# Shipping in the new normal



MCI (P) 050/03/2020 A Publication by the Singapore Shipping Association



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# Foreword

#### Dear members,

As the world continues to deal with the impacts of COVID-19, the shipping industry has faced many challenges over the past months, not least in respect of enabling seafarers to return to their homelands at the end of their contract onboard. We in Singapore have been at the forefront of global efforts to find a pathway that maintains the safety of citizens but facilitates the repatriation of crew.



However, this will remain a significant challenge in 2021 and it is important that governments continue to facilitate crew change despite potential spikes in COVID-19 cases in different geographies. The introduction of vaccines offers hope. SSA encourages governments around the world to recognize seafarers as critical crossborder frontline workers and, as such, prioritize the seafarers when vaccines are eventually distributed globally.

Of particular note for Singapore is the fact that both the Singapore Shipping Association and the Maritime and Port Authority are currently led by women, in the case of SSA, by Caroline Yang and for MPA, Quah Ley Hoon. Both of these key global organisations have been crucial to the maritime sector throughout the pandemic, so we felt that it was the ideal time to speak to them both about their role during this period of uncertainty.

In our technology feature, we investigate digital tools and technology which can help authorities to monitor crew prior to leaving their homes and throughout their journey as they prepare to board ship. This new technology can track location and vitals on crew, and allows for secure, and tamper proof, test results and certificates, all of which should instill confidence as the world starts to open up.

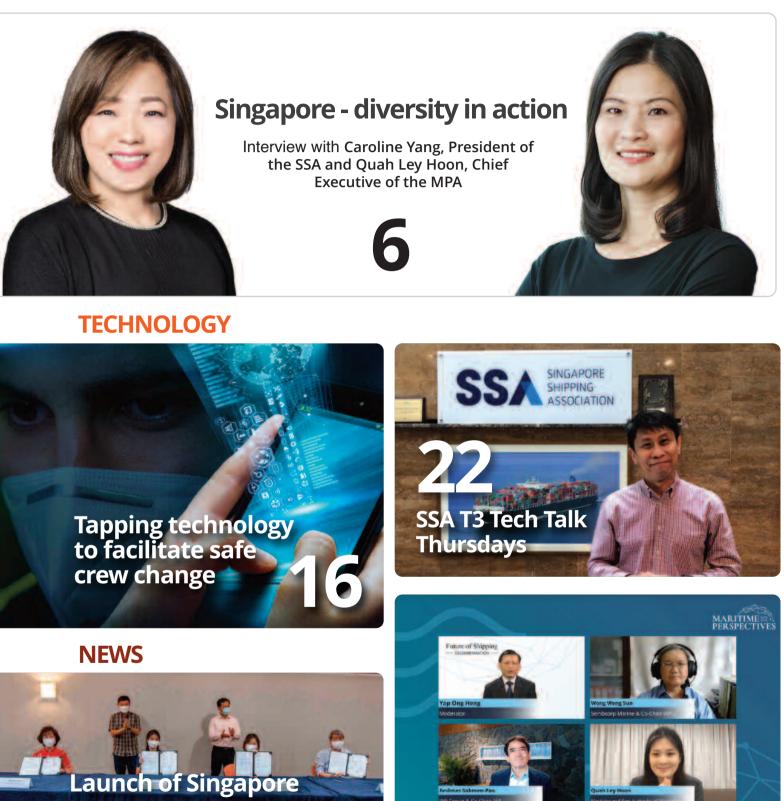
Singapore has also been at the heart of some key webinars. The Maritime Perspectives series took an indepth look into how shipping can build resilience in a post pandemic world and other major issues such as digitalisation and decarbonization facing the industry today. We take a look at the key out-takes from these influential events.

As 2020 comes to a close soon, I would also like to wish all members a safe and happy festive season with your loved ones.

#### René Piil Pedersen

SSA Vice President & Honorary Secretary, General Affairs Committee Chairman

#### **THOUGHT LEADERSHIP**



Shipping Tripartite Alliance Resilience (SG-STAR) Fund

A new perspective on current challenges



New Memorandum of Understanding signed between Maritime and Port Authority of Singapore and DBS Bank





SMI Webinar: The Role Of Digital Twinning For Autonomous and Smart Vessels



**31** SSA Young Executives Group learns how to build a professional brand on LinkedIn



#### Publisher

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#### Notice to all SSA members – stay in contact

As you are aware, the SSA Secretariat often sends out email circulars to inform you, our members, of SSA's events and the latest developments in the industry. We have noticed that some of you may not be receiving the email circulars sent out by the SSA Secretariat – as your office email server may have classified our emails as spam.

To resolve such issues, kindly include SSA's domain name ssa.org.sg into your email whitelist/safelist so that you remain in our communication channel. Thank you for your kind attention.

# **Event Calendar**

#### October

sun	mon	tue	wed	thu	fri	sat	
				1	2	3	
4	5	6	7	8	9	10	
11	12	13	14	15	16	17	
18	19	20	21	22	23	24	
25	26	27	28	29	30	31	

#### October 2020

17/10
22/10
28/10

MSC Maritime Summit Case Challenge Finals Annual SMI Forum – Future of Port and Shipping SSA Webinar - Rate Transition, Ship Finance And Sustainable Funding

	Nc		en	nb	er		
	mon <b>2</b>						
8	9	10	11	12	13	14	
15	16	17	18	19	20	21	
22	23	24	25	26	27	28	
29	30	31					

#### November 2020

03/11	Singapore Registry of Ships (SRS) Forum
06/11	Webinar on Best Practices to Manage Oil Pollution
12/11	Tech Talk Thursday Ep 3
	Topic : Resetting & Accelerating Recovery
13/11	Webinar on Singapore Solvency Law
14/11	Deepavali
18/11	SSA-Inmarsat-PWC Webinar on IMO 2021 Cyber
	Security Requirement
24/11	SSA Tech & Demo Day II
30/11-01/12	International Safety@Sea Webinar themed "Maritime
	Safety: New Normal Paradigms"

#### December

sun	mon	tue	wed	thu	fri	sat	
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6	7	8	9	10	11	12	
13	14	15	16	17	18	19	
20	21	22	23	24	25	26	
27	28	29	30	31			

#### December 2020

09/12 25/12 Webinar on Freight and Oil Market Outlook 2021 Christmas Day

This event calendar is subject to change. Information correct as of 15 November 2020

# StormGeo launches s-Suite, the complete, one-stop solution for shipping companies

s-Suite delivers cost efficiencies by optimizing time, fuel and vessel performance while ensuring navigational safety and environmental compliance

StormGeo launched s-Suite, an innovative software and services suite for shipping customers. s-Suite includes Voyage Planning, Onboard Route Optimization, Route Advisory Services and Fleet Performance Management, now combined onto a complete, one-stop solution, and offered by one company. This flexible solution can be used together or as individual modules.

s-Suite delivers an all-in-one, optimized workflow where ship and shore have a common operational platform. This promotes cooperation and faster decision making based on real-time data sharing to optimize time, fuel and vessel performance. StormGeo is the only company to offer the shipping industry a complete, in-house solution coupled with the competence of maritime experts in route advisory and fleet performance management.

s-Suite is hardware independent and works with all thirdparty solutions.

"s-Suite's complete solution gives our clients the advantage of improved efficiency and collaboration by connecting ship and shore, ensuring faster decisions so vessels save time and fuel while maximizing the vessel's performance," said Kim Sørensen, StormGeo Chief Operating Officer for Shipping. "This solution is for shipping companies of all sizes, enabling them to reduce

StormGeo

fuel costs and emissions with simple, easy to use tools that can be installed overnight. The s-Suite is supported by maritime experts in our Fleet Performance Centers, so clients can benefit from real-time advice, data accuracy and in-depth analysis, ensuring optimal vessel performance."

According to Captain Christian Stefes, Head of Dry Cargo at Hartmann Schiffahrts, "We constantly seek to reduce costs and emissions, and we needed more than software. It is imperative that our shore-based operators connect with the vessel, trusting the accuracy of the data they use. That's why we rely on s-Suite and StormGeo's experts. We now have the easy-to-use tools we need and actionable data to make the right decision at the right time."

The three s-Suite modules include s-Planner, s-Insight and s-Routing.

#### s-Planner

s-Planner integrates voyage planning, route optimization, as well as charts and publications management in one user-friendly workflow for efficient planning and navigation. Information on route, weather, charts & publication orders and inventory is shared in shore-based modules in s-Suite, improving collaboration to ensure safety, fuel efficiency and compliance.

#### s-Insight

s-Insight delivers fleet performance management that includes commercial, technical, and environmental performance. By improving ship-to-shore collaboration, clients are ensured the crew onboard and the fleet manager boost the financial result of the voyage by making joint decisions in terms of time and fuel. The product is strengthened by StormGeo's Fleet Performance Centers, providing accurate data validation, in-depth analysis and fuel-saving recommendations and assistance from competent maritime professionals.

#### s-Routing

s-Routing combines experienced route analysts with StormGeo's advanced technology to ensure safety, save time and fuel while reducing emissions. Skilled route analysts and service teams ensure commercial requirements are optimized through strategic guidance 24/7/365. StormGeo routes more than 65,000 voyages annually, saving clients nearly 1 million MT of fuel and reducing CO2 emissions by 3 million MT.

For more information, visit www.stormgeo.com

#### **StormGeo**

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S-Suite

### A one-stop solution connecting the shipping industry.

Manage the performance of your fleet. Optimize time, fuel and vessel performance. Ensure navigational and Environmental compliance. All on a single, integrated platform.



S-Planner Planning & Navigation



Management





s-Routing

Ship Routing Services

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# Singapore diversity in action



For the first time in its history, the maritime industry has two women heading up major organisations, the SSA and the MPA. We wanted to explore how Caroline Yang, President of the SSA and Quah Ley Hoon, Chief Executive of the MPA, feel that this momentous situation has impacted on the organisations themselves and shipping in general

How did it feel to be the first female leader of your organisation?

#### **CAROLINE YANG**

It did feel a bit surreal that when I was elected, I was always referred to as 'the first female to be elected as President in SSA's 34 years history'. Other than this, I don't think the rest of the Council, comprising 12 other members and the Secretariat, led by Michael, treat me differently or have different expectations just because I am female. I am expected to provide leadership to SSA and bring this association forward. As for the members and other stakeholders that I work with in Singapore, again, sometimes, the introduction is prefaced with 'The first female President of SSA' and then that is it, we go to the business at hand.

"I don't think the rest of the Council, comprising 12 other people, and the Secretariat, led by Michael, treat me differently or have different expectations because I am female."

#### QUAH LEY HOON

Being a female all my life and in my various capacities, I have never differentiated myself from other male colleagues. In a way, I also took on the role of CE MPA with the same lens. Interestingly, I have never been asked this question before, and I am always at a loss for words when asked how I feel as the first female CE of MPA.

Perhaps the one word I can use to describe this feeling is – pride. Being the first female CE of MPA, there is a sense of pride and expectation. I hope to inspire more women to join the maritime industry.

I am certainly proud to say that women make up about half of the senior management team in MPA.

"Interestingly, I have never been asked this question before, and I am always at a loss for words when asked how I feel as the first female CE of MPA."



What have been the top 3 key challenges you have faced since you took on your role?

#### **CAROLINE YANG**

If I reflect on my first 6 months as the President of the SSA, I was finding my footing so I tried to attend all events, discussions, meetings and conferences that I was invited to as President. I also started to visit our members, individually.

The SSA Council, formed by a group of committed people with diverse expertise, are completely transparent and honest with each other. Discussions are candid and robust to forge common goals, all for the good of Maritime Singapore. The Secretariat, led by Michael, is strong too and I have no worries in that respect.

However, the pandemic has impacted us like nothing before. With its onset, SSA has worked extremely closely with our members to articulate the grave and immediate concerns to both MPA and Enterprise Singapore (ESG). I personally believe that because of the frequent dialogues with members and the agencies, some of our concerns were subsequently addressed in some of the Singapore Supplementary Budgets to cope with the pandemic. The SSA has also been spending considerable time engaging MPA and other maritime stakeholders on the crew change challenge. I am very heartened that SSA's efforts, led by Michael, resulted in the co-development of the Singapore Crew Change Guidebook by the authorities, unions and the industry, to align protocols for crew change in Singapore.

The other concern is the narrative of foreign and local workforce. Maritime best epitomises the balance between foreign and local – the great dynamism and vibrancy within all of us in maritime. We want to have a Singapore Core but also welcome anyone who works in maritime, whether local, foreign or somewhere in between. We also need a social compact with foreign companies that they are sincere and take concrete efforts to transfer knowledge to the locals. My Council is the best reflection of this, and hand on heart, everyone in the Council has the best interests of Singapore. Last but not least, we are working closely with MPA and other government agencies to help create jobs in the Maritime sector.

#### QUAH LEY HOON

This year, the biggest short-term challenge has undoubtedly been COVID-19.

- At a macro level, COVID-19 has dampened global growth. In Singapore, our GDP is predicted to contract between 6.5 and 6% in 2020, according to Singapore's Ministry of Trade and Industry (MTI)<sup>1</sup>.
- For the maritime industry, COVID-19 has also created many operational challenges, in particular crew change. Crew change is a delicate balancing act. We have a responsibility to protect the welfare of our frontline seafarers who are keeping global supply chains running, and at the same time, we have a responsibility to ensure the crew change takes place safely without risking the health of both the general public and the seafarers themselves.
- I am happy to share that MPA has safely facilitated over 60,000 sign-on and sign-off crew of different nationalities from more than 3,500 ships since March 2020. This would definitely not have been possible without the strong support from the industry – in particular our tripartite partners SSA, SMOU, and SOS.

1. MTI forecasts GDP growth of -6.5 to 6% in 2020 and 4 to 6% in 2021." MTI, 23 November 2020.



Of course, beyond the short-term challenge of COVID-19, there are other ongoing issues that we focus on. Rather than seeing these solely as challenges, I prefer to take reference from the Chinese term危机 – to look for the opportunity present in every challenge. Some key areas include:

- (1) Talent how do we attract new talent to the sector and support our people in upskilling, reskilling and new-skilling, so that they can transform the industry in the New Normal?
- (2) Digitalisation how do we harness the full force of technology to layer physical connectivity with digital connectivity, and help maritime companies go digital?
- (3) Decarbonisation how do we ensure that we are on track to meet the IMO's 2030 and 2050 decarbonisation targets of reducing total annual GHG emissions by at least 50% compared to 2008 levels?



Do you think that these challenges have been different because you are a female?

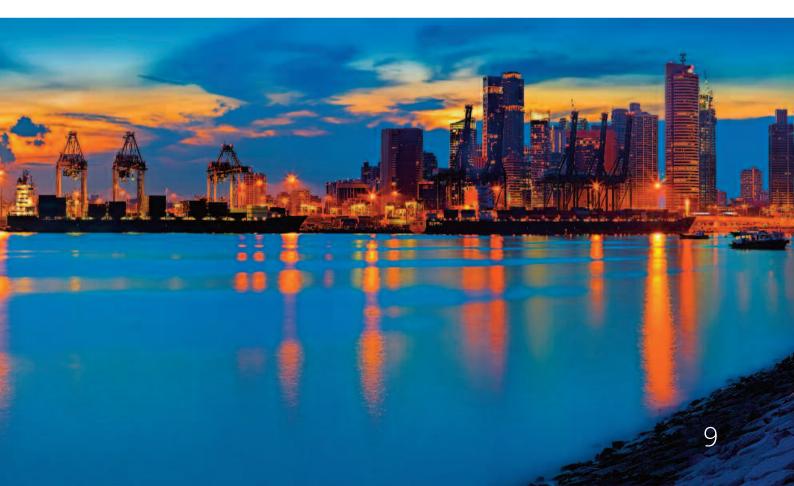
#### **CAROLINE YANG**

I would say no. The disruption, digitalisation and decarbonisation challenges that the shipping industry is facing are not going to be in a different form just because I am a female. However, diversity, be it gender, ethnicity, nationality or age, can help us better navigate the future. I do look forward to having more females in leadership positions in the maritime sector.

#### QUAH LEY HOON

Well, I would never know since I will never be a male!

On a serious note, I am glad that throughout my upbringing, whether at home or in school, I have never been treated differently because I am a female. In fact, I grew up knowing that there are equal opportunities available for everyone in Singapore, regardless of whether I am a man or a woman. For example, in my





"We will need employees with high emotional intelligence, adaptability and empathy, to help companies pivot towards more flexible and remote ways of working."

Junior College, I was the only girl in the Gunung Tahan Mountain Trekking team for my batch. We were trained to scale mountains. It was not about gender, but about perseverance.

Fast forward to today, when the maritime sector is fast transforming. We will need talent that is comfortable with rapid shifts in business models and new technological platforms. We will need cross-disciplinary and digitally agile workers who are attuned with ESG principles (Environment, Social, and Governance). We will need employees with high emotional intelligence, adaptability and empathy, to help companies pivot towards more flexible and remote ways of working. Such diverse needs create a more level and meritocratic playing field for all. This, for me, means opening up the field of opportunities for women to make a difference. Q Do you see it as an advantage that SSA and MPA are both led by women at the moment? Has it strengthened collaboration between the two organisations?

#### **CAROLINE YANG**

The SSA and MPA have been collaborating well on many fronts over the years.

It is a nice coincidence that both organisations are currently helmed for the first time by females. A great coincidence too that the President of the Singapore Maritime Officers Union (SMOU), Mary Liew, is also a female. So, in a sense, when we meet, there is a certain level of comfort and friendliness. I suppose I can now relate a little bit better to the feeling of the 'old boys club'!

Of MPA CE, my personal view is that she is down-to- earth and she only wants to improve MPA and Maritime Singapore. She is completely sincere in wanting to work with the industry, SSA being an important node. She is also very driven and yet has heart for people. I trust her. So, from my perspective, because there is a high level of trust and we share a common aim, a better Maritime Singapore, we work well together, and that has cascaded down to all the levels within the two organisations. I reiterate this for SMOU and Mary Liew as well.

#### QUAH LEY HOON

This is definitely a unique and unprecedented moment for Maritime Singapore, to have both SSA and MPA led by two ladies – Caroline and myself. However, I wouldn't say that our gender really plays a part in bolstering collaboration between MPA and SSA. In reality, MPA and SSA have always worked together very closely on all issues maritime. With the onset of COVID-19 this year, this partnership has only become stronger.

Take the example of the Singapore Shipping Tripartite Alliance Resilience Fund (SG-STAR Fund) to facilitate safe crew change by tackling upstream challenges in seafaring "Because there is a high level of trust and as we share one aim and that is Maritime Singapore, we work well together and that has cascaded down to all the levels within the two organisations."

countries. The SG-STAR Fund is a great example of tripartite collaboration – not just in Singapore between MPA, SSA and our union partners SMOU and SOS – but also globally, because it has secured support from seven international organisations (ITF, IMEC, ICS, Global Maritime Forum, INTERTANKO, Norwegian Shipowners' Association and World Shipping Council) and nine port authorities. Incidentally, Mary Liew, the General-Secretary of SMOU and one of our key partners, is also a woman! From conceptualisation to announcement, it took us just 2 days to create the Fund – all we needed was a few phone calls to each other and a tripartite meeting to finalise the details.

# What do you see as the greatest success or initiatives to come out of your tenure to date?

#### CAROLINE YANG

I will have to leave this to my members and Council to decide after my tenure is over. When my term is over, I hope I have left it better than I found it (which was already great!). I hope a big majority of SSA members will feel more engaged and identify more with SSA, and consider SSA as their representative voice. For other stakeholders such as MPA, the unions such as SMOU and SOS, and maritime organisations such as FASA, ASA and ICS (of which SSA is a



#### "We are in a position to accelerate the pace of change, set standards, and create new pathways for the sector."

member), I hope they will view SSA as a relevant, important and most significantly, trustworthy stakeholder and partner.

#### QUAH LEY HOON

I am just two years in my appointment, so it is too early to talk about success or initiatives. As a public servant, my service is to the maritime industry and to my team. Any achievement is the work of partnership and collaboration, with our Maritime Singapore partners, with our tripartite partners, and with my MPA team.

What I can say is that I came into the maritime industry in an exciting time. It is transforming fast, whether due to COVID-19 disruption, digitalisation or decarbonisation. We are in a position to accelerate the pace of change, set standards, and create new pathways for the sector. Some examples include MPA's digitalisation initiatives e.g. the Maritime Digitalisation Playbook; our Smart Port at Tuas; setting digital standards at a global level through APIs and interoperable systems. We are transforming the industry to go green through our International Advisory Panel (IAP) of experts; we are developing a bunkering hub for LNG and future fuels; we are designing a Decarbonisation Roadmap to take us all the way to 2050. Even internally, we are transforming ourselves to be more agile for the industry.

My team and I in MPA are committed to achieve even more successes for Maritime Singapore, working hand in hand with the industry, unions and international organisations.



The maritime industry in general has needed to become far more collaborative rather than competitive during the COVID crisis. Do you agree and if so, what do you think are the greatest achievements of this collaboration?

#### **CAROLINE YANG**

Yes indeed so. Take the SG-STAR Fund as an example. It took, I think, less than two days for MPA (which initiated the idea), SSA, SMOU and SOS to commit S\$1 million for this crew change initiative. In less than a week or so, we had the International Transport Workers Federation and International Maritime Employee Council on board with US\$500,000, also the International Chamber of Shipping was ready to support with any expertise required. Almost immediately, we also had volunteers with diverse expertise from all across various sectors to set up a Task Force, each contributing much of their time to brainstorm on initiatives and execution thereof. This is a clear example of all sectors coming together to resolve a humanitarian crisis. I am extremely touched by the whole-hearted support shown.

"In Singapore, we have also brought together different stakeholders to address the issue of crew change."



#### QUAH LEY HOON

I do agree and I think this is one of the more positive aspects of COVID-19. I have heard from industry players that amidst this crisis, freight rates have remained resilient partly because shipping lines have resisted the urge to undercut each other's prices. I have already cited the SG-STAR Fund, which stands as an achievement of global tripartite collaboration.

In Singapore, we have also brought together different stakeholders to address the issue of crew change. With support from SSA, we rolled out the Singapore Crew Change Guidebook with the Crew Change Task Force headed by Michael Phoon. We also created dedicated facilities for crew sign-offs and sign-ons in our Crew Facilitation Centre (CFC), to safely house sign-on crew for up to 72 hours prior to ship boarding. We are fortunate that SOS and POSH stepped forward to support us in this initiative. These are all achievements that demonstrate the willingness of the maritime community to pull together and stand strong in times of crisis.

#### What would you be particularly proud of regarding your organisation's response to the COVID crisis?

#### **CAROLINE YANG**

I am very proud of the work by fellow SSA Council Members, SSA members and the SSA Secretariat to drive and co-develop initiatives such the Maritime Digitalisation Playbook and the Singapore Crew Change Guidebook, to help the maritime community grapple with the rapidly changing business environment and demands.

It would be wonderful if we could truly help to facilitate crew change on a meaningful (large) number, bring our crew home to their families and crew safely back to signon the ships.

#### QUAH LEY HOON

I am most proud of my organisation's attitude towards tackling the COVID-19 crisis. Despite the months of operational challenges, the MPA team remains very resilient and driven. This is because we know that our mission at MPA is key to keeping Singapore open, for both the national and global agenda.

In fact, we have not only responded to immediate challenges. We are also taking a longer view of this crisis by positioning ourselves for the New Normal and chartering forward to capture medium-term opportunities. One such opportunity is talent. Unlike other sectors, the maritime industry has remained resilient against all odds. Moreover, maritime is on the cusp of a transformation. We are already global; now we are going tech and we are going green. This is thus the best time to attract new talent to the sector. It is time to "Make Maritime Your Port of Call".

To this end, MPA is working with SSA, tertiary institutions and maritime companies to provide traineeships and attachment opportunities to attract new talent to the sector, in exciting new areas such as cybersecurity, data analytics and sustainability. This is one way we are turning this crisis into an opportunity.

#### Q Many people talk of the three Ds as being the key issues for shipping today – disruption, decarbonisation and digitalisation. Do you agree with that assessment?

#### **CAROLINE YANG**

Yes. I think this is 'truer' with the pandemic and has become more urgent than ever. The few months of lockdown have seen a minute improvement in the environment. It shows we have to do so much more for

"We are already global; now we are going tech and we are going green. This is thus the best time to attract new talent to the sector." "In MPA, we are constantly reorganising ourselves and readjusting businesses to adapt to these rapidly evolving global conditions. The best outcome would be if we can play a part or a leading role in determining the "norms" of this New Normal! "

climate change. Shipping must work towards achieving IMO GHG goals. Digitalisation was our saving grace in helping the economy to still run at some pace but it also shows that we need to accelerate this. Digitalisation will also play a key role towards decarbonisation.

#### **QUAH LEY HOON**

Yes, of course. The 3Ds have been MPA's workplan for this year, and they will be so for the next few years as well.

If you think about it, the maritime sector today is ripe for Disruption. Even before COVID-19, we were already facing the trends of a New Normal characterised by increasing supply-chain integration, nearshoring/reshoring and a focus on sustainable "green growth". In that sense, both Decarbonisation and Digitalisation should also be seen as disruptive forces for the maritime sector.

This year we have had the additional unprecedented disruption of COVID-19, which has led to many changes in our daily lives. In my view, COVID-19 will profoundly transform supply chains, international travel, and business operations for the long term.

In MPA, we are constantly reorganising ourselves and readjusting businesses to adapt to these rapidly evolving global conditions. The best outcome would be if we can play a part or a leading role in determining the "norms" of this New Normal!

#### Looking to 2021 and the near future, what are your 3 greatest wishes for your organisation and also the wider maritime industry?

#### **CAROLINE YANG**

First, as everyone in this world, that vaccines are realised on a large scale – so the world economy starts to recover which will bode well for the maritime industry too.

Secondly, that the wider maritime ship-owning community continues to exercise discipline with their new order book. The discipline in not over-ordering the last few years has stood us in good stead in this pandemic.

Third of course is to accelerate the pace of decarbonisation and digitalisation, with the support of the whole shipping community.

For SSA, that we continue to grow and become stronger all the time as an association representing our members, providing deep thought leadership, and be a trusted partner to our stakeholders.

#### QUAH LEY HOON

- (1) Greater resilience, so that we will get through this crisis!
- (2) Greater innovation, so that every challenge turns into an opportunity.
- (3) Greater partnership, so that we can achieve more successes together.

# Tapping technology to facilitate safe crew



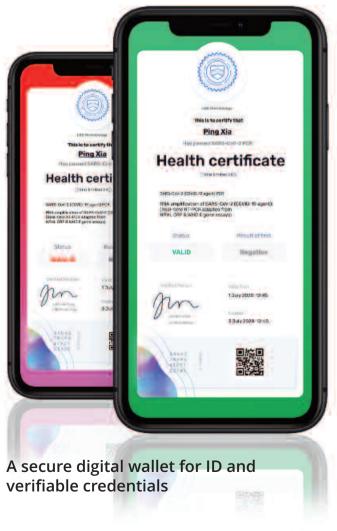
Travel restrictions are making it almost impossible to enable crew changes in many parts of the world. The format of data required for Crew Changes today can be tampered with and lacks integrity. The Authorities need to be able to take decisions based on facts and verified data, rather than declarations and undocumented data.

Due to the challenges with the travel restrictions 300,000 seafarers from across the world are stranded on vessels because of the pandemic, according to the International Maritime Organization (IMO). Some seafarers have now been at sea for 17 months without a break, well exceeding the 11-month limit set out in the Maritime Labour Convention (MLC). The rotation of crews is a key part of maritime trade and without safe changeovers, supply chains and trade are at risk. Not to mention the mental welfare of the crew. The crew are essential to preserving life as we know it and they are waging a battle against fatigue and despair after endless months at sea. We have a potential humanitarian and therefore trade crisis on our hands. But the good news is that we have the technology that can help us solve this crisis.

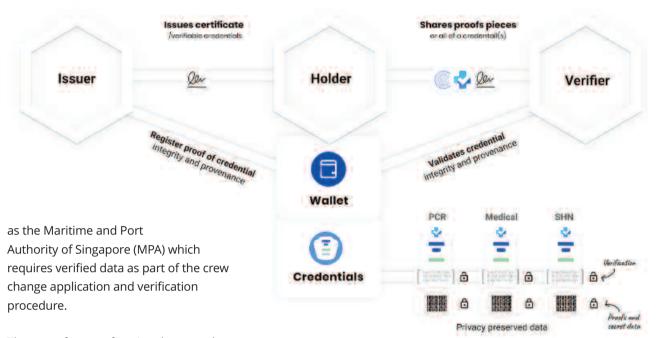
The technology from SafeCrew, which is a partnership between Riverr and Tagvance, could potentially help to provide the needed authenticated data by the authorities to enable crew change safely from home to vessel. The proposed architecture claimed to uphold privacy, security, portability, interoperability, and flexibility – thereby able to establish a verifiable audit trail - without compromising data-privacy.

The technology solution consists of three things; hardware to track location and vitals on crew, a SaaS platform for medical clinics to issue secure and tamperproof PCR test results and fit-to-travel medical certificates and, finally, a digital wallet for the crew to verify identity and create integrity in data. This results in an automated compliance hand-off to authorities such

We have a potential humanitarian and therefore trade crisis on our hands. But the good news is that we have the technology that can help us solve this crisis.



#### **Privacy Preserving Architecture**



The cost of not performing the crew changes intended can definitely be identified. Lots of time goes into planning and then having to redo the plans when a crew defaults on one of the three points of measurement. With the SafeCrew transparency they can quickly juggle which crew can go to which vessels, when changes are needed.

Organisations are able to have certainty regarding the validity and authenticity of the information. The solution consists of a wristband with an embedded tracker and temperature sensor, that automatically captures a tamper-proof record of temperature measurements during the Stay-Home Notice (SHN) period (thereby eliminating the room for human error).

The SaaS platform for medical clinics makes it easy for whitelisted clinics to issue tamper-proof medical certificates directly to the crew's digital wallet in an encrypted network based on blockchain technology. Verifiable credentials come with certain 'cryptographic superpowers' that make them tamper-proof and secure. Verifiable credentials uniquely solve the problem of verifying private medical information (PMI). The digital wallet for crew is an app that links the hardware to the individual crew, making sure that the right person has received the hardware and has activated it for the SHN period.

The overall technology solution is able to detect and identify any breach of procedures prior to departure

The technology enables privacy-preserving options like Zero-Knowledge Proofs facilitating the credential holder to prove certain things, without revealing anything else about themselves.

#### Verification status



from home country, which will result in individual crew being removed as opposed to a whole team of crew being impacted on arrival.

The technology also enables privacy-preserving options like Zero-Knowledge Proofs facilitating the credential holder to prove certain things, without revealing anything else about themselves. The solution obtains meaningful consent by being transparent about the reason for collecting data, what data is collected and how long it is kept. The integrated solution includes both the hardware and software to maintain a registry of whitelisted medical clinics that are authorised to issue PCR test results and fit-to-travel medical certificates and verifiable credentials are based on OpenCerts Schema.

### Singapore as a first-mover to tap into technology to facilitate crew change

The MPA has always been open to new technologies to bring improvement in port operations and keep the Singapore port operational 24/7 efficiently. Throughout the COVID-19 pandemic, through the collective efforts of SSA, MPA, the unions and other maritime stakeholders and interested bodies, Singapore has been at the forefront of initiatives to facilitate crew movements, whether repatriation at the end of a contract or enabling new crew to join a ship. A key output of such collective efforts was the co-development of the Singapore Crew Change Guidebook , incorporating safe crew change protocols and processes that were mutually acceptable to the authorities and industry players. The guidebook was held as a reference by the International Maritime Organisation which encouraged its member states to refer to it.

#### Local requirements

As requirements from crew change vary from place to place, the solution is also able to incorporate local requirements. This will enable the ship managers to apply the same technology to their crew at origin countries, but with different governance depending upon which location they are to travel to.

The SaaS platform for medical clinics makes it easy for whitelisted clinics to issue tamper-proof medical certificates directly to the crew's digital wallet in an encrypted network based on blockchain technology.

#### Out of the box reliable connectivity

Although there are many existing tracking solutions in the market, most of the current monitoring scanners use WiFi for internet access. In order to maintain scanner connectivity, Wi-Fi credentials and access point registration needs to be maintained through an app. Hence, it is assumed that the user will manage to bring up the device online. The SafeCrew proposed approach achieves out of the box reliable connectivity via onboard 4G LTE global mobile SIM card with hardware being able to host all LTE, Wi-Fi, and LoRa radios for backhaul connectivity for redundancy and to support multiple use cases.

# Launch of Singapore Shipping Tripartite Alliance Resilience (SG-STAR) Fund

The first global tripartite initiative to support countries for crew change

As the world continues to reel from the effects of the COVID-19 pandemic, seafarers work tirelessly to deliver food, fuel, medicines and other vital supplies to countries around the globe. However, the fact that global shipping has been able to carry on throughout the pandemic is entirely down to the sacrifices made by those same seafarers, many of whom have been stranded, either at sea and unable to return home to their families at the end of their contract, or conversely at home, unable to earn the money to support their families.

The launch of the Singapore Shipping Tripartite Alliance Resilience (SG-STAR) Fund seeks to bring welcome relief to the thousands of seafarers currently affected by the pandemic by accelerating the facilitation of crew change and searching out best practice solutions.

The SG-STAR Fund is a collaborative effort initially established by the Maritime and Port Authority of Singapore (MPA), the Singapore Shipping Association (SSA), Singapore Maritime Officers' Union (SMOU), and the Singapore Organisation of Seamen (SOS) with a fund of S\$1 million. The fund has now been augmented by the International Transport Workers' Federation (ITF) and the International Maritime Employers' Council (IMEC) which have jointly contributed US\$500,000 to the fund bringing it to a total of approximately US\$1.2 million (S\$1.68 million).

In addition to the ITF and IMEC, the International Chamber of Shipping (ICS) is also lending practical support such as technical expertise in shipping. SG-STAR Fund is the first global initiative to bring together like-minded international partners from industry, unions and government to



facilitate safe crew changes. The fund, which is based in Singapore, will be disbursed for use upstream in countries where many seafarers originate. In the first instance this will be countries such as The Philippines and India but it will be extended in time.

Steven Cotton, ITF General Secretary, said: "We need to see progress, especially on ways seafarers can show authorities and employers their negative COVID-19 Polymerase Chain Reaction (PCR) test results from verified medical institutions so that quarantine times can be reduced on board and while waiting to join vessels. Seafarers need practical solutions now, not tomorrow, to end this humanitarian crisis. This joint initiative, working with tripartite partners to promote practical solutions to the crew change crisis, will be key to breaking the current deadlock."

The fund has been warmly welcomed by other international bodies including the ILO and IMO, both of which have been deeply involved in solving the challenges posed by the pandemic, particularly as it relates to the issue of crew change. Capt Belal Ahmed, Chairman of IMEC, said: "The crew change crisis caused by the COVID-19 pandemic has brought various maritime players to work together more closely than ever before. IMEC has participated and contributed to both global and Singapore based discussions aimed at finding solutions and providing guidance as the crisis evolved. We are pleased to join the SG-STAR Fund and hope to bring our expertise to help find solutions to this crisis. I am confident this determined partnership will lead the way to practical approaches to a crisis that is expected to stay with us for months to come."

An SG-STAR Fund Task Force, (SFTF) led by Nitin Mathur, SSA Council Member and Chair of SSA Services Committee with members from MPA, SMOU and SOS, has been formed to work with stakeholders on solutions for safe crew change. Among the key initiatives under consideration are the accreditation of quarantine and isolation facilities, COVID-19 PCR testing certification, 'white listing' of clinics for PCR testing, digital solutions for tracking crew change, and interactive training sessions for crew to help understand crew change procedures and guidelines.

The SFTF has developed a CrewSafe audit programme based on Singapore's crew change model, to establish safe and scalable 'corridors' for crew change. This will help ensure quality checks on quarantine/holding, medical and swabbing facilities in crew-supplying countries.

The SFTF is working closely with the ITF/IMEC Philippines Working Group to audit two hotels as quarantine facilities, ensuring that they adhere to Singapore standards and protocols.

The SG-STAR Fund launched the Call-For-Trial Proposal in early October to gather input on digital solutions currently available in the industry and from potential technology providers who could offer partnerships with crew change stakeholders in Singapore and overseas. This has led to a number of productive applications which will be pursued by the fund. The Governance Committee of SG-STAR Fund is chaired by SSA President Caroline Yang and comprises; MPA Chief Executive Quah Ley Hoon, SMOU General Secretary Mary Liew, SOS President Kam Soon Huat, ITF General Secretary Stephen Cotton, and IMEC Chairman Capt. Belal Ahmed. Dr Lam Pin Min, Honorary Member of SSA, and CEO of Eagle Eye Centre, has been appointed as the Senior Advisor to the Governance Committee.

"The SG-STAR Fund initiated by the tripartite partners in Singapore aims to help support ship crew supplying nations enhance facilities and capabilities to establish safe and scalable "bubbles" or "corridors" to enable crew change - from the time to/from home country or country of origin, to the country where the crew joins the ship, as well as safe holding facilities at the home/origin country and the country where the crew change occurs. We are heartened to have ITF and IMEC join our initiative and contribute to the fund. We are encouraged by the support from other international maritime organisations and ports, and look forward to having more like-minded international partners come on board this tripartite initiative so that safe crew change can be further accelerated," said SSA President, Ms Caroline Yang.

"Singapore takes its responsibility to facilitate safe crew change seriously. We are pleased to work with our global tripartite partners to accelerate the development of practical solutions for crew change amid the pandemic. We are also pleased to have the support of ports from Abu Dhabi, Antwerp, Barcelona, Hamburg, Rotterdam, Sines, and Vancouver, as well as international maritime organisations such as the Global Maritime Forum Maritime Industry Crew Change Taskforce, INTERTANKO, Norwegian Shipowners' Association, and World Shipping Council to recognise the CrewSafe and other programmes by the SG-STAR Fund as a global initiative to facilitate safe crew change. We look forward to welcoming more like-minded partners to join us in this global alliance," said Ms Quah Ley Hoon, Chief Executive of MPA.

# SSA T3 Tech Talk Thursdays



Technology and regulatory challenges are pressing issues that many in the maritime industry face. To focus on resolving these problems, the Singapore Shipping Association organized an inaugural broadcast series – T3 Tech Talk Thursdays. The series will feature specially curated topics and guest speakers to help members keep up with discussions on issues and technological solutions in the lead-up to the next SSA Tech & Demo Day.

The first episode was streamed live on YouTube on 3rd of September with close to 80 participants tuned in. The session was led by Mr. Michael Phoon, Executive Director of SSA, along with his guest speaker Mr. Marius Johansen, Vice President of Wilhelmsen Ships Service and invited technologists Mr. Sanjeev Namath, Chief Business Officer/Director of Alpha Ori Technologies, Mr. Chye Poh Chua, Founder of ShipsFocus and Mr. Jonathan McLean, Principal Technical Account Manager of Veson Nautical. The discussion centred on the "Just in Time" concept for the maritime industry and identifying the concept 'pain points'. During the session, the speakers highlighted how the maritime industry needs to be ready for the "Just in Time" concept, although it requires a lot of mechanisms, tooling and efforts to implement. All speakers agreed that industries need to be open towards innovation and more importantly the momentum of implementation must be at a comfortable pace.





session discussion pointed out that there is a big difference between optimising operations and smart ship revolution as the scope for digitalisation in containerships, bulk & gas carriers, tankers, cruise line and port is widely varied. The industry needs to see a driver or an incentive for everybody. And one solution might be to illuminate business openness, trust and willingness to get the

Achieving 'Just in Time" may also require incentives to motivate the shift and implementation in operations. Different types of industry stakeholders may not all be able to see the same results as others as their time sensitivity demand may differ. There is also the challenge of data sharing, which will be need to be considered. Individual port's technological maturity progresses at a different pace, so the concept may only apply to maybe the Port of Rotterdam or Singapore but ships arriving from other countries may not be able to share their data to apply the "Just in Time" concept.

In the second episode of Tech Talk Thursdays, a discussion on the topic of "Smart Ship Collaboration" was streamed live on YouTube on 15th October and garnered up to 50 participants. The Executive Director of SSA, Mr Michael Phoon, introduced the panelists for the session - Mr Steen Lund, Chairman of SSA Digital Transformation Committee who hosted the talk show along with guest speakers Mr Ralph Juhl, Executive Vice President, Technical, Hafnia; Mr Sim Keat Lim, Vice President, Pacific, G2 Ocean and technologists Mr Marco Cristoforo Camporeale, Head of Maritime, Digital, Immarsat as well as Mr Andrea Giglietti, Head of Customer Success, Dualog.

With a new era driven by increased digitalisation and innovation, in particular with efficient operations and smart ships, the need for collaboration is important. The incentives visible to make this a success.

The building of trust and integrity will lead to a more natural sharing of data. If there are many platforms allowing us to share data, it isn't a problem. The issue lies in the framework of having a better understanding of how data can benefit everyone; e.g. shipowners and operators need to know that the data belongs to them and that the vendor will only be facilitating and gathering the data to serve them better.

Collaboration has to be built on each other's strength, as each player has to make a profit out of the collaboration, which although it may be very difficult, is achievable. There are already positive examples that demonstrate that sharing certain data works out well and creates new opportunities.

Find out more by catching our replay of the episodes on our SSA's Website.

https://www.ssa.org.sg/happenings/tech-talkthursdays.html

We hope you will join in on our future episodes of T3 Tech Talk Thursdays featuring new topics along with a panel of new guests and technologists.



# A new perspective on current challenges

The Maritime and Port Authority of Singapore (MPA) organised a three-part Maritime Perspectives Webinar series with experts and industry leaders sharing their insights on digitalisation, decarbonisation and trade in a disrupted world amid the global COVID-19 pandemic.

#### **Building resilience in a post-COVID world**

The first in this webinar series was the 14th Singapore Maritime Lecture. Ravi Menon, Managing Director of the Monetary Authority of Singapore, delivered the keynote address titled "Down But Not Out: Resilience in a Post-COVID World".

In his speech, he shared insights on changes to trade patterns and supply chains accelerated by the COVID-19 pandemic, the rise of Asia's middle class and e-commerce. He stressed the importance of resilience to seize new opportunities beyond the pandemic – (i) resilient supply chains that are diverse, flexible and integrated; (ii) resilient industry that rides on opportunities for digitalisation; (iii) resilient workforce that adapts to technological changes; and (iv) a resilient planet driven through sustainability. Mr Menon was later joined by Wan Chee Foong, Regional CEO of Middle East South Asia & Head of Group Business Development at PSA International, and Steve Saxon, Expert Partner at McKinsey. They shared their thoughts on exploiting new opportunities and transforming the industry to build resilience for the future.

During the discussion, Mr Menon highlighted the importance of end-to-end digitalisation in overcoming inefficiencies and enhancing productivity along the supply chain. He also emphasised the need for system integration and interoperability in a supply chain when going 'digital to the core'. Mr Wan pointed out that the pandemic has boosted workplace openness to reforms and has created a mindset shift on disruption and the need for collaboration among players in the logistics and port ecosystem. He also added that reskilling the workforce helps to raise the digital



quotient of employees, and enables workers to take on high-value jobs.

Mr Saxon promoted partnerships between maritime companies and start-ups as well as internet players when developing digital business units. Such partnerships help to attract talent and enhance digital skills within the maritime workforce.

### Charting ways forward for decarbonisation of shipping

The Future of Shipping:

Decarbonisation" webinar was jointly organised by the International Maritime Organization (IMO) and Singapore. Speaking at the opening of the webinar, Singapore Minister for Transport, Mr Ong Ye Kung, said, "While the world deals with the COVID-19 crisis, it must keep up with the fight against climate change. No one can do this alone. It is a global ambition, to be accomplished by the international maritime community. But we all have capabilities, expertise, and resources to contribute to this endeavour. Singapore will do our part, and we look forward to the maritime community coming together, under the leadership of the IMO, to redouble our efforts and build a better, greener world."

IMO Secretary-General, Kitack Lim, called for more action to speed up research into zero carbon marine fuels and said that the IMO is stepping up its efforts to act as a global forum and promoter of research and development in zero carbon marine fuels, bringing together interested stakeholders from public and private sectors.

A new initiative was announced during the webinar to co-ordinate and spur on global efforts. 'NextGEN' is a concept for a collaborative global ecosystem of maritime decarbonisation initiatives to facilitate information sharing across stakeholders such IMO member states, industry and academia, identifying opportunities for decarbonisation.

Speaking at the panel discussions, Mr Andreas Sohmen-Pao, Chairman of BW Group and Co-Chair of Singapore's International Advisory Panel on Maritime Decarbonisation







(IAP), Mr Wong Weng Sun, President and CEO of Sembcorp Marine Ltd and Co-Chair of the IAP and Ms Quah Ley Hoon, Chief Executive of MPA, spoke on the approach needed to successfully transition global shipping to future green energy sources and meet IMO's 2050 target.

#### NEWS

#### Digital transformation of shipping in a postpandemic world

The final session of the Maritime Perspectives series was held in early October with its focus on the digitalisation of the maritime sector. Once again, the underlying message was of the importance of collaboration if the industry is to unlock its full potential and undertake the drive towards efficient, resilient, and green shipping.

Opening the proceedings was Chee Hong Tat, Singapore's Senior Minister of State for Transport and Foreign Affairs, who said that achieving digitalisation across global supply chains is a mammoth undertaking. It is also a national imperative for Singapore, and the nation-state will continue to collaborate with the IMO and member states on the vital roles they play in this transformation. <image>

Digitalisation can lead to significant cost savings and better environmental outcomes by reducing paper documents and lowering carbon emissions, cutting down waiting time and also improving on maintenance schedules that will improve fuel efficiency. But the digital supply chain is only as strong as its weakest link. Therefore, shipping must ensure that all states are able to tap into the opportunities that digitalisation offers.

For Kitack Lim, the pandemic has shown that shipping remains the leading facilitator of global trade and digitalisation is key in enabling the post-COVID recovery, strengthening the resilience of the supply chain and taking shipping into a new era. The IMO is also working to ensure that shipping can embrace the digital revolution while ensuring safety, environmental protection, as well as cyber security. The importance of digitalisation in keeping seaborne trade flowing smoothly and safely during the pandemic was recognised as was its role in supporting just-in-time operations, which helps to limit shipping emissions. There was also acceptance that the establishment of common standards will help ensure that transactions are both standardised and secure, and that information should be shared through close cooperation between industry and government stakeholders.

There was recognition between IMO, MPA and the World Bank that one key step to realising the benefits of digitalisation is to extend it to workflows and increased data exchange between ships, ports and value chain stakeholders. The three organisations intend to work together, along with other interested partners, to support IMO member states in the digitalisation of their ports, particularly in the implementation of maritime single windows.

# New Memorandum of Understanding signed between Maritime and Port Authority of Singapore and DBS Bank



Quah Ley Hoon Chief Executive Maritime and Port Authority of Singapore

Tan Su Shan Head of Institutional Banking DBS Bank

maritime SMEs. A digitally enabled Maritime Singapore will strengthen the competitiveness of our hub port and International Maritime Centre, allowing Singapore to remain an important sea transport hub that is ready to serve the needs of global trade."

The Maritime and Port Authority of Singapore (MPA) has signed a Memorandum of Understanding (MoU) with DBS Bank to drive the digitalisation and innovation of financial services and payment transactions across Singapore's maritime industry.

The MoU identifies areas of collaboration that include streamlining and enabling payment transactions amongst users of maritime services to expedite end-to-end payment life cycles. In addition to digitalising supporting documents for financing, MPA and DBS will also facilitate innovation and co-development of financial solutions for the sector with the maritime start-up ecosystem.

Tan Beng Tee, Assistant Chief Executive (Development) of MPA, said, "This partnership between MPA and DBS is timely as the maritime industry accelerates digitalisation for a post-COVID-19 economy. Our collaborative efforts to trial digital solutions for financial services and payment transactions will enhance efficiency in business transactions and improve cash flow particularly for our Tan Su Shan, Head of Institutional Banking of DBS Bank, said, "Singapore has established itself as one of the world's leading hub ports underpinned by several factors, including our strategic location, stable and secure business environment and a highly-trained workforce. To further reinforce our leadership, DBS is pleased to partner with the Maritime Port Authority in progressing Singapore's digital maritime roadmap. The MoU is significant as it shows our collective commitment to optimise efforts and resources to co-create and implement innovative digital solutions to unlock efficiencies, strengthen the resilience of our maritime sector which forms the backbone of our trade ecosystem, as well as reinforce Singapore's position as a leading International Maritime Centre. This is more important now than ever as COVID-19 has given us the opportunity to see the gaps in our supply chains, and it is imperative to harness the digital infrastructure we have in Singapore to build back better and stronger."

# SMI Webinar: The Role Of Digital Twinning For Autonomous and Smart Vessels



The maritime industry is entering a new era – where innovation is recognised as a key enabler for the sector's future. A future that is driven by the need for increased digitalisation, decarbonisation and adoption of technological disruptions that will enhance safety, efficiency and profitability of the maritime industry.

Autonomous maritime vessels and systems are some of the major developments that will radically transform and disrupt traditional global shipping and vessel operations. Set against this backdrop of rising awareness and interest in Maritime Autonomous Surface Ships (MASS), the Singapore Maritime Institute (SMI) and the Centre of Excellence for Autonomous and Remotely Operated Vessels (CEAOPS), jointly organised the SMI Webinar titled 'The Role of Digital Twinning for Autonomous and Smart Vessels' on 28 August 2020. Streamed live to close to 180 participants from government agencies, maritime corporations and academia, researchers from CEAOPS provided an overview of digital twinning and how modelling and simulation capabilities can be harnessed to evolve a deeper understanding of vessel systems behaviour and response, and its interaction with the surrounding environment.

These R&D outcomes can be further enhanced through the use of cyber-physical modelling approaches at the state-of-the art ocean basin in the Technology Centre for Offshore and Marine, Singapore (TCOMS).

Many envisage that intelligent systems will have the capabilities to take over some, if not all, of the command and control tasks currently undertaken by a vessel's crew. This implies that the systems should have the same depth of knowledge on the motion characteristics of vessels. This is a challenge that developers of autonomous and smart



systems have to overcome in order for autonomous and smart vessels to operate at a level of safety and efficiency that is equivalent to existing conventional vessels. During the webinar, presenters from CEAOPS, a Centre of Excellence funded by SMI and hosted within TCOMS, highlighted how digital twinning can help developers of autonomous and smart systems overcome the challenges.

Through the sharing of what constitutes a digital twin, CEAOPS researchers discussed how the twinning of a vessel's hydrodynamics can help in predicting its motion behaviour and responses. This information can in turn be used to enhance how autonomous systems command and control vessels, analogous to how experienced mariners would apply their expert knowledge when navigating through challenging environments. By applying the digital twinning approach to the external marine environment, representative scenarios can be synthesised for the test-bedding of new MASS systems – this can help stress-test and demonstrate the safety and performance of the vessel systems in challenging situations that are otherwise impracticable for real-world testing.

The application of digital twinning to the internal hull structures was also addressed in the context of structural health management, where the coupling of onboard sensors with numerical models of a vessel's structures can be used to monitor and ensure structural integrity. This is an important capability that is needed as the industry progresses towards unmanned or autonomous operations. The structural digital twin can also be used to provide an up-to-date picture of a vessel's structural health, thus replacing the need for visual inspection and potentially reducing the downtime required for drydocking and surveys. Through the combined use of the hydrodynamics, environment and structural digital twins, assessment of a vessel's fatigue life can also be carried out, which can help demonstrate the vessel's value for further service.

During the lively Q&A session with the expert panel comprising Professor Allan Magee from CEAOPS, Dr Chen Zhuo from Keppel Marine and Deep Technology, Associate Professor Dimitrios Konovessis from Singapore Institute of Technology, Andrew Yue from ST Engineering and Chris Chung from Wartsila Voyage, the panel members addressed several pertinent questions. The questions included current approaches undertaken by technology developers, tangible payoffs of digital twin and how companies can collaborate to accelerate the adoption of autonomous and smart vessels.

A recording of the webinar is available on SMI's website. To find out more or to enquire on collaboration opportunities with CEAOPS, please email: business@tcoms.sg.



### SSA Young Executives Group learns how to build a professional brand on LinkedIn

LinkedIn is a popular professional networking and social media platform used around the globe. People use it widely to expand their network digitally, and for job searching too. But many might not know how to utilise the platform to the fullest.

Thus, for the first time, the SSA Young Executives Group (YEG) partnered with Sharan Bhinder, Senior Relationship Manager at LinkedIn, to organise a webinar where she shared insights on how to showcase your value by building a powerful LinkedIn profile, as well as establishing an active presence with an online brand.

More than 40 YEG members took part in this interesting webinar which took place in September. They felt that it was both insightful and useful, and some of the group are already actively utilising the tips learnt to build their presence on LinkedIn. It provided a learning opportunity for the members to

Your profile, your story By giving you access to 670M+ Members alobally And more than 175M+ LinkedIn members in APAC...and growing! 19M APAN TANYA TM-B4M+ HONG KONG INDIA 214+ 128.04 BM\* 2NA-68.54 THAILAND VIETNAM INDONESIA PHILIPPINES MALAYSIA SINGAPORE 11M AUSTRALIA

understand how a powerful profile can support their career and network online, which is essential in this new normal, as well as learning some networking strategies at the same time. The SSA YEG Committee would like to thank all participants for joining and certainly hope that this webinar has helped in developing their professional brand on LinkedIn.

#### **ORDINARY MEMBERS**



Mohar Shipping Corporation Pte Ltd Mohar Shipping Corporation Pte Ltd was incorporated in Singapore on 31st January 1980. Mohar's primary activities are in ship operations, chartering, and trading in cement and raw materials for the cement industry. Over the years Mohar has become the largest Singapore based supplier of cement and clinker to Sri Lanka, importing an average of 2 million tons per annum.



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**Executive Development** 

#### Training Calendar | OCTOBER - DECEMBER 2020

COURSES OPEN FOR REGIST	FEES* (SGD)	(BF)=Before grant (AF)=After grant			
Course Title	Start Date	End Date	Duration	SSA Members	Non-SSA Members
SS648 for Bunker Industry (Advanced)	06/10/2020	07/10/2020	2 Day	\$1070 (BF) \$370 (AF)	\$1605 (BF) \$555 (AF)
Marine Insurance	15/10/2020	16/10/2020	2 Days	\$481.50 (BF) \$256.50 (AF)	\$722.25 (BF) \$384.75 (AF)
Introduction to LNG	28/10/2020	28/10/2020	1 Day	\$428 (BF) \$228 (AF)	\$642 (BF) \$342 (AF)
Alternative Gas Fuel - Design & Safety Management for Vessels & Terminals:	28/10/2020	29/10/2020	2 Days	\$963 (BF) \$513 (AF)	\$1605 (BF) \$855 (AF)
Shipping Law & Disputes	03/11/2020	04/11/2020	2 Days	\$481.50 (BF) \$256.50 (AF)	\$722.25(BF) \$384.75 (AF)
Understanding Import/Export Techniques & Documentation	05/11/2020	06/11/2020	2 Days	\$481.50 (BF) \$451.50 (AF)	\$722.25 (BF) \$692.25 (AF)
Container Management & Practices	18/11/2020	19/11/2020	2 Days	\$481.50 (BF) \$256.50 (AF)	\$722.25(BF) \$384.75 (AF)
SS600 & Basic SS648 in the Bunker Industry	18/11/2020	20/11/2020	2 Days	\$856 (BF) \$136 (AF)	\$1284 (BF) \$204 (AF)
Introduction to Shipping (Masterclass)	26/11/2020	27/11/2020	2 Days	\$642 (BF) \$342 (AF)	\$963 (BF) \$513 (AF)

\*All fees stated are inclusive of GST. All grants are subject to approval. SSA reserves the right to change the dates, postpone or cancel any course if necessary. Find out more about our courses at http://www.ssa.org.sg/training/scheduled-classes.html. For further enquiries, please contact: Kuna on 6305 2267 or email: Kuna@ssa.org.sg



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