is now in Bremerhaven with a reduced crew waiting for a restart in the hopefully not too far future.”

He adds: “Looking ahead, river cruising and ocean cruise is beginning to resume, ocean cruises will watch and learn from their experience and take the measures necessary to comply with local government

and regional regulations. Working with the owner and hotel provider, we are now in the process of drafting new procedures and evaluating technical upgrades to comply with the latest requirements and to allow a safe restart of operations to cover everyone – the passengers, BSM crew, concession and hotel staff. All of our crew can rest assured – their health and safety and that of our passengers will always be uppermost in our minds and considerations.”

“We would dearly like to thank all our seafarers. This crisis has really demonstrated that we are all part of the same team, on shore or on board. I am very proud of all our staff, I have been struck by their professionalism, their commitment to their jobs and to the safety of all those around them, sincerely I thank you for everything you do every day. It is more than overdue that the international bodies finally recognize them as what they are – key workers!”

**For further details, please contact Martin Springer (Managing Director, BSM Cruise Services) at: [martin.springer@schultecruise.com](mailto:martin.springer@schultecruise.com)**





# WINDEA Jules Verne inspires the next generation of SOVs

**What does the classic *Twenty Thousand Leagues Under the Sea* and BSM Offshore Services' first ever hybrid drive Service Operation Vessel (SOV) have in common? Aside from being state-of-the-art like the famed *Nautilus*, BSM's SOV is bestowed with the name of its author, Jules Verne. Named after one of the world's most popular adventure writers, who was born in Nantes, France, which is exactly where the offshore wind business of GE Renewable Energy is located.**

The Schulte Group is a pioneer in the area of SOVs, through the management of one of the first offshore vessels converted to an SOV as well as the ownership and management of two of the first purpose-built SOVs for the wind industry.

The organisation was awarded this project by GE Renewable Energy and the vessel was custom built to GE's specific requirements by Ulstein Group. Ulstein is a specialist ship builder with utmost standards and track record. Having worked with the Schulte Group since 2014, SOV *WINDEA Jules Verne* is the third SOV vessel to be built.

## Challenges faced

Commissioning and maintenance work on offshore wind farms are undertaken by wind technicians living

and working on board the SOVs two weeks a stretch.

The SOV needs to be an all-in-one platform to support wind farm maintenance, operating to serve multi-purpose needs – doubling as accommodation quarters and as a warehouse for tools and spare parts.

Some of the key challenges in building SOVs include:

1. Vessel movement needs to be stable while transferring personnel to turbines in challenging weather and sea conditions
2. Fuel efficiency and emissions reduction for environmental sustainability
3. Operational efficiency leading to many transfers of wind technicians in a short period of time
4. High availability of the vessel to ensure high availability of wind turbine power plant

With a good understanding of the above challenges, the SOV has been intelligently designed to meet all of the customer's requirements.

## Smooth sailing

*WINDEA Jules Verne* has a large, centrally positioned walk-to-work motion-compensated gangway. This



means the gangway remains balanced throughout, making it a safe and efficient way of crew transfer. There is also an elevator tower for personnel and cargo transfers.

### Improved design for more fuel efficiency

A hybrid diesel-electric propulsion system is installed aboard the SOV, which means that it can switch to battery power to minimize fuel usage during energy demanding operations, such as Dynamic Positioning (DP) operations. Overall, fuel savings are expected to be between 5 to 10 percent from the hybrid drive installations.

An Ulstein designed X-STERN® hull which is shaped with a pointed end allows the vessel to move forward or backwards depending on the fastest way to the next turbine, further enhancing fuel efficiency. Ultimately, the improved hull design can improve the SOV's weather resistance, allowing for greater operability as well as reduced power and fuel consumption while on DP compared to conventional sterns. There is also significant reduction in slamming and motion, increasing comfort and safety levels for those on board.

### Operational efficiency

Another first for BSM is the 3D compensated crane on board of this SOV. Capable of 2-tonne cargo lifts, the 3D compensated technology can carry the load securely even during rough sea conditions. The optimised onboard logistics include large

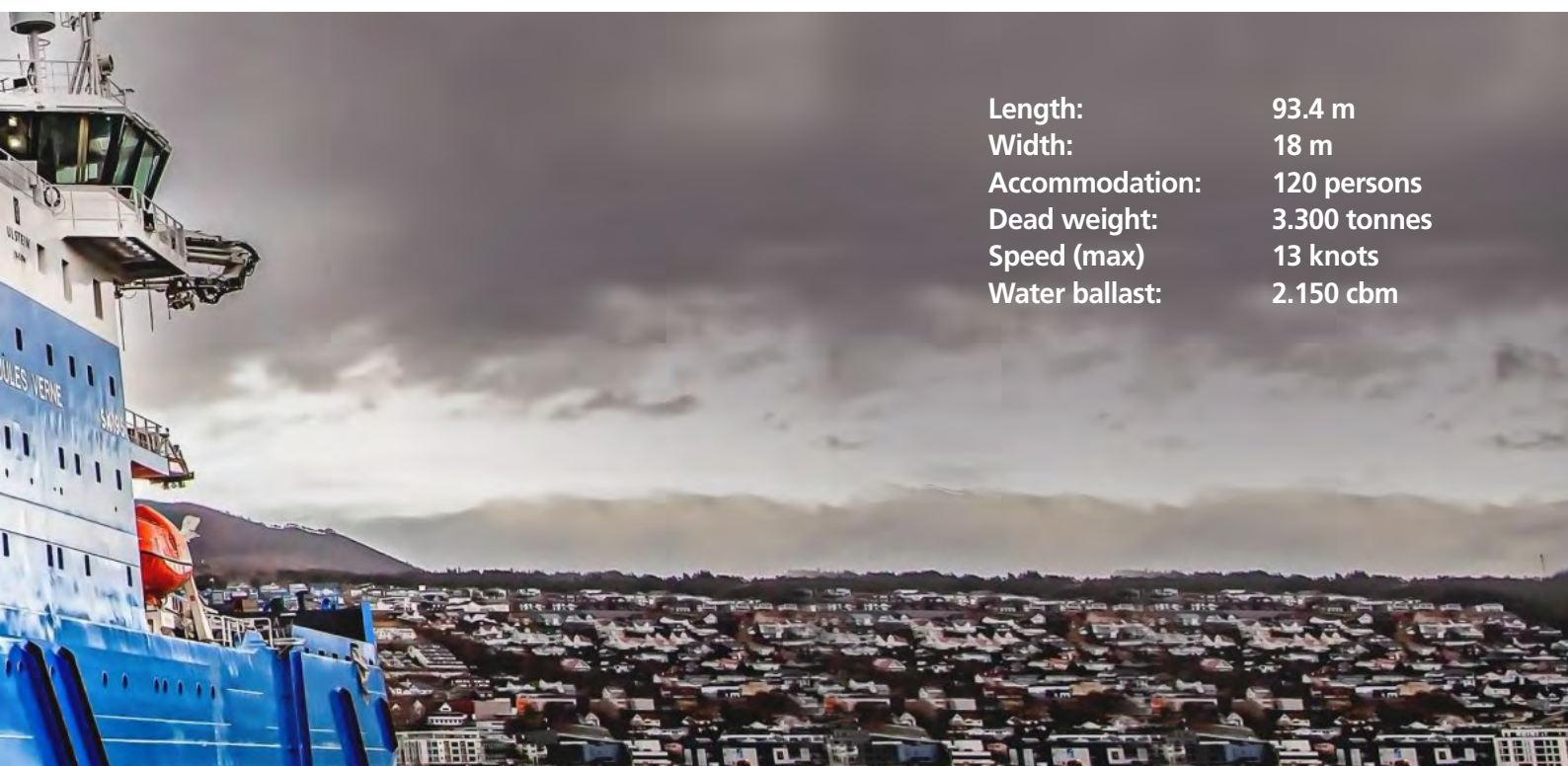
storage capacities, half of which are under a roof in a controlled environment, which includes a temperature and humidity controlled, covered warehouse below the deck with special stores for electronic parts, and a stepless approach to the offshore installations, by using an elevator from the warehouse to the gangway level.

Yet another innovation point is the area where the gangway and the DP operators sit. Away from conventional setup, the placement of the two operators sitting next to each other greatly enhances communication, safety and response time.

### Crew welfare on board

Careful consideration has been given to meet the comfort needs of the maintenance crew. With tasteful designer interiors, the work areas are replicated to model closely to landbound offices with spacious seating and modern designs. In the "canteen" area, the layout is well-considered with restaurant-like furnishings, windows to allow sunlight into its interiors and restaurant quality food to keep the wind technicians well-fed and happy. There is even a cinema, a gym and a sauna on board. No elements were left out in the design stage to ensure comfort and safety of the crew on board.

The delivery of the vessel took place on the 24<sup>th</sup> of June and the BSM Offshore Services' team proudly welcomed SOV *Windea Jules Verne* to its fleet.



Length:	93.4 m
Width:	18 m
Accommodation:	120 persons
Dead weight:	3.300 tonnes
Speed (max)	13 knots
Water ballast:	2.150 cbm

# What exactly is... A Hybrid Drive?

The bulk of the emissions from shipping stem from the use of diesel to power the vessel, however with the advent of electric power from batteries, the industry is now exploring various ways of tapping on this energy source to make shipping more environmentally friendly and efficient.

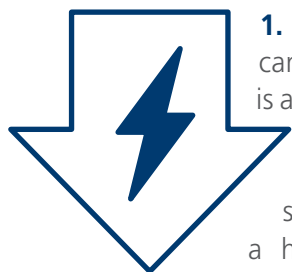
While battery power alone is not sufficient to power vessels on long voyages, when combined with diesel, the effects and benefits on emissions, fuel consumption, costs and maintenance are amplified several times over.

**But what exactly is a hybrid drive? How does it compare to a diesel drive?**

A hybrid system works by combining diesel with electric battery power and depending on the energy requirement on board – it can switch between operating purely on diesel, purely on electric or through a strategic mix of both.

Hybrid vessels are used increasingly for offshore work where there are large fluctuations in power demand. A Dynamic Positioning (DP) operation is an example of the varying energy demand where a vessel has to respond and adjust constantly with environmental conditions to maintain its position out at sea. This is where the batteries come in handy to alternate between diesel and electric energy.

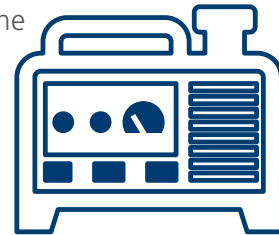
**There are four main advantages of a hybrid system:**



**1. Reduce energy spikes** – it can respond instantly when there is a sudden demand for power and this is very valuable in the process of managing energy spikes. With the batteries in a hybrid propulsion system, the batteries act as a reserve source to contribute additional power during demanding operations, thus avoiding the need to run more generators than the average loads require.

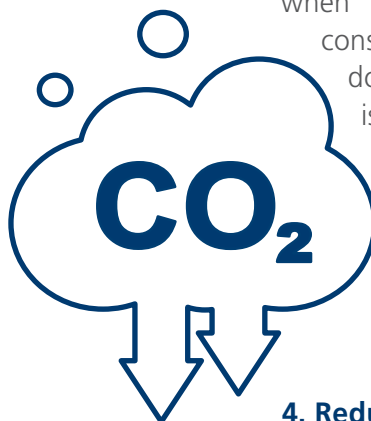
**2. Allows for optimal loading of diesel generators** – on board the SOV WINDEA Jules Verne,

there are four diesel engines. Typically, two are operating at all times to achieve better efficiency to cover all load variations. However, with the batteries installed, the diesel engines do not need to produce the exact amount of energy required by the vessel, requiring the running of just one engine and leaving the rest of the three engines as backup.



**3. Significant reduction of emissions** –

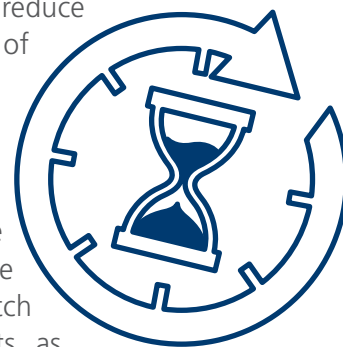
when onboard electricity consumption is low, shutting down the diesel engines is an option and this can mean substantial fuel savings and significant emissions reductions.



**4. Reduce operational hours of the main engine** – using

batteries as backup will reduce the operating hours of the main engines as only one engine is in operation and not two.

The onboard control systems will ensure the power produced by the generator sets will match the power requirements, as well as the energy stored in the batteries will be sufficient for the ship's operations.



Installing a hybrid propulsion system is certainly a start in our bid to create sustainable shipping. No doubt, advancing technologies will one day pave the way for emission-free oceans.



# HIGHLIGHTS

## BSM and CMMI on a “True North 72” heading for cooperation on maritime innovation

Bernhard Schulte Shipmanagement (BSM) and the Cyprus Marine and Maritime Institute (CMMI) have signed an MoU to launch a game-changing initiative named ‘True North 72’, aiming to encourage innovation across the maritime supply chain and logistics industries.

The maritime industry is already undergoing a massive disruption of its existing business models with longer term pressure to become even more efficient and environmentally friendly. The “True North 72” initiative aims to be a catalyst in reinventing the value chain in the digital age and delivering sustainable solutions to solve customer challenges throughout their businesses.

The collaboration between BSM and CMMI will capitalise on both partners’ shipping expertise, global reach and specialist technical expertise to create an ecosystem for experimentation. The initiative will explore new ideas, testing and iterating potential solutions, all with the goal of creating entirely new markets, services or products.

Within the framework of this initiative the two organisations will focus on the following five key areas:

1. Data analytics applications and solutions for the maritime industry, including any relevant infrastructure requirements (e.g. 5G networks, telemetry sensors, cloud technologies, etc)
2. Autonomous systems, both on board (e.g. autonomous vessel navigation) and in relation to business processes (e.g. process automation)
3. Optimisation of vessel performance, through a combination of solutions from other scope domains, and the eventual impact on vessel design
4. Optimisation and digitalisation of operations and processes in the general logistics space, including areas of interest such as ports/terminals, chartering and bunkering operations
5. Solutions (including digital) for tracking and

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*From left to right: Eva Aristotelous (Client Relationship Manager, BSM), Zaharias Siokouros (CEO, CMMI) Yiannis Sykas (Director of Strategy and member of the board, BSM) Savvas Avraam (Business Analyst, BSM)*

managing safety and risk on board, including solutions that address regulatory compliance

As such, the joint programme will leverage the tremendous capabilities of the two organisations to research and explore the commercialisation of ideas in areas of strategic interest, unlocking value at the forefront of innovation for the wider maritime sector.

Yiannis Sykas, Director of Strategy and member of BSM's management board, said: "The industry has reached a turning point and the coming decade will be critical in defining the next generation of maritime trade and business. Through the 'True North 72' initiative and the partnership with CMMI, BSM is clearly demonstrating its commitment to nurturing creativity and innovation. This partnership embodies our company's mission statement and values enabling colleagues, clients, business partners and the communities we operate in, to apply knowledge,

experience and innovation to develop solutions to important industry challenges."

Zacharias Siokouros, CEO of CMMI said: "CMMI, as a R&I Centre of Excellence for the marine and maritime sectors, aspires to become a partner of choice for all relevant blue economy research, technology development and innovation activities at local, regional, European and global level. The institute aims at promoting excellence in research and innovation, investing in creative capital, fostering education, training and entrepreneurship, and nurturing socio-economic and cultural transformation overall. Therefore, we are very excited to participate in 'True North 72' and partner with one of the world's leading third-party ship managers. This initiative is fully aligned with our key objective to address the needs of the maritime industry and society and develop solutions that will contribute to sustainable Blue Growth."

## From gadget to game-changer

Looking at the vast number of drone start-ups and the hype around them, one could think that they will solve all our future problems in logistics, inspections, surveillance, and many more.

There are many cases where drone deployment makes sense – not only in terms of cost, but also to reduce risk, improve speed, reach areas that are unreachable for humans, and so on.

The venture capital unit of the Schulte Group, Innoport, is working on various drone projects and believes that these could greatly complement the way we currently work. For example, visual as well as some Non-destructive Testings (NDT) inspections of a vessel's tanks

or holds can be efficiently conducted by drones. This may not only be faster and less expensive than sending a conventional inspection team into the tanks, but it also reduces the risks that humans face when entering confined spaces. With Performance Rotors we have a portfolio company that specialises in confined space inspections and with several class approvals it is ready to scale up its operations in the maritime industry.

Another use case that was tested, involves the transportation of goods from shore to the vessel. Bernhard Schulte and Innoport successfully conducted a trial in Singapore with the start-up F-Drones. These solutions will also become relevant for the offshore industry, once payload and range of drones increases.



*NDT inspection with drone on board*



# BSM launches new LNG training facility



Bernhard Schulte Shipmanagement (BSM) has launched a new LNG training facility at its Maritime Training Centre in Cyprus. This, combined with a structured career progression model, will ensure BSM's LNG crews are highly trained and competent to support growing LNG shipping operations. The new immersive environment is part of a wider boost to LNG training across the whole company, reflecting increasing industry demand and more LNG vessels entering the market.

The new Liquid Cargo Simulator (LCS) has been designed and developed by BSM's in-house technical team and uses GTT Training software. It offers realistic training on a wide range of vessel types: LNG fuelled ships and LNG carriers with a combination of cargo containment systems and different propulsion systems (including steam turbine, DFDE, DF 2-stroke diesel) with various options for LNG-fuelled ship and LNG fuel supplier configurations.

LNG is currently the fastest growing natural energy source, favoured by many ship operators for being clean, versatile and widely available. Demand has increased enormously in recent years with a growing number of vessels being converted to LNG and significant orders for new LNG vessels placed with shipyards in Asia following the implementation of the IMO sulphur cap in January 2020.

BSM has also rolled out the GTT Training software to its Maritime Training Centres (MTC) in Mumbai, Manila and Poland. Crews in these locations will be able to

complete the training in a classroom environment with the simulator displayed on screens.

However, the MTC in Cyprus is the very first to have a dedicated designed simulator room, which offers a far more realistic and immersive experience, complimenting the existing training offered. It makes the centre, which will be open to seafarers from other companies and organisations, a valuable gas training hub for the whole region and will benefit new LNG seafarers, many of whom are expected to come from Eastern Europe.

The LCS will be used to train seafarers to meet the requirements of the STCW (Standards of Training, Certification and Watchkeeping for Seafarers) Code and SIGTTO (Society of International Gas Tanker and Terminal Operators), as well as offering a range of bespoke in-house courses developed to a higher level of expertise (than STCW and SIGTTO) for the BSM managed fleet and its seafarers.

BSM will also offer Liquefied Cargo Operation training, approved by DNV-GL to satisfy the competency standards of SIGTTO (the Society of International Gas Tanker and Terminal Operators). Upon completion of the course, the participants will receive DNV-GL accredited certificates.

**For further details on the LNG training courses, please contact us at: [cy-mtc-man@bs-shipmanagement.com](mailto:cy-mtc-man@bs-shipmanagement.com), + 357 25 817 807 or visit <http://mtc.bs-shipmanagement.com>**



# Need to park your OSV?

BSM Offshore Services, the dedicated offshore unit of Bernhard Schulte Shipmanagement (BSM) is a leading global provider of lay-up management for Offshore Support Vessels (OSVs).

The company has extensive experience in the hot and cold lay-up covering a full array of OSVs (DSV/Construction/AHTS/PSV), having successfully provided lay-up services for 20+ OSVs in different geographical locations, such as South East Asia, Europe/Mediterranean, North America and the Caribbean.

BSM Offshore Services can offer a cost-effective lay-up service, customised to best meet each client's needs, while ensuring that maximum asset value is preserved through detailed procedures,

which cover every stage; from preparing for vessel deactivation through to reactivation.

The Schulte Group's global in-house port agency network allows BSM to share the benefit of "local knowledge on a worldwide basis", thus ensuring that BSM's clients obtain the safest and most cost-effective lay-up locations for their vessels.

The Schulte Group has additionally an in-house travel agency specialising in the offshore vessel sector, ensuring continuity of services during any period and under all circumstances.

**BSM's team of technical experts is available to discuss any enquires at:**  
**[OSV-layup@bsm-offshore.com](mailto:OSV-layup@bsm-offshore.com)**





# Schulte Group employees enjoy new offices

In line with a strategically planned fleet expansion and local crew and shipmanagement teams to match, BSM Greece has relocated to new offices to accommodate continued growth. The team is extremely happy with their new offices and an exciting change of work environment. Relocating provides the opportunity to apply more innovative work methods, complemented by a contemporary fresh new environment, which will benefit both employees and customers.

Following the launch of a new corporate design for Bernhard Schulte Shipmanagement (BSM) late last year, the BSM offices in Cyprus, Poland, Hong Kong and India have been completely renovated. Working together with leading local architects and interior designers, the new offices have been designed with the comfort of colleagues and guests in mind. BSM has invested considerably in all these offices to ensure a pleasant and healthy workplace for all employees as well as a hospitable venue for



guests. The technology unit of the Schulte Group, MariApps Marine Solutions, currently based in the SmartCity of Kochi, India, with more than 400 developers, is equally looking forward to moving into a new purpose built office building called the 'MariApps House' by the end of 2020.



*New MariApps House in Kochi*



# BSM Myanmar: Where quality meets tradition



Seafaring and fishing have a long tradition in Myanmar. The iconic leg-rowing technique of traditional fishermen dates back to the 12th century and Myanmar teak once played a major role in British ship building. Since 1930, the Burmese have been working as seafarers aboard merchant ships. Around the same time, the “Nautical Adviser and Principal Port Officer” was established in Myanmar and in 1972 renamed to Department of Marine Administration. In 1976, BSM officially registered in Yangon making the Myanmar Crew Service Center (CSC) the first and oldest in the BSM network.

Myanmar seafarers play a key role in the country's economy, representing a large share of the GDP.

Today, a total of approximately 60,000 Burmese are working as seafarers, with roughly 30,000 currently being employed on board. The BSM Crew Service Center Myanmar (CSC) is carefully selecting and recruiting among this group in order to employ only the most skilled and experienced seafarers for their customers. Presently, the CSC Myanmar has around 800 crew in their pool, including 150 officers on various types of vessels, such as container ships, bulk carriers, product tankers, chemical tankers and gas tankers. Many of them have been servicing under the BSM fleet for more than 35 years.

CSC Myanmar Head Capt. Htun Oo, who started his career with BSM as a cadet, draws from his





*“Especially now during this pandemic, I want my people to be safe – on board and at shore.”*

experience at sea, while leading this Center into the future. “Our aim is to increase our pool of skilled seafarers, by providing them with high-class training. In my opinion, quality isn’t only expressed in experience. Leadership skills as well as motivation and the willingness to work are still being underestimated and are equally important for a successful career on board.” He does not only argue the case for educating and training seafarers in the most effective way possible, but also for maintaining good relations and communications with his crew. Capt. Htun believes that this is key to the CSC’s success: “I respect and keep strong relations with our seafarers and am in constant exchange with them and their families.”

His biggest strength is currently his biggest challenge. With COVID-19 making crew changes extremely difficult due to governments closing borders and imposing travel restrictions on seafarers, Capt. Htun sees seafarers’ wellbeing threatened. “I experienced the life of a seaman myself and understand the distress that overdue crew is currently experiencing. I feel personally responsible for all the seafarers that we have recruited.”



*Htun Oo, Director  
Crew Service Centre Myanmar*



# SEAFARER PROFILE

## A day in the life of Jian Sun

Jian Sun, Second Engineer on board *MOL Growth*, believes that, most of all, it requires passion to be a good seafarer. He has already faced many challenges during his professional career. Being able to work with and learn from people from different cultures and with different mindsets

enabled him to overcome these challenges and progress. The Shanghai Maritime University graduate gives an insight into his day-to-day life on board, explains how it has changed due to COVID-19 and what has helped him to cope with the unusual circumstances.

6 AM:	Wake-up call. After I get up, I usually go straight to the engine room in order to check the equipment's parameters, including the main engine, the auxiliary engines and the boiler, as well as the purifier pumps, ensuring that everything runs smoothly and is kept in readiness for inspections.
7:30 AM:	Time for breakfast. Having finished the most important meal of the day, I take my body temperature for the first time of the day and report it to the bridge.
8 AM:	This is when our daily engine room toolbox meeting takes place. During this meeting we plan the day ahead of us. Our Chief Engineer gives us the schedule for the day, allocates tasks and informs us about drills. During these days it is mostly about safety measures on board and the correct usage of personal protective equipment.
10 AM:	Tea time with the crew. I usually take a 30-minute break in the morning and have a little chat with my crew mates whilst enjoying a cup of coffee or tea and some cookies.
12 PM:	Lunch time is my favourite time. Our chief cook always prepares the yummiest and healthiest food for us. If you happen to be on board on your birthday, you'll even get to taste his wonderful cakes.
1 PM:	After a quick nap on the sofa, it's time for work again. I usually continue to work on the jobs that were given to me in the morning, or the tasks that are part of my daily routine, such as checking on the suction, or discharging pressure off the pumps.
3 PM:	Time for a 30-minute break, to top up my energy level and have a chat with my crew mates. Working with people from different cultures is what I enjoy most about my job!
5 PM:	At the end of the day, the whole engine crew comes together again to wrap up the day. Each engineer reports back and gets feedback on his jobs. We also plan our next day and discuss, whether we need assistance for certain jobs to be completed. At the end of each day, we record our jobs and working time in PAL. Lastly, I take my body temperature for the second time and report it to the bridge.
8:30 PM:	Before I finish off for the day, I follow my usual night-time routine in the engine room and do a check-up as per the Unattended Machinery Spaces (UMS) checklist and inform the bridge accordingly.
11 PM:	Bedtime. I like to go to sleep around that time, in order to be fit and well rested in the morning. Don't forget: A good night's sleep contributes to our safety on board.

*“ I have faced many challenges in my career, but the one that has helped shape my character the most, is mastering cultural diversity. ”*

#### **Interview with Jian Sun:**

#### **Which challenge in your career has helped shaping your character the most?**

There are so many challenges that I have faced in my career, but the one that helped shape my character the most, is intercultural competence. Being able to work as a team with people from different countries with different cultural backgrounds and speaking different languages. It was a challenge that really helped me progress and has shaped my character the most.

#### **How has COVID-19 affected your daily work? How has your day changed?**

COVID-19 has mainly affected us psychologically by creating the fear of being infected and starting to worry that my family back home could get infected. When the mind is not at peace the

body does not respond well, hence the work is also affected. The days at sea however haven't changed so much, due to our BSM free WiFi and COVID-19 guidance for ships operations and health protection equipment for seafarers. The more I am in touch with my family and the better the personal protection on board, the better we feel and let us run the ship safely.

#### **What are the most rewarding aspects of your job/role?**

I have been promoted to Second Engineer four months ago. Some of the most rewarding aspects of my role are: Early responsibility by ensuring the safety of crew members, cargoes and ships. Good wages that allow me to support my family. Opportunities to travel around the world through port stay. Discovering new places and making friends with people from all around the world.

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# SAFETY

## Ready, set, access

**Keeping track of every procedural guideline in a substantially large documentation system is close to impossible. For those tasks that we do not often perform, there is a need to consult procedural guidelines to ensure compliance and eliminate the risk of getting into accidents and accumulating losses.**

Access to these guidelines, however, requires connectivity to the internet, or the on-board network, either of which is not always readily available for employees. Such a limitation could lead to jobs being undertaken without prior consultation of established procedures and result in accidents or other non-compliance incidents, thereby jeopardizing the safety and security of vessels and seafarers.

To address this challenge, Bernhard Schulte Shipmanagement (BSM) has rolled out a new mobile software solution that brings ease of access in document management and communication. The

QDMS WIKI mobile application offers synchronized access to BSM documents, manuals, and articles, allowing ship crew and staff alike to consult and retrieve them anytime, anywhere – even offline.

“Conducting proper risk assessment is paramount in our industry. The new QDMS WIKI app allows our employees to access the entire document system. They can search for specific procedures addressing their planned tasks offline,” explains Frank Lasse, Director Loss Prevention Safety Quality (LPSQ).

The QDMS WIKI app is available for both iOS and Android devices. After installation, the QDMS WIKI app will synchronise with the BSM server and download all documents and articles to the device. Although the initial synchronisation is large, subsequent updates will only take a few seconds.

BSM is presently evaluating mobile devices that will host the new QDMS WIKI app on board. Once





the evaluation is concluded, each BSM-managed ship will receive mobile devices with the app pre-installed and synchronised.

“The QDMS WIKI app is one proof that mobile software solutions open a lot of possibilities in facilitating efficient processes for our ship crew to manage risks and threats that could impact operations. As more mobile devices are made

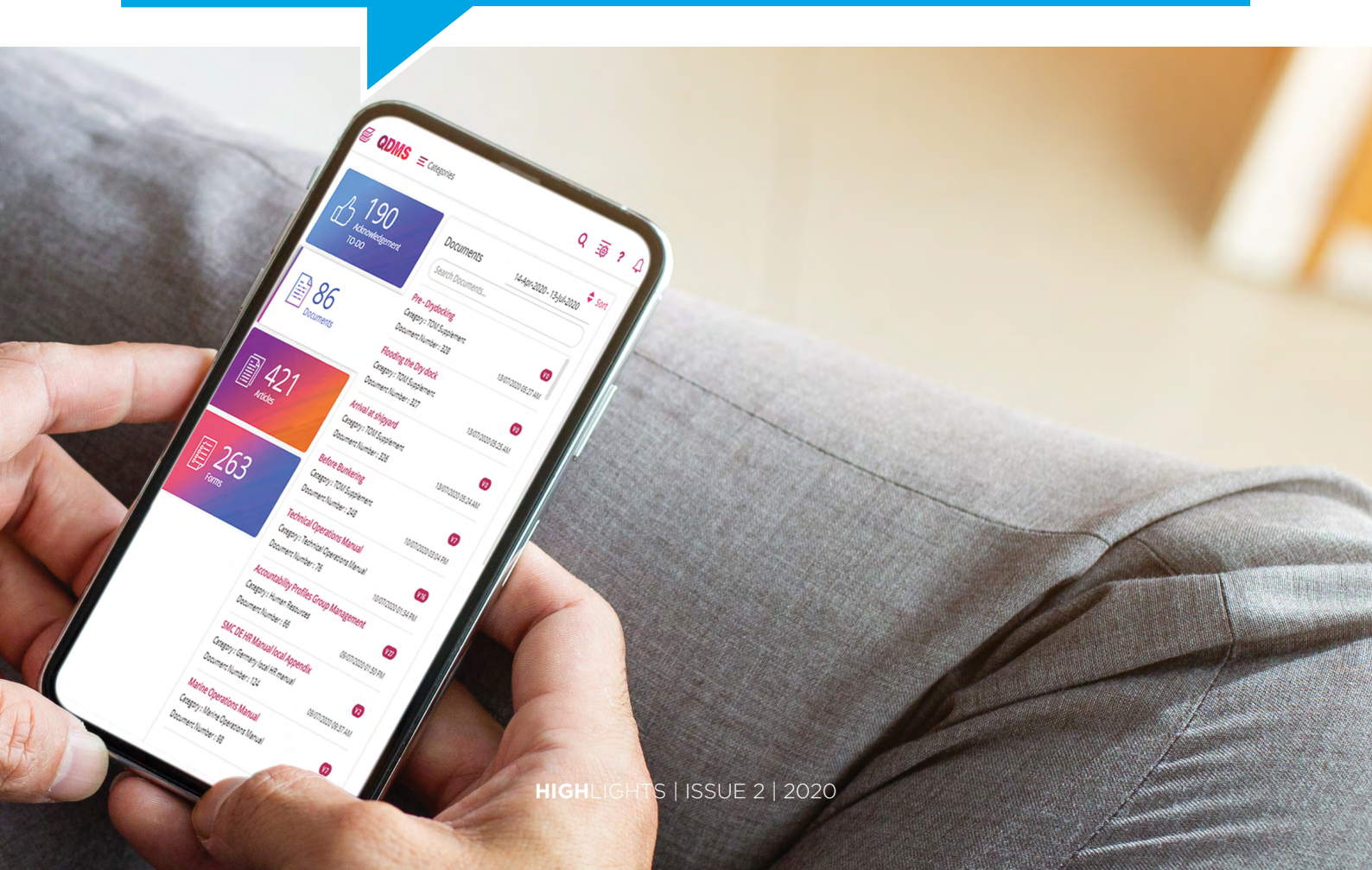
available on board, we will continue to evaluate what other operational modules can be covered with mobile apps,” says Frank.

With the QDMS WIKI app, BSM is taking an important step in providing permanent access to guidance and information needed to perform tasks compliant with our procedures, further increasing safety and security on its ships.

## WHAT ARE THE BENEFITS OF THE QDMS WIKI APP?

- **Reduces costs and paper usage:** The app eliminates the need to print and ship hard copies of the manuals to the fleet.
- **Removes the need for physical supplements for manuals:** The app enables documents owners to annotate and make changes in the manuals without the cumbersome physical copies of revised versions.
- **Simplifies the process of updating procedures:** With the procedures stored digitally, bringing them up to date is simpler and more straightforward, as the latest updates can be made available with the next app synchronisation.
- **It's always and everywhere available on board:** The improved accessibility of procedures means these can be used during risk assessments and toolbox meetings at the work site.
- **Facilitates procedure familiarisation:** Seafarers returning from their leave can acquaint themselves with procedure updates before they return on board.

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# TECHNOLOGY

## MariApps enhances digital capabilities through collaboration



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**MariApps Marine Solutions has entered into a joint venture (JV) agreement with Finnish maritime clean tech company Navidium PLC to develop innovative and scalable solutions focussing on vessel optimisation and performance enhancements.**

Bernhard Schulte Shipmanagement (BSM) and its Fleet Performance Centre (FPC) will closely work with the joint venture partners to build upon enhancing the current Performance and Voyage software modules developed by BSM and MariApps, focusing on telemetry and onboard analytics.

BSM will pilot selected solutions from the JV on its managed vessels to evaluate them and document the requirements specific to its managed fleet. These requirements will be built by the JV team and the identified products from the pilot phase will be implemented across the BSM fleet. This is

not just a onetime effort and any requirements captured by BSM on fleet performance and onboard data analytics will be reviewed with the JV team to evaluate their development.

MariApps is optimistic about the synergies with Navidium, and the participation of BSM's FPC will continue to enhance and drive improvements to digital solutions. This joint venture will help MariApps increase its competitive advantage and provide significant value to customers with advanced solutions to improve vessel performance and operations.

### **Unlocking value from data**

The joint venture has assembled a team of 70 highly skilled professionals – that includes masters and chief engineers, naval architects, electrical engineers, analysts, project managers, data scientists, and software developers – who are working together towards building digital solutions that will improve operational



efficiencies, visible performance improvements, monitoring capabilities, and ensure an optimised voyage.

The key is to unlock value from actionable data and machine learning aggregated from telemetry equipment and modern sensors installed on the vessel to provide real-time analytics and enable informed decision making.

These equipment and sensors send continuous data that allow the ship and shore teams to monitor vessel and equipment performance without delay. Assisted by machine learning, any deviation from defined standards and parameters can be immediately addressed and corrected to avoid exponential losses resulting from equipment downtime or excessive fuel consumption.

### Providing a one-stop shop

At the top of the joint venture's portfolio of solutions is the Vessel Operation Centre (VOC), a one-stop shop for ship owners and managers to ensure efficient and optimised vessel operations with the highest standards of safety and reliability. The VOC brings end-to-end visibility across the fleet with a centralised view of operational, navigational, technical, and maintenance data for vessel crew and shore teams alike. The data will facilitate communication between teams and offer actionable insights that empower them to make informed decisions in mitigating risks and driving efficiencies.

With the VOC, realtime weather advisory will augment the traditional navigational tools, assisting the crew to plan voyages optimally. This leads to more precise arrival and departure schedules based on actual weather conditions, fuel savings, and better planning of port calls.

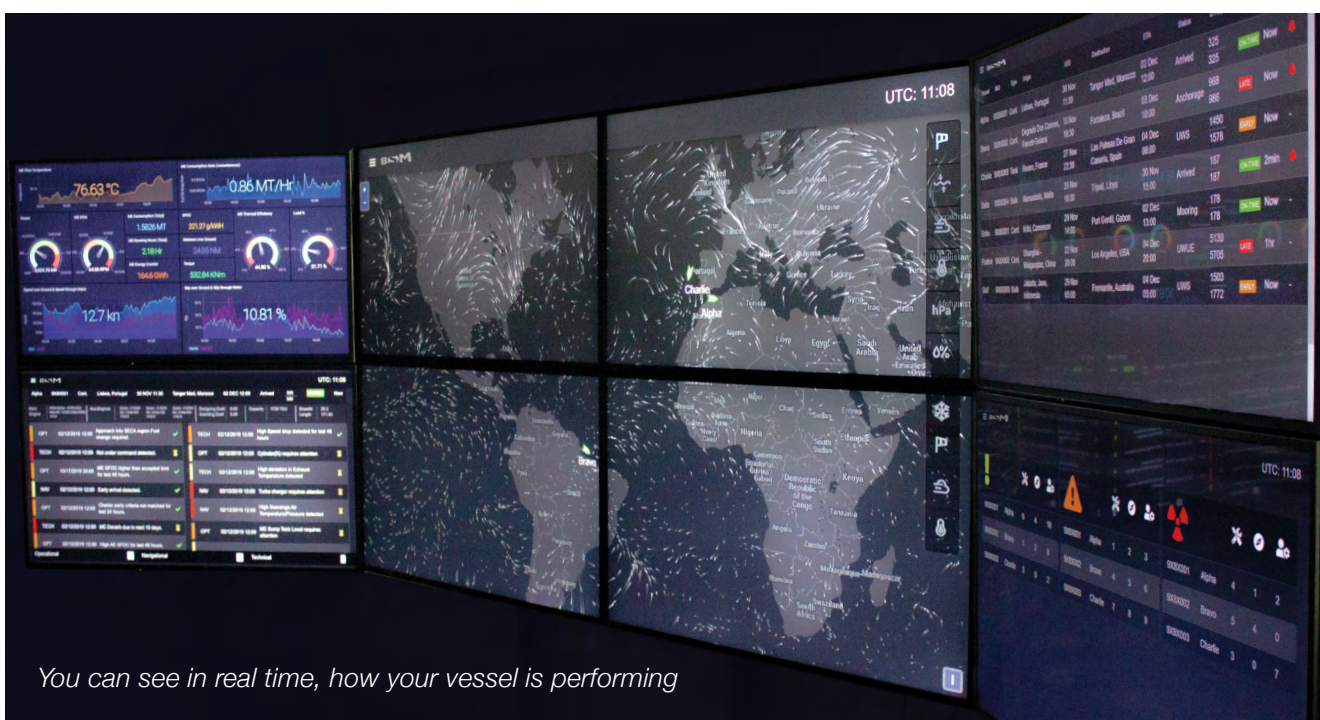
### Enabling preventive maintenance

Taking care of the vessels through an effective maintenance program is paramount to guarantee peak performance and maximise asset value. The VOC enables preventive and condition-based maintenance as it continuously monitors the performance and condition of the vessel and all equipment on board, thus providing and analysing real-time critical data.

The VOC will be manned 24/7 by technical experts and provide a single point of contact for both vessel crew and onshore teams to answer their queries, enable quick resolution and troubleshooting. The VOC team will be responsible for raising alerts for any impending situation that the vessel crew might face on their voyage, thereby minimising disruption and allowing for pro active actions.

**For further details, please contact Khalil Rehman Aziz (Marketing and Business Development Director, MariApps) at: [khalilrehman.aziz@mariapps.com](mailto:khalilrehman.aziz@mariapps.com)**

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# Smart hull maintenance

**Hull fouling is the largest contributor to a ship's performance deterioration. In extreme cases, a ship's fuel consumption can increase by up to 50 percent due to hull and propeller condition. Bernhard Schulte Shipmanagement (BSM) is now offering a new tool that allows for timely planning of inspections and cleaning utilising the power of Artificial Intelligence (AI).**

Thousands of species of plankton, seaweed, molluscs, and crustaceans can make a ship's hull their home, creating fouling which ranges from invisible slime to hard shells. This growth in turn increases the ship's resistance, meaning that more power is required for its propulsion, thus causing ship owners and operators additional fuel costs.

The only way this deterioration can be managed is through hull condition monitoring and cleaning. However, physical hull inspection and cleaning are

to our enterprise resource planning system SmartPAL, the hull condition of all our ships is monitored through their daily logs. We follow the digital twin methodology whereby the reported performance is normalised in terms of speed, draught, weather and fuel and benchmarked against each ship's individual newbuilding state," explains Frank Paleokrassas, Fleet Performance Manager at BSM. "By monitoring the long-term trend development of the speed drop, we can see where the ship currently stands compared to when it last left drydock. When the speed drop reaches 10% a hull inspection is recommended."

The cleaning hull inspection prediction tool has been available in PAL Performance since May 2020 and was validated using data from 295 ships, with a good result of 1.5 percent absolute error for a prediction period of three months. The result is communicated in PAL in the form of a traffic light indication: red for 0-3 months, yellow for 3-6 months and green for 6+ months.

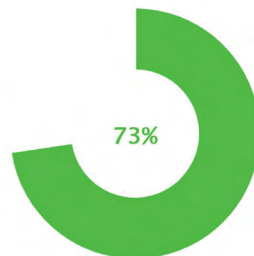
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Marvel Hawk  
Gas Tanker | BSM (UK)



## Reporting Quality Details

Quality Index



<b>Speed Drop</b>	<b><math>\delta\text{FOC}_{\text{HFO}}</math> @18.0 kn</b>
End of period : 1.6 %	Average : 7.1 %
<b><math>\delta\text{P}_{\text{Speed}}</math> @18.0 kn</b>	<b><math>\Delta\text{SFOC}_{\text{ISO}}</math></b>
Average : 4.8 %	Average : 8.0 %
<b>Suggested Next Hull/Propeller Inspection</b>	
More than 6 Months <span style="color: green;">●</span> <span style="color: gray;">●</span> <span style="color: gray;">●</span>	

not available in every port. Moreover, some locations are preferred in view of better service or lower cost. This can sometimes result in a period of up to three months between an issue having been raised and an inspection finally happening.

In order to facilitate proactive and economically optimal maintenance of a vessel, the Fleet Performance Centre of BSM developed a predictive Machine Learning algorithm powered by Artificial Intelligence (AI) that forecasts the hull condition and allows for timely planning of inspection at the preferred location:

"Since the introduction of the Performance module

"The new cleaning hull inspection prediction tool can have a massive positive impact on an owner's bottom line and is a great example of how AI can improve our working lives, enhance efficiencies, reduce harmful emissions, and add value to our customers in previously unimagined ways," elaborates Frank.

There are still countless untapped opportunities in which machine learning and AI can benefit daily operations.

**For further details, please contact Frank Paleokrassas (Fleet Performance Manager, BSM) at: [frank.paleokrassas@bs-shipmanagement.com](mailto:frank.paleokrassas@bs-shipmanagement.com)**



# DID YOU KNOW...

## THAT LOADING AN LNG TANKER TAKES MORE THAN 20 HOURS?

Loading liquefied natural gas (LNG) carriers is time consuming due to extremely low temperature of the cargo and particular safety measures that must be taken. In order to load cargo, the vessel has to be in a cold condition. Usually, LNG carriers arrive at the loading terminal in such a cold condition and the actual cargo loading lasts for 20 hours. If the vessel arrives in warm condition, it must be cooled down first, which can extend the loading up to 30 hours. Therefore, the tanks are being sprayed with LNG at -160 °Celsius. Once the tanks are cooled down, they are ready to be loaded with liquid natural gas.

Had the vessel been in dry dock before, the cargo cycle can even take up to several days. In dry dock the

LNG carrier is kept gas free. Thus, the tanks cannot be loaded immediately, as the remaining air in the tanks and the liquid natural gas would create a combustible mix. To eliminate the risk of explosion, the tanks are firstly being filled with inert gas. Next, the tanks must be cooled down to avoid excessive boiloff after departure. The inert gas is initially displaced by warm gas and then the tanks are being sprayed with LNG at -160 °Celsius.

**Apropos:** During loading and unloading the LNG tanker, a so called “water curtain” is in operation. It is located close to the loading manifolds and aims to protect the hull structure against a potential LNG leak, which could create cracks in the steel.





# DISCOVER

## World-Link: Staying connected



**For over 30 years, World-Link Communications, a member of the Schulte Group, has been keeping merchant fleets connected at sea. As a specialised satellite communication solutions provider, the company is serving vessels from the whole maritime vertical with integrated hardware, software, and cybersecurity products.**

Satellite communications play a fundamental role in the maritime industry, ensuring safety of cargo and passengers. Efficient connectivity from shore-to-ship and ship-to-shore enables ship owners and managers to access and benefit from real-time operational data and surveillance. Moreover, crew and passengers can stay connected to family and friends.

“Reliable communication has become an indispensable part of maritime transport, with digitalisation being the driver behind this transformation,” explains Dimitris Giouris, Sales and Marketing Director at World-Link Communications. “Our goal is to provide people and goods offshore with network integration that makes them as reliably connected as any given unit on land.”

World-Link Communications currently serves more than 1,800 commercial vessels worldwide. As an independent system and network integrator with longstanding partnerships in the telecommunications industry, the company can offer customers full flexibility when it comes to choosing the right solutions in terms of connectivity and value-added services:

“We operate our own communications hubs and partner with the world’s leading satellite operators and hardware manufacturers, including Inmarsat, Intelsat, SES, Iridium, Intellian, Cobham and CISCO, developing smarter software, cost-efficient hardware, and network-based

connectivity solutions to increase crew welfare, bandwidth optimisation, and cyber security,” says Dimitris.

The company has a broad portfolio of sophisticated in-house developed applications, custom-designed especially to a modern vessel’s needs, such as ShipSat, a gateway for vessel communication, link management, and operational optimisation that empowers customers’ digitalisation efforts, as it ensures compliance with regulations:

“For our customers, staying compliant with regulations means staying competitive in an increasingly challenging and commoditised marketplace and all our solutions are developed with this in mind,” elaborates Dimitris, and he continues:

“From 1<sup>st</sup> of January 2021, cyber security will come under the remit of the International Safety Management Code and measures to address cyber risks must be incorporated into a vessel’s Safety Management System. Our cyber security solution ShipSecure ensures a vessel is protected from potential cyber threats and compliant with the latest guidelines giving ship owners and managers complete peace of mind.”

In 2019, World-Link Communications became part of the Schulte Group, under MariApps Marine Solutions to better serve customers and their increasing demands. Together the two companies provide unmatched solutions and systems needed for all airtime and software solutions, offering customers the synergies of world-class satellite communication services and digital solutions.

**For further details, please contact Dimitris Giouris (Sales and Marketing Director, World-Link) at: [dimitris.giouris@wlnet.com](mailto:dimitris.giouris@wlnet.com)**

# Seachef: Bread, budgets and big data

**Tapan Kumar is used to people taking the name of his company a bit too literally. “Don’t be fooled: Procurement for ships is only one part of our business”, says Seachef’s Managing Director.**

In fact, Seachef has been the pioneer of integrated hospitality management. Established in 1994, the Bernhard Schulte Shipmanagement (BSM) subsidiary introduced an elaborate concept into the maritime industry. A concept that competitors have tried to copy many times since.

“Seachef actively manages health and budget on board – this makes us unique. We coordinate a wide range of services, from procurement and provision budget management to catering, housekeeping and hospitality staff training”, explains Tapan Kumar.

Through streamlined workflows and transparent accounting, Seachef is able to reduce paperwork for senior officers, manage budgets without Cash to Master and improve efficiency on board.

“It’s our aim to offer a nutritious, palatable diet and a hospitable, hygienic environment for crews, whilst remaining cost competitive. Instead of the usual tug-of-war between budget and quality, Seachef creates a win-win for owners and crews by simplifying the way food is purchased, handled and consumed on board,” says Tapan.

Facilitating this simplicity implies a lot of smart thinking behind the scenes. Seachef plans the food supply with a lot of variables in mind. Tapan explains: “We consider the nationality of crew mix, the suppliers’ availability,

the quality of goods and the vessel’s budget as well as its trade route. For example, we stock up in economical countries and replenish only fresh foods and essentials at expensive ports to help maintain the budgets.”

Today, Seachef caters to the taste and dietary needs of more than 40 nationalities on over 400 vessels – a joint effort by its catering staff on board and the dedicated back-office on shore.

Big data keeps the pot boiling: Seachef’s innovative ERP-software automates budgeting, diet control, and menu selection. “As we are able to digitally monitor consumption patterns, we can offer ship owners an up-to-date overview of the nutritional status on board,” reports Tapan.

The latest additions to Seachef’s digital toolbox: a new menu planning software that features more than 1,000 recipes, a Learning Management System (LMS) for the catering staff with a series of online courses, evaluation tests and exercises, and the Customer Web Access (CWA) platform that will be launched in Q3 2020.

Tapan Kumar: “The new CWA, that we offer free of charge, allows customers an easy online access to all their files, reports, correspondence, e-invoices, and budgets. All they need from Seachef is now just one click away. This is an added value that perfectly reflects what we stand for at BSM: outstanding customer centricity and transparency.”

**For further details, please contact Tapan Kumar (Managing Director, Seachef) at: [tapan.kumar@seachef.com](mailto:tapan.kumar@seachef.com)**





# ONE BSM

## Women in Shipping: Amy Liu

**Driven by a strong sense of purpose and determination, Amy Liu, Senior Technical Officer at BSM China, is delighted with what she has achieved so far in her career with Bernhard Schulte Shipmanagement (BSM).**

"Having joined BSM in 2010, with zero experience and no technical knowledge of the industry, I just saw it as a huge opportunity to learn."

Amy's experience and tenure at BSM betray the youthful face smiling back, and the mother of one is now in her 10th year with BSM.

Recounting the past, she said: "I was so determined to catch up with my more experienced colleagues that when I first started at BSM, I sent my then one year old son to live with my parents who were living in another city for four months. During that time, I immersed myself in the subject and learned everything there is to know about ship management."

"I remember bringing stacks of documents back home to continue reading at home till midnight. It took a lot of sacrifice but gradually my efforts paid off! I understand my work better now and I can also communicate better with the Masters and Chief Engineers, providing them with the information they need quickly."

No stranger to adversity, Amy is open to challenges and takes them all in her stride. She is part of the BSM's HiPo programme where high potential employees are identified and developed to accelerate their growth within the company.

She cited 2017 as an immensely challenging yet satisfying year for

her. On top of having seven vessels under her care that year, devoting time to being part of the HiPo programme, she also had to juggle part-time studies and help her child with a critical state exam that year. All is well that ends well. Despite the intense pressure, she surpassed all expectations and even won BSM's local employee award in the same year.

She credits her colleagues for her success too, highlighting mentors who coached her and helped her along her journey.

Another important person she wants to thank, and who was critical to her success is her husband. "Without his support and encouragement, I would not have been able to get to where I am now."

Amy is proud to see the growing female presence in the Shanghai office. She acknowledges that it is not easy working in a male dominated environment, but it is not impossible. One takeaway is that you must be adaptable when working. "If you cannot change them, you can try to put yourself in their shoes and persuade them from their perspective."

She has come a long way since she first started out and feels like she has achieved a sense of balance now – with work and home life in sync with each other. Amy ends the interview on a contemplative note with a quote of her own:

*"All things are difficult, before they are easy."*

# Wonderful Waypoint Women

**Numbers mean a lot at Waypoint Port Services, the port agency and bunkering company of the Schulte Group. From the number of port calls, jobs received, managed vessels loading grain, Panama Canal transits handled, to crew changes.**

But there is one specific figure which pleases the company the most, which is that 38% of Waypoint's workforce are ladies, from accountants, port operators to country managers. All of them helping Waypoint generate the positive, ever growingly satisfactory, positive financial numbers, year after year.

Port agency operations are not simple. And to explain better the challenges, the rewards, and the emotions they go through, this is what a selection of Waypoint female employees had to say about being part of Waypoint and about their role, or the industry, overall.

## **Amelia Yamaga – President Waypoint Brazil**



"Every year, we see the number of women that work in the maritime segment grow, with dedication and professionalism we are achieving strategical positions and respect for the work we develop."

## **Dayana Guerra – Finance & Administration Manager, Waypoint Panama**



"In the shipping business, people are the reason for success. No matter what your role is, at Waypoint, we recognise the value of each of our members. Port Agency is an essential part of the shipping industry, always ready to assist with the highest levels of professionalism using our best judgement and expertise in favour of our customers' interest."

## **Anthi Nakou – Waypoint Greece Representative**



"Representing Waypoint in the Greek shipping community, which is renowned for being very demanding, highly skilled and traditional in its values, I realised that ensuring smooth vessel turnarounds by investigating problems

and being able to provide solutions timely and effectively is certainly NOT a one man show. What is required are strong work ethics, passion, enthusiasm as well as the ability to interact with people from diverse cultural backgrounds and a work environment where, irrespective of gender or position, everyone is encouraged to voice their ideas."

## **Joy Brinkmann – Waypoint Country Manager, Ghana**



"Evidence indicates that companies with more women leaders perform better, so it is an honour to work for a progressive company that is fully committed towards a more diverse workforce. My appointment as the first African female Country Manager at

Waypoint is testament to the company's drive for diversity."

## **Nicola Erotocritou – Assistant Global Finance Manager, Cyprus**



"One of the reasons I joined Waypoint was the prospect of working closely with cultures ranging from South Americans all the way to South East Asians. After joining, I also discovered the uniqueness of working in the maritime industry. I really enjoy my global role in Waypoint,

as it provides me with extensive exposure to different cultures, but at the same time it gives me the chance to develop my problem solving skills, since coordinating all cultures together is quite challenging until you gain the trust of your overseas colleagues."

## **Charmaine Uson – Waypoint Sales Representative, Singapore**



"When attending industry events here in Singapore, it is normal that only quite a handful of us women will be present. However, there is a change in the horizon as women are now encouraged to thrive in the shipping industry, and I am proud

that Waypoint is one of these trailblazers, 42 percent of Waypoint Singapore is powered by women."



# Teamwork makes the dream work

## How BSM engaged with its employees during the COVID-19 outbreak

**Like many other companies, the COVID-19 outbreak took Bernhard Schulte Shipmanagement (BSM) by surprise on many levels. Not only operations were heavily challenged by the unprecedented nature of the crisis, but the entire organisation as such had to quickly adjust to what is being referred to as the 'new normal'. In April, 80 percent of our shore staff was transitioned to working from home. BSM's HR teams globally put multifaceted actions into practice that aimed to support sea and shore-based employees during this period of remote work and self-isolation.**

Early this year, when COVID-19 began to spread across the globe, BSM's management initiated a weekly call to share and track developments of the pandemic across all BSM locations. In addition, a weekly impact report was created and is being maintained, comprising up to date information on COVID-19's impact on the corporation as well as government restrictions and challenges employees are facing. This enabled BSM to collect and implement best practices across the organisation, together with our smart PAL ERP system protecting business continuity.

The weekly impact report became the foundation for the 'Global Pandemic Procedure' that was drafted and deployed following the global outbreak. This procedure aims to provide clear actions for all Schulte Group staff about COVID-19 and outlines health and safety measures in line with WHO guidelines and local governments.

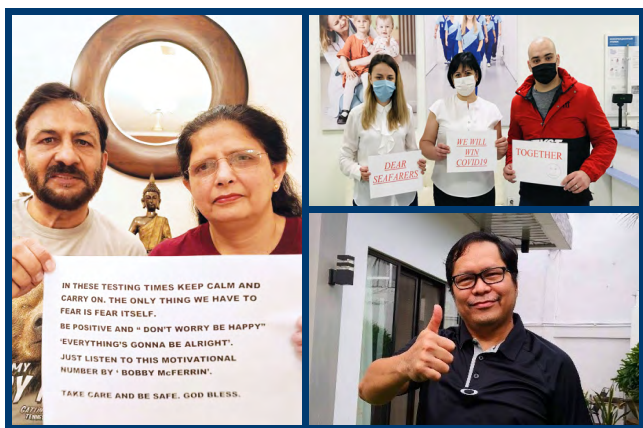
### Mastering the 'new normal'

Making employees' wellbeing the highest priority, in April, HR circulated a remote work survey to collect feedback on the staff's current working conditions and overall sentiment during the outbreak of the pandemic. Over 500 responses were submitted from various departments and locations from around the world. The responses (57% positive, 33% neutral) showed the strength of the Schulte Group staff, with "hopeful" and "optimistic" being the most expressed sentiment. Employee feedback in the survey indicated that the communication shared by the company was helpful (88% agreed/strongly) in knowing how to respond to the pandemic and the available healthcare and benefits shared were clear (85% very/extremely clear). Further, the IT teams received very positive feedback with 89 percent of staff moderately/extremely satisfied with the support they had received. Thus, they have effectively transitioned staff to work from home, without affecting business continuity.

While social or physical distancing became the new normal, HR teams were driving forth additional initiatives to support sea and shore-based employees with the sudden transition. For example, a training on "Virtual Meetings – Communicating Effectively Online" was made available to all BSM staff that helped colleagues working from home. A hopeful message was shared with a "Be well" video, which offered coping techniques that help to address the stress of isolation. Direct communication with seafarers were intensified through our very own Seafarer App as well as on the BSM Seafarer Blog, sharing health and safety announcements and news



*Employee activities from the 'BSM Sofa'*



Sea staff encouraging their colleagues

updates as well as positive thoughts and motivational words from fellow seafarers. Also, video content with workout tutorials was being shared aiming to support staying fit and healthy on board. In April, we launched a Mind-Gym challenge with our seafarers that included quizzes about Seafaring and the Schulte Group as well as concerning Mental Math and Sports. Whoever completed the questions within the given amount of time could win vouchers for free Wi-Fi on board.

### Join the 'BSM Sofa'

With the launch of the 'BSM Sofa', a group in Microsoft Teams, a virtual communal space for shore staff was created. On the 'BSM Sofa', we communicate our internal activities and offer the opportunity for



Shore staff sending their messages to sea staff

everyone to share fun and entertaining bits and pieces of their everyday lives. Due to social distancing, this became a great way to encourage and support each other while working from home. All regular activities were transitioned to online events, with special guest from around the world that hosted yoga and meditation sessions or healthy cooking classes. Also, to support parents, several employees volunteered to host live storybook reading sessions for kids.

### Ocean Art Competition for World Ocean Day

In celebration of World Ocean Day, our colleagues from HR came up with a very creative approach to honour and help protect the Ocean and entertain the crew on board at the same time. Seafarers on BSM vessels were asked to create a mermaid figure out of waste and leftover material found on the ship. The three vessels that produced the most creative mermaid and processed the most waste material when designing their artwork, would win the contest. The art competition helped to strengthen the crew's team spirit and to take their mind off the pandemic for a moment. The winning vessels *Johann Schulte*, *One Continuity* and *Pacific Hong Kong* received a USD 500 voucher towards their vessels' recreation funds.

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Mermaid figure created by the crew on board One Continuity



# Rescue attempts arrive on time for ‘Puchi’ the dog



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On 29 March 2020, Bernhard Schulte owned vessel *Johann Schulte* was en route in the Alboran Sea when 2nd Officer Szczytko spotted smoke in the distance from a small craft. It was a fishing vessel on fire. Capt. Yevtushenko was informed, and the crew prepared immediately the rescue boat, whilst liaising with Spanish authorities.

The BSM crew pulled three lucky survivors and one dog from the water. The captain of the fishing vessel ‘Dumbo Jumbo’ was suffering from hypothermia and unable to move, so was lifted by *Johann Schulte*’s cargo net and transferred to the ship’s hospital for urgent treatment. Warm clothes and food were offered to the rest of the survivors by the BSM crew. After 20 min on board, a helicopter from Spain reached the vessel’s location

and transferred the Spanish fishing boat’s crew to land for medical treatment.

However, this was not the end of the rescue action from the *Johann Schulte* crew. The helicopter could not accommodate the hefty dog ‘Puchi’ and he therefore had to remain on board.

Days passed and every port the vessel reached, Puchi was unable to disembark either due to the port being closed due to COVID-19 or because the dog did not have any official pet papers. Puchi travelled from Algeria to Malta and then on to Egypt; meanwhile, the crew and BSM shore staff searched for information on the fishing boat ‘Dumbo Jumbo’ to try and reunite Puchi with his owners. Puchi even learnt to climb the ladder to the



bridge. He provided some comfort and distraction to the crew during this difficult time and the crew had a story to tell loved ones when they called.

Eventually after the dog had been on board for two and a half weeks, the grateful owners were found. Puchi was disembarked to agents in Suez on 15 April, where he received veterinary treatment for his burns and his owners arranged his transportation home.

BSM is incredibly proud of our *Johann Schulte* crew, who in a time of crisis risked their own lives to save that of others.



'Puchi' the rescued dog

## Crew safe after pirate attack

A Bernhard Schulte Shipmanagement (BSM) managed containership Maersk Tema was attacked by pirates off the coast of Guinea, Nigeria, earlier this year. The exemplary actions of the Master and his crew stopped this incident from developing into a kidnap and ransom situation, and most importantly, brought all 21 crew members to safety.

The vessel with a nominal capacity of 5,466 TEU was en-route from Pointe-Noire to Lagos at 19.4 knots, when the crew observed a suspicious approach from two skiffs and armed men intending to board the ship. The crew immediately activated their emergency response procedures and sought shelter. Both, the Nigerian and Portuguese navies attended the vessel's request for assistance in a prompt manner.

Upon a full security sweep of the vessel conducted by Nigerian marines, it was verified that two pirates

had indeed managed to board the containership; however, were able to escape before interdiction by authorities.

After the sweep, the vessel safely continued its journey to Lagos with a security escort. All appropriate maritime authorities of the region were notified, and the incident was reported by BSM, the manager of the vessel, to the Guinea Anti-Piracy Reporting Centre.

A well-trained crew, regular drills, voyage preparedness and risk assessments, as well as close collaboration between shore and vessel, were the key success factors in this situation. BSM is especially grateful to the crew for their professionalism and following all procedures in such a commendable way, as well as the Portuguese navy, Nigerian navy and all other parties who provided their prompt assistance.

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# BSM supports the “Flying Angel” campaign



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Bernhard Schulte Shipmanagement (BSM) proudly supports, also financially, the important work the Mission to Seafarers is doing with its “Flying Angel” campaign.

The Mission to Seafarers launched this flagship campaign to address the severe welfare issues facing seafarers worldwide in the wake of the ongoing COVID-19 pandemic.

Crews remain trapped on vessels owing to travel restrictions, subject to quarantine upon returning home, and unable to contact loved ones. The Mission has targeted a funding total of £600,000 to deliver this programme, which will have significant benefits to the entire industry.

The Mission to Seafarers has been assessing the needs of seafarers through the Seafarers Happiness Index, and the use of its digital support system “Chat to a Chaplain”. Although circumstances are evolving with some crew changes possible, it is clear that seafarers are still suffering, and their mental health and wellbeing will continue to be significantly impacted in the long term. In response, the Mission will be focusing on two main areas to offer support: Resilience in Ports and Technological Solutions to improve connectivity.

Would you like to support the great work of the Mission or are you a seafarer wanting to chat with a chaplain, then visit:

**[www.missiontoseafarers.org](http://www.missiontoseafarers.org)**

# Happy Work Anniversary to our BSM employees!

## Sea Staff

*“We would like to sincerely thank our seafarers for their ongoing contribution to the continued growth and success of the company, your dedication and commitment is highly valued and recognised.*

*Congratulations on reaching this important career milestone.  
Your ongoing contribution is fundamental to our continued success.”*

Eva Rodriguez, HR Marine Director

## 10 years

ACHACOSO, KENNER SALES  
ARINES, CHRISTIAN DACARA  
ASPERA, JOHN CARLO JINON  
AUNG, NYUNT  
BALINGIT, MARLON ANACLETO  
BALINSKI, MARCIN  
BARIA, BHAVIK KUMAR MANJI  
BASCAR, VICENTE EWAYAN  
BASTINEN, DOMINIC IAN QUINTO  
BIONG, MARK BALTAZAR  
BORAK, DAMIAN  
BUENAVENTURA, ALVIN MAGPALE  
BURONDKAR, FAROOQUE GAFOOR  
CALIZO, SYLWYN TAYCO  
CANETE, ALEX POCOT  
CANETE, RUEL CANONO  
CARDONA, JOSEPH LANGCAY  
CAREV, TOMISLAV  
CASTILLON, JEZRYL BOLONGON  
CELIS, HAROLD BACSA  
CHAUHAN, AVDESH BAIJNATH  
CHAUHAN, PHOOLGENA RAMSUNDER  
CHIT, NGWE  
CUANAN, JIMMY JUN TACANDONG  
CUSI, GILBERT ORIBIANA  
DAGANGON, PRESLYN MAQUILANG  
DE GUZMAN, DARWIN SAAVEDRA  
DE GUZMAN, JERIC PEREZ  
DEMANA, PAUL JOHN ALFUENTE  
DEMETERIO, ALDRIN MAGLINTE  
DIZON, JOHN BENCALO

DORDOR, SAMUEL  
DRUMAN SILVA, SUMAN  
DUDOV, VALERIY  
ECKER, LUBOMIR  
ENCARNACION, JOSEPH MENDOZA  
ESPINOSA, JOSSIE BENCALO  
ESTIMADA, MARK KIM DOMINGO  
FARONILMO, SHERWIN SERDENA  
FIEL, DANTE CAUBA  
FLORES, JUAN ALBERTO  
GENTILE, CHRISTIAN ASPAN  
GLONTI, IRAKLI  
GOMEZ, MARK JOHN SUAN  
GRUBINSKI, GRZEGORZ  
GUI, PAN  
HASNAIN, SHAHINSHAH  
HIPE, ARVIN ACEBUCHE  
HTET, SOE  
IONESCU, EMILIAN LAURENTIU  
JALOP, ARSENIO MACALOS  
JIANG, FANG FANG  
KANWAR, BALJIT SINGH  
KARTOMIHARJO, SUNARSO  
KE, FUFEI  
KOKOLADZE, IRAKLI  
KOTAK, ROHIT RAJENDRA  
KUMAR GUPTA, AJAI  
KUMAR, RAKESH  
KUMAR, SHAILENDRA  
KUMAR, SURAJ  
KVARIANI, DAVID



KYAW, MAUNG  
 KYAW, MYO SWE  
 KYIN, SOE  
 LIU, JIAN  
 LIU, JIN HUI  
 LIU, JIN LIANG  
 LOMUGDANG, FRANCIS MONTOYA  
 LU, CAI JUN  
 LUGATIMAN, CECILE TENERIFE  
 MAG-ASO, CONROY RANDOLF ELLO  
 MAGBOO, JOHN KENNETH ALMANZOR  
 MAKHLAI, OLEKSANDR  
 MANAUG, JAYSON CASTRO  
 MANEACHIN, GABRIEL  
 MANGAOANG, FRANIKE LILAN  
 MANIBOG, ARCHIE GALLOS  
 MAPARI, JUNAID RAFIQ  
 MELATH, MANOJ  
 MEMBRANO, EDDIE GERONA  
 MIJARES, ROMMEL ANINON  
 MORGAN, LINO JOSE RAMINTAS  
 MOZDZIERZ, MARIUSZ  
 MUGHAL, TASLEEM AKHTER  
 NAGERVADZE, AVTANDIL  
 NAUMOWICZ, RAFAL  
 NIKITIN, VOLODYMYR  
 NORIO, MICHAEL VELLIGAS  
 NOWICKI, MAREK  
 OCHEA, FRANCIS BUCTION  
 OGNITA, DHERWEN ARIOLA  
 PAIRA, CHRISTOPHER LIFANA  
 PALIEI, ANTON  
 PERIYASWAMY, SENTHILKUMAR  
 PIMALRAJ, VINISTON  
 PIZ, STEWARD CARREON  
 POYARKOV, ALEXANDER  
 PUNO, BANJO ROBERTO  
 PUSHPARAJ, AMIRTHA DISHOK NIMAL  
 QUERODA, MARK ISLES  
 RAFIQUZZAMAN, MD.  
 RAMOS, EFFERMAN CABANAG  
 REYNO, ARVIN AMBOL  
 ROA, FLARIDEL MANTES  
 ROOPESH, CHANDRA  
 SALA, ISMAEL JR. LOMUTAC  
 SANCHEZ, RONALDO RIVERA  
 SANTHANAM, JONES  
 SANTILLAN, LEONARD MAGBANUA  
 SANTOS, ANTONIO JR. GASCON  
 SARANOVIC, IVAN

SARCINO, RENE BILLONES  
 SASI JR., ROLANDO VILLAMOR  
 SINGCUA, WILLIAM HABOLIN  
 SINGH, AMRINDER  
 SINGH, PARDEEP  
 SINGH, SUDHIR KUMAR  
 SIWACH, KRISHAN  
 SOHAN, ADRIAN  
 SORIANO, ARNOLD TULOD  
 SORILLO, RYAN JOHN SUSANA  
 STARCZAK, KRZYSZTOF KAROL  
 SUAN, SOCRATES CUBILLAS  
 SUN, JIAN  
 SUNIL GAVASKAR, JOSEPH  
 TACLOB, ALEX JR. AGUHOB  
 TANDEL, ARUNKUMAR JERAMBHAI  
 TANDEL, HARSHIL DILIPBHAI  
 TANDEL, KIRANKUMAR JAKHABHAI  
 TANDEL, PRAGNESHKUMAR BABUBHAI  
 TANG, YONG BO  
 THAN, OO  
 THOMMAI PREGASAM, SAHAYA RAJAN  
 TIN, TUN LIN  
 TIWARY, RAHUL  
 TKACHENKO, ARTEM  
 TOKAREV, VLADISLAV  
 TOMAR, ANAND SINGH  
 TRISNO, RICKY  
 URIARTE, MARK ANTHONY HORCERA  
 VASQUEZ, REX CAPISTRANO  
 VASYLCHENKO, SERGIY  
 VATAKKE PURAYIL, VINODKUMAR  
 VILLEGAS, ROMMEL JAPITANA  
 VIOLA, SILVERIO INOVERO  
 WIN, HTUT AUNG  
 YADAV, RAJESH  
 YE, TUN NAING  
 YEFIMOV, VASILY  
 ZAHARENKO, ANATOLIJS  
 ZHANG, YUNBO

# 15 years

AGUILAR, DENNIS CAJES  
 ALBERT, ANDREY  
 ALOMIA, REMAN ALDERETE  
 ARGAMASO, SALVADOR GASATAYA  
 ARUMUGAM, SUNDAR  
 AUSAN, GRACIANO SOMBILON

BADILLO, ERWIN GONZAGA  
 BAGAYAS, ERWIN BOLANIO  
 BARAN, JULIE BARGAMENTO  
 BAZAR, DICK PILI  
 BERMEJO, ROEL ELLO  
 BHATKAR, SHAKIL JAFAR  
 BIBIK, PETR  
 CABEROY, JAVNER ELIPEN  
 CALLENA, MOMAR CIERVO  
 CAMAMA, ARNEL ENCARNACION  
 CANAG, GIRYLO YMBALLA  
 COSINERO, JENIEVEN CALUNIA  
 CUADRA, FELIX VIRTUDEZ  
 DALAPO, ALEX AMOG  
 DAMILES, REYNALDO NUNAL  
 DARVESH, NARAYAN PUNDLIKRAO  
 DE LEON, EDRALIN DELOS REYES  
 DESAMPARADO, DINDO ALO  
 DUBEY, LALSAHAB  
 ESCABARTE, NARCISO JUMAWAN  
 FERNANDEZ, ROMEL CAUGIRAN  
 FERNANDO, AROCKIARAJ XAVIER  
 FERREIRA, CASSIAN JOSEPH  
 GARCIA, RONIE DEMALUAN  
 GERMAN, CHRISTIAN LAMOSTRE  
 GODINEZ, CLYDE ABALLE  
 GREZULA, ROMEO BARON  
 GURGENIDZE, ENVER  
 HEERALAL, DARSHANLAL  
 IBRAHIM, NODI ALSAD  
 ILLAVERA, EDGAR MATANGA  
 ISAR, MAXIMO DEL ROSARIO  
 JOSEPH, MARIA AGNELO SAHAYARAJ  
 KYRNYCHANSKY, VALERIY  
 LANDAYAN, ORLANDO REYES  
 LAVALLE, ROWEL FERNANDEZ  
 LOSIGRO, RODERICK EVASCO  
 LYPETSKY, SERGIY  
 MABALAY, AUGUSTO MABUTOL  
 MANUEL, FERDINAND DE GUZMAN  
 MIRIANOV, DMITRII  
 MURUVAN, AYANARAPPAN  
 NYKYFOROV, IGOR  
 PAITONE, JOSEPH ROJON ARELLANO  
 PALOMATA, TOMMY GUSTILO  
 PEREYRA, ANTHONY REBENITO  
 PEREZ, ALEX VILLA  
 PEVKIN, KONSTANTIN  
 PRAKASH, ANBU FERNANDO  
 PROPAT, MADHAN

SAGUN, JEFFERSON BANGLOY  
 SALVANA, MARIETO LLANTO  
 SAVELJEVS, ALEKSANDRS  
 SILANG, NESTOR ILAGAN  
 SINGH, KRIPAL  
 SINGH, RAJEEV KUMAR  
 SINGH, SURINDER  
 SINSON, ROBERTO PE  
 SISOJEVS, JEVGENIJS  
 SOLAS, ROMEO GARLAN  
 STOVBA, VADIM  
 SUAREZ, RONALD LIPAT  
 THAN, AUNG  
 TORRATO, EDMAR TUBLE  
 TRETYAKOV, NIKOLAY  
 VILLAVARAYEN, NILESH BONAVENTURE  
 VIRTUDAZO, JERRY TIMTIM  
 YURTAYEV, VIKTOR

## 20 years

ABE, ROOSEVELT SANCHEZ  
 BABAC, RICHARD JUSTINIANI  
 BALANGYAO, BENITO CALUSTRE  
 CAMACHO, RENIE HAMBALA  
 CAMERINO, RODERICK ALVAREZ  
 CASAMORIN, RODELLE BANSAGON  
 CEDANA, SAMSON ANIVERSARIO  
 CHUKASHEV, ANDREY  
 DANILOV, DANIIL  
 DELOS SANTOS, BENJAMIN AHITO  
 EGUAC, CRISTOPHER ATILANO  
 FERNANDES, SAVIO LINO DEODITO  
 FERNANDEZ, JOSEPH LUMBAB  
 GALKIN, VLADIMIR  
 GIPAL, CATALINO III CORUNA  
 HLA, KYI  
 LUKINS, IGORS  
 MAGARO, DANILO ESPOSO  
 MEJIA, LARRY CASTRO  
 MENDEZ, MARLON MANTE  
 MYO, AYE  
 NAYDENSKY, MARK  
 POLIGRATES, TEODORO SUBRADO  
 PRADO, EDUARDO DE VERA  
 RODRIGUES, DENNY PEARSON  
 TABELLA, RODERICK MANGILOG  
 WROBEL, WACLAW BOGUSLAW



## 25 years

BATAIN, RENEBOY YSULAN  
 DOTIG, JOSELIN CUETO  
 JACOB, ANTONIO JR. DE LEON  
 MARZAN, MARCELO REFUGIA  
 NACIONALES, REX NONLES  
 VILLADAR, NESTOR SAGAL  
 ZAW, MIN TUN

## 30 years

IMAN, ALEXANDER ANTONIO ABORDONADO  
 JUARIO, RONNIE IDIO  
 NAPOLES, WILFREDO NICDAO  
 PIGAO, RODERIC RAGUINDIN  
 SOL, NORMANDO QUINTO  
 SUPAT, SAMSON ASMODO

## Shore Staff

*“We would like to thank our employees for what they have done for the company. The successful growth of the company is the direct result of all of you, our valued employees, your dedication and commitment. Congratulations on reaching this important career milestone. Your contributions are an important part of our continued success.”*

Elena Pantazidou, HR Shore Director

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## 10 years

BORDE, POONAM  
 CHIA, LI PING  
 DANILOS, MARCIN  
 ELAVEETIL, SATHEESAN  
 ELM, MALIN  
 GAUR, PAWAN  
 KAMATH, SURESH RAVALNATH  
 MAGAN, JUAN  
 MOHAMMED, HABEEB  
 NG, HAZEL  
 ONG, HONG LENG

PANTAZIDOU, ELENA  
 PAWAR, NAMITA  
 PUJARI, RASHMI  
 RAGAVAN, SANKAR  
 RUAN, DAKOTA  
 SAKRE, HITESH  
 SIM, VINCENT  
 SHIVANKAR, MAHESH  
 TOLENTINO, EVELYN  
 UZCATEGUI, DANIEL  
 XAVIER ROBIN, FRANCIS  
 ZHANG, BAOBIN

## 20 years

ACHILLEOS, ACHILLEAS  
 ANNENKOVA, HELENA  
 CONIGLIO-BURROWS, SUSAN  
 GAIKWAD, VISHWANATH  
 GERRARD, KYLEY  
 HERBST, GIDEON  
 HERNANDEZ, RONALD  
 JOHNSON, SUNITA  
 JOSHI, ABISHEK AJEET

KOZDRON, KRZYSZTOF  
 LILIA H., MIDDLETON  
 MCGUIRE, SARAH  
 NAUNG SOE, YAN  
 POLYCARPOU, POLYS  
 THEODOTOU, EVI  
 TROMMLER, KATRIN  
 VLASENKO, ALEKSANDR  
 WHILEY, SHARON

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