

# 15 Years of Singapore Maritime Week<sub>p2</sub>

**Digitalisation**  
drives progress  
p4

**Whither**  
green finance  
p7

# In a people's business, the Singapore Maritime Week celebrates 15 years of connecting minds, bridging ideas

**Jacqueline Woo**  
jacqueline@nutgraf.com.sg

In a career spanning more than 15 years at the Maritime and Port Authority of Singapore (MPA), former Assistant Chief Executive (Development) Tan Beng Tee still remembers the flush of emotions she felt at the inaugural Singapore Maritime Lecture (SML) in 2007.

It was then at the Fullerton Hotel that Singapore's founding Prime Minister Lee Kuan Yew had famously declared: "Singapore's raison d'être was its port. Singapore must strive to remain a major hub port."

For Ms Tan, who had been part of the steering committee behind the Singapore Maritime Week, which the SML came under, seeing the full-house turnout gave her a big sense of fulfilment.

"It was quite amazing how much people wanted to attend the event because of the late Mr Lee. And to feel the respect that these people had for him and for Singapore, that was quite overwhelming," she recalled.

Equally gratifying was to hear the acknowledgement among the participants, who came from all over the world, that Singapore was the place to be for maritime business, and that the Singapore government was there to ensure their business needs were well taken care of or to listen to their issues.

"That was really an affirmation of not just SMW, but also what we have all built as Maritime Singapore," said Ms Tan, known in industry circles as the Lion City's "First Lady of Shipping" for her work in driving Singapore as an international maritime centre.

She took up the role of Executive Director at the Singapore Maritime Foundation in January this year.

Since its inception in 2006, the week-long SMW has grown to become one of the leading conferences in the global maritime industry. Prior to the COVID-19 outbreak, SMW 2019 drew over 50,000 participants from more than 30 countries across 24 industry events, eight networking receptions and four public outreach activities.

Yet the early days were challenging, said Ms Tan. She noted that the team spent long hours ploughing through details from scratch, such as reaching out to speakers, planning for logistics, and making sure that



Ms Tan Beng Tee (left), Executive Director of Singapore Maritime Foundation, looks back at the early days of the Singapore Maritime Week, which takes on a brand new hybrid format this year - one that Maritime and Port Authority Chief Executive Quah Ley Hoon (right) hopes will help the maritime community move forward on common agenda.



participants would not only be comfortable at the event but also benefit from the experience.

Backed by the support of many industry partners and stakeholders, she and her team pressed on towards their goal: to create a global platform for the confluence of ideas, thought leadership, and events in the maritime sphere, with Singapore as the focal point.

"The Port of Singapore was growing, and we were gaining recognition as an international maritime centre. We wanted to do more to create a buzz both for Singapore and the region," said Ms Tan.

"Shipping is a people's business. You do need that personal touch, and physical events - where people can network, meet new people, catch up with old contacts - can make all the difference."

Last year proved to be one of the most challenging years for SMW, with COVID-19 shelving plans for another large-scale event. The cancellation of live events and conferences meant SMW 2020 had to be postponed.

But the ideas continued to flow. The 14th Singapore Maritime Lecture webinar, part of the Global Perspectives Webinar series, was organised in the second half of the year instead. Managing Director

of the Monetary Authority of Singapore Ravi Menon delivered the keynote speech at this webinar, where he talked about resilience as one of the great lessons offered by the COVID-19 crisis.

"Resilience is not just about being strong, it is not even about staying on your feet all the time," he said. "Resilience is about getting back up again even after being knocked down ... and to keep moving forward, in the words of Rocky Balboa."

## The tides of progress

It is in this same spirit of resilience that MPA decided to continue holding SMW this year, despite the challenges, said MPA Chief Executive Quah Ley Hoon.

"It is our hope that SMW 2021 can help the maritime community continue to move forward on common agenda to push new frontiers, shift paradigms, and most importantly come up with concrete collaborations to bring maritime to greater heights," she said.

The event, which takes place from today until April 23, is themed "New Frontiers, Shifting Paradigms" in line with the key issues that are transforming the maritime sector. Top industry leaders,

A PUBLICATION BY  
**THE NUTGRAF**  
CAPTURING THE ESSENCE  
www.nutgraf.com.sg

**Aaron Low** Editor

**Peh Shing Huei** Copy Editor

**Sue-Ann Chia** Copy Editor

**Tee Hun Ching** Copy Editor

**Pearl Lee** Reporter

**Jacqueline Woo** Reporter

**Prabhu Silvam** Reporter

**Justin Kor** Reporter

**Derek Wong** Reporter

**Ignatius Koh** Reporter

**Marcus Wong** Reporter

**Sean Lee** Photographer

**Wang Zhixiang** Photographer

**Clifford Lee** Layout & Design

**Samantha Boh** Layout & Design

## An invitation from MPA's Chairman

Industries are in constant churn. While I encourage all of us to dream big and look far, we also need to be well plugged in to the industry around us to take a wider view on opportunities.

We will aim to continue developing Singapore Maritime Week as the region's leading maritime event and enable the industry to come together (virtually and physically) to get inspired and find solutions as one community. Join us for the various conferences throughout the week as we discover the possibilities that collaborations and new ideas can bring to the industry. We may not be able to execute these ideas in just a year, but I hope we can all work together to make progress together.



- Mr Niam Chiang Meng, MPA Chairman

government officials, and international organisation representatives will come together to discuss issues from digitalisation to decarbonisation, to capital finance and insurance, and talent.

One priority in organising the event has been to ensure that strict safe management measures are put in place, so that participants taking part in the physical events in Singapore will be able to network and interact in a safe manner, Ms Quah noted. More than 10 announcements are slated to be made at SMW 2021, along with the signing and renewal of several key memoranda of understanding with various stakeholders.

The team also has to put together a conference that will be engaging for both participants attending the event physically as well as online.

But more than just an event for maritime players to gather and discuss issues, the objective for SMW has always been to spur change. Previous editions of SMW focused on issues such as cybersecurity, piracy, and regulations.

Today, MPA Chairman Niam Chiang Meng noted that companies have to step up to the challenges of decarbonisation and digitalisation, or risk becoming obsolete in the next 10 years.

Likewise, SMW must remain an agile platform to meet the needs of new and existing customers "to find new and nimble ways to create conversations outside of SMW itself to engage the industry", he said.

Ms Tan added: "The good thing about SMW is that we're not static. We are not limited to only content on ships and ports just because we're a maritime event. What we want to do is tackle topics that are critical for the community. We want to showcase new innovations and technologies, and continue to be that place that connects people and ideas.

"As we adopt this new format for 2021 and beyond, the team will be studying how large-scale events are evolving around the world to incorporate best practices from other shows and deliver the best experience for our delegates." ■

## Through the years: Memorable quotes from the Singapore Maritime Lecture

### On the future of shipping and Maritime Singapore



Mr Lee Kuan Yew  
Founding Prime Minister  
and Minister Mentor  
of Singapore, at the  
inaugural SML in 2007

*"Shipping will play an ever bigger role in the economic well-being of countries as trade expands. With the rise of China and India as two huge manufacturing bases, Asians will be major players in maritime activities.*

*We have an increasing stake in ensuring that shipping remains the most secure, efficient and environmentally friendly mode of transport. And the world's maritime nations will need centres in Asia known for integrity, quality and neutrality to enable them to plug into Asia's growth. Singapore hopes to be one such centre."*

### On the quintessential human element in shipping



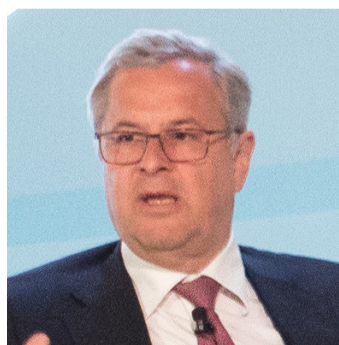
Mr Koji Sekimizu  
Secretary-General,  
International Maritime  
Organization, at the  
6th SML in 2012

*"We acknowledge the seafarers who operate the ships, bringing cargo safely to its destination, keeping to the schedules, day in and day out, regardless of the conditions they may have to face. Without seafarers, our lives cannot be sustained. Yet, to most of us, seafarers are virtually invisible.*

*The life of a modern seafarer can be dangerous and lonely. They may spend up to a year away from home, separated from their family and loved ones and facing danger, isolation, loneliness and the threat of piracy. And, we rely on seafarers for almost everything we eat or use in our daily lives.*

*I pay tribute to the world's 1.5 million seafarers for the unique and all-too-often overlooked contribution they make to the well-being of all of us."*

### On what digitalisation could do for shipping



Mr Soren Skou  
CEO of A.P. Møller-  
Maersk at the 12th  
SML in 2018

*"My vision is for it to be equally simple and easy to book a container transport from one end of the world [to another] as it is in our private lives to book an airline ticket. I don't mean just the ocean leg. I mean end to end, online, all of the needed services [and] not just transport [but] customs brokerage, finance, inland transport etc.*

*We need to standardise and centralise and move away from global deals and what we call paper rates. That means it's time for a seismic change in our industry – that means that every parameter in a transaction can no longer be negotiated.*

*If you can imagine an airline where one out of four passengers never shows up before departure and you do so without cost, and the same airline can bump passengers to next week or the week after without any consequences or offering any compensation."*

Digitalisation is one of the industry's biggest talking points, with many companies looking at how to incorporate technology such as artificial intelligence, 3D printing and data analytics into their operations. **Aaron Low** speaks to two companies to find out how they are thinking about digitalisation and the lessons learnt from the journey so far.

# Digitalisation key to solving decarbonisation dilemma for Wilhelmsen Ship Management



For instance, the company started using Robotic Process Automation in 2017, which allowed specific tasks to be done by robots and software. The result? Faster response times to customers and time savings of up to 84 per cent when drafting reports of its manifests.

Another key area that it has invested heavily in is in 3D printing. The Wilhelmsen Group is an early adopter of the technology, having embarked on several 3D printing trials and initiatives. The goal is to reduce time, cost and impact on the environment through 3D printing ship parts.

The company also sees human talent as a key pillar in its push to digitalise. It has started to recruit graduates with programming backgrounds and placed them in maritime operations. This allowed technology-trained personnel to work directly beside experienced maritime staff, each amplifying the other's roles.

"The result of this program has yielded excellent results. Our employees who have wealth of maritime experience and the digital trainees worked very well together and produced many radical changes and improvements in our daily business operations," said Mr Schou.

"Digital transformation is important in empowering our employees to work in new ways. Whether it is incremental or radical changes, these transformations reinforce new behaviours and continuous learning towards increased collaboration, efficiency, and customer-centricity."

He added that Singapore has been supportive of companies moving to digitalise their operations. Wilhelmsen Ship Management moved its global headquarters to Singapore in 2018.

"Singapore has provided the ideal infrastructure and environment that supports our ongoing digital transformation. The availability of local talents and support from the maritime authorities has been very encouraging to us," he said. ■

**"Digital transformation is important in empowering our employees to work in new ways. Whether it is incremental or radical changes, these transformations reinforce new behaviours and continuous learning towards increased collaboration, efficiency, and customer-centricity."**

**Mr Carl Schou**  
President and Chief Executive Officer  
Wilhelmsen Ship Management

**F**or many maritime companies, decarbonisation and digitalisation are two of the biggest challenges facing the industry.

But Wilhelmsen Ship Management, part of the Norwegian Wilhelmsen Group, sees both challenges as two sides of the same coin.

Digitalisation is, in fact, a big part of the solution to reduce emissions, said Mr Carl Schou, the company's President and Chief Executive Officer. This is because for the industry to start reducing emissions, they must first be equipped with the right tools and technology.

"Digitalising vessel operations is a critical step towards achieving emission reduction through efficiency. This is a challenge as most vessels today does not come with readily available hardware like sensors and software that performs automated data readings and analytics," he noted.

Many of such tools are also not readily available; the company's answer was to create its own solu-

tions that helped its clients make that first big step.

"We have established our own development company, Raalabs, that provides competitively priced solutions which enable the digitalisation of vessel operation. With effective measurement of emissions, our managed vessels can make informed decisions to manage emission downwards."

This win-win approach has allowed it to make serious progress towards cutting emissions while boosting productivity.

# How data analytics helped boost performance at IMC

**G**oing digital is not as simple as it sounds for a company as diverse as IMC Industrial Group.

Having a range of interests has helped the company weather multiple downturns but its many businesses also mean that it is more challenging to create synergies across segments.

“The diversity of our shipping business ranging from dry bulk, parcelling and project cargo to tankers and transshipment services, is a great differentiator and adds much value but it also adds complexity to system requirements,” said Mr Ryan Chan, the company’s Group Managing Director.

What the company needed was a deeper understanding of where and how its various businesses could boost efficiencies. To this, it turned to knowledge of the digital sort: data analytics.

“With the advent of new technologies such as big data, connectivity and Internet of Things (IoT), we saw the benefits of digital transformation playing a key role in our shipping businesses to achieve greater operational efficiencies, market share and sustainable operations,” said Mr Chan.

IMC embarked on its digitalisation journey in 2019, and chose Veson’s cloud-based IMOS Platform, which provides analytics and business insights that help the company make better decisions and standardise processes.

“The digital platform is supported by a newly-launched business unit which focuses on digitalisation, analytics and to drive synergies across our shipping group of businesses,” he added.

The software allowed IMC to identify several areas of improvement in its operations. For instance, in its dry bulk business, stronger data analysis helped the company make better decisions, thereby boosting efficiency levels, said Mr Frederik Guttormsen, Senior Director of Shipping at IMC.

The benefits have been tremendous, with the company seeing huge improvements across the various business units, added Mr Guttormsen.

“We have benefited from digitalisation as the data and information captured increased

intelligence and transparency supporting the teams in effective decision making. It also serves as an analytics foundation for our customer experience,” he said.

“With our new digital platform, the introduction of revised and new workflow processes for both commercial and ship operations, we target productivity gains equivalent to man-hour savings of about 20 per cent.”

With stronger performance, digitalisation also naturally led to revenue growth for its various shipping businesses through better matching of cargoes and ships, said Mr Guttormsen.

The Maritime and Port Authority of Singapore also assisted the company in starting up its

digitalisation efforts, said Mr Chan. The company tapped on the Maritime Cluster Fund to help fund part of its digitalisation project.

“The MPA’s funding also assisted us to further accelerate our digital drive to innovate our processes and our shipping operations to “future-proof” our businesses, which was especially imperative during this COVID-19 pandemic to prevent any possible future maritime disruptions,” said Mr Chan. ■

**“With the advent of new technologies such as big data, connectivity and Internet of Things (IoT), we saw the benefits of digital transformation playing a key role in our shipping businesses to achieve greater operational efficiencies, market share and sustainable operations.”**

**Mr Ryan Chan**  
Group Managing Director  
IMC Industrial Group



PHOTOS BY WANG ZHIXIANG

# VIEWS FROM THE DECK

*How will the maritime sector shape up in the next five years, and beyond?  
Top industry leaders share their thoughts on the outlook and their hopes for the future.*

## Flexibility is the way forward

"As maritime players across the entire value chain contemplate change, including alternative propulsion technologies and fuels, digitisation and Industry 4.0 applications, a deeper reflection about the industry is gaining momentum, aided by the COVID-19 pandemic, which has helped to put into focus new realities and out-of-the-box thinking.

Lessons from the past have taught us to invest in multiple alternatives and not rely solely on a single solution and be locked-in. The maritime community must embrace flexibility and diversity on this transformation journey to increase the industry's resilience and be future-proof for generations."



**Wong Weng Sun**  
President and CEO  
Sembcorp Marine

## Finding the right balance is key

"I think sometimes people oversimplify by just grabbing at the new without understanding the scale and importance of what we have today. We can't just switch off our current forms of energy, or the systems that have been built to deliver it.

But it's equally dangerous to get stuck and not to find better ways of doing things for the future. We're in this interesting in-between period where we have to work with what we have, and design new solutions in parallel without having the best visibility yet."



**Andreas Sohmen-Pao**  
Chairman, BW Group and  
Chairman, Singapore Maritime  
Foundation

## Decarbonisation is a united effort

"The impact of decarbonisation is huge and in shipping, we need to think about the consequences. As energy users, we must involve and collaborate with our suppliers and producers during the decarbonisation journey, which will be long because there are currently no clear pathways. But I think Singapore is very pragmatic – there is LNG (liquefied natural gas) available now, so let's use it as a transition fuel and then we move forward."



**Caroline Yang**  
CEO, Hong Lam Marine and  
President, Singapore Shipping  
Association

## Resilience is tied to taking action on climate change

"Resilience has been under the spotlight given the recent crises wrought on the industry. Going forward, we also need to continue to keep our focus on climate change. I believe that the world is increasingly converging on the importance of sustainability, which is promising. As long as we can achieve good consensus and undertake practical action collectively on this critical front, we will be able to accomplish much as a global maritime community."



**Tan Chong Meng**  
Group CEO  
PSA International

## An evolving market that has longevity

"Shipping will of course look very different in five to 10 years. A lot of it will depend on attitudes towards free trade, and with things like 3D printing, when you look at how fast technology is changing and developing, how trade flows could change. The goal of a zero-carbon, sustainable future will likely be the single biggest driver of change.

Will the small ship owner with five or 10 ships still be around? I very much hope so, because this is one of the things that has made shipping so successful – it is a free and open business. In shipping, if you comply with the rules, anyone can participate. And I think it is a perfect example of market efficiency."



**Esben Poulsson**  
Chairman, Enesel and  
Chairman, International Chamber  
of Shipping

## Innovation is critical to net-zero climate goals

"The next few years will be a critical period for decarbonising shipping. As an industry, we need to reduce emissions right now, while at the same time lay the foundations for a net-zero emissions future.

That means taking action with the solutions available to us now, such as efficiency technologies and LNG, as well as developing new fuels, technologies and infrastructure. At Shell, we're looking forward to working with partners across the industry, including many in Singapore, to help accelerate shipping's progress on decarbonisation."



**Nick Potter**  
General Manager  
Shell Shipping and Maritime,  
Asia Pacific & Middle East

## Asia Pacific remains global trade's crown jewel

"The market of the future has been, and continues to be, the Asia Pacific. The recent years' trends of nearshoring and trade barriers may have impacted some areas, but the global supply chain remains. With more than half of the world's middle-class population residing in the Asia Pacific – and with these numbers growing rapidly – businesses should be reviewing their operations for this ever-expanding market."



**Thomas Knudsen**  
Managing Director  
Toll Group

## Building an ecosystem for generations to come

"Economic recovery from the devastation of 2020 will be a top priority for virtually all stakeholders in the short run, though these same parties must be reminded to not lose sight of the longer-term prerogatives – that is to make the investment in and create a sustainable and clean maritime ecosystem for future generations to inherit."



**Gina Lee-Wan**  
Partner  
Allen & Gledhill

## Green shipping will attract investments

"Shipping will continue to attract a reasonable share of investments (both debt and equity). This is against the backdrop of the huge amount of liquidity in the market, coupled with funds looking for a home/yield pick-up. More pertinently, maritime transport and services have proven to be resilient and essential, and continue to perform amid the many challenges around us."



**Lee Keng Mun**  
Founder  
MPartners

# Green financing: Is it the future?

Derek Wong  
derek@nutgraf.com.sg

**F**or a precious few weeks, humpback whales enjoyed the quiet of the oceans as noise pollution from marine traffic was drastically reduced during the height of the COVID-19 pandemic last year. Humpback mothers and nursing calves, which are one of the most reclusive animals in the sea, had a whale of a time.

Noise pollution is not the only way the shipping industry disrupts the environment. The sector saw greenhouse gas (GHG) emissions increase by 9.6 per cent from 2012 to 2018 to make up almost 3 per cent of the global share, according to a recently released International Maritime Organization (IMO) study. This isn't bad at all for an industry that is responsible for transporting almost 90 per cent of global trade, but clearly, more can be done.

The IMO's aim is to reduce shipping GHG emissions by 50 per cent in 2050, compared to 2008 levels. The big question is: How?

## Going beyond rules

Regulations are one way to push for decarbonisation. For example, IMO's Energy Efficiency Design Index is mandatory for new ships and helps ensure that they are more energy-efficient than earlier ones. Existing ships also need to have an energy efficiency management plan in place.

But regulations with penalties may not be enough. Instead, a more subtle way may help to move things along at a quicker pace.

Green financing serves as a crucial driver for a more sustainable shipping industry by linking loan terms with a company's ability to achieve sustainability targets. For instance, interest rates may be adjusted based on whether goals are met.

This model of financing is fast gaining momentum in the sector. In 2019, the Poseidon Principles, an agreement between the finance and shipping industries, was launched to better integrate IMO climate goals into the ship finance decision-making process.

It is the world's first sector-specific, self-governing climate alignment agreement among financial institutions. More than 20 financial institutions worldwide – such as BNP Paribas, MUFG Bank and Societe Generale – are signatories to the Poseidon Principles, representing a bank loan portfolio to global shipping of approximately US\$175 billion – nearly 50 per cent of the global ship finance portfolio.

German container shipping giant Hapag-Lloyd jumped on board green financing in February, completing a US\$417 million syndicated green loan with a 12-year maturity. It will be used to finance three of the six ultra-large 23,500 Twenty-Foot Equivalent Units (TEUs) container ships it ordered in December.

"Our first green financings are a major milestone for us, as we are breaking new ground in the container shipping segment by financing new projects geared towards sustainability. The transactions will help us to modernise our fleet while further reducing our carbon footprint at the same time," said Mr Mark Frese, Chief Financial Officer of Hapag-Lloyd in a statement.

Mr Mick Aw, Chairman of Moore Asia Pacific, the Asia Pacific division of global accountancy and advisory network Moore Global Network, has observed an increase in such loans. Citing figures from maritime finance data firm Marine Money, he said there has been at least US\$7.5 billion worth of reported loans in the shipping sectors linked to sustainability criteria since January 1, 2020.

"Investor consciousness of climate change is growing," he noted. "Sustainable businesses will have access to a growing pool of green investors that other businesses do not. This has direct positive implications on the availability of finance and financing costs for sustainable companies."

He added that environmental regulations will further drive the adoption of green financing.

Mr Philip Clausius, Founder and Managing Partner of Transport Capital, a transportation-focused investment management and advisory firm, also believes the pressure to decarbonise the maritime industry is mounting.

"More stakeholders will demand that the industry aligns with a Paris pathway. In order to make the required investments in lower and eventually zero-emission vessels over the next 30 years, the availability of competitive finance will be crucial," he said. "Suitable green financing will play a major part in addressing this."

## Greening the way forward

Yet challenges remain, whether in the borrowing process or defining what counts as sustainable financing.

Ms Marisa Dupuis, Vice-President, Shipping and Offshore Finance, IBA Transportation Sector, BNP Paribas, said: "Some borrowers have the mindset that sustainable finance provides additional complexity and is an onerous process."

"The availability of projects and differing opinions as to their eligibility under 'green' or sustainable criteria can be a hurdle – for example, do LNG (liquefied natural gas) solutions count as green or transition financing?"

Despite these obstacles, the advent of green financing shows no signs of abating – and this phenomenon is not confined to just the shipping industry. Swedish bank SEB expects about US\$500 billion worth of green bonds to be issued this year, almost double last year's amount.

Added Mr Clausius: "In the long run, we see traditional and green financing converging into one – in future all financing will be green as all investment decisions will need to take into account environmental impact. Not doing so will lead to stranded assets and poor economic outcomes." ■

## Tomorrow's Highlights Tuesday, April 20



Register here:  
[smw.sg](https://smw.sg)

### Singapore Maritime Technology Conference

The 4-day event puts the spotlight on digital and decarbonisation technology and R&D while over 65 senior leaders of the industry will share the insights of their maritime digital journey.

**Marina Bay Sands – Hybrid**  
9:00am – 5:00pm

### Capital Link's 3rd Annual Singapore Maritime Forum

This forum will cover financing opportunities and critical maritime industry topics such as environmental regulations, shipping in post-COVID era, crewing, and technology.

**Virtual Only**  
4:00am – 7:00pm

### Marine Money Singapore Ship Finance Forum

This conference will cover shipping finance and investment topics including decarbonisation, global trade, the macro-economic environment, and the impact of COVID-19.

**St. Regis Hotel – Hybrid**  
12:00pm – 4:00pm

# Safer ships with Artificial Intelligence

*Human error has long been one of the most common culprits for maritime accidents and casualties. SOL-X Chief Executive Officer Nigel Koh tells **Samantha Boh** how flagship product **SAFEVUE.ai** improves crew situational awareness with near real-time visibility of front-line operations.*



PHOTO COURTESY OF SOL-X

**Tell us about SOL-X's core product. How does it work?**

SAFEVUE.ai is an industry leading Behavioural Based Safety 4.0 system, centred on human factors. It combines enhanced Control of Work with a holistic approach to crew well-being, enabled by Internet of Things (IoT) and analytics. Our integrated hardware and software solution was designed by our internal maritime experts to meet the unique requirements of high hazard environments.

**What drove the establishment of SOL-X?**

Our team of maritime and safety experts saw a clear gap in current maritime safety solutions – none of them were effectively addressing human factors, which were causing 66 per cent of maritime incidents and casualties. This presented a big opportunity for us to create impact through IoT and Artificial Intelligence (AI) technology.

**What are the challenges facing maritime worker health and safety?**

According to the Oil Companies International Marine Forum Human Factors Approach framework, which links human factors with risk management, there are five key challenges:

- Fostering the right safety culture
- Creating well-executed tasks and procedures
- Developing well-designed equipment and controls
- Having the skills to respond to emerging situations
- Learning before and after things go wrong

**How does SAFEVUE.ai overcome them?**

SAFEVUE.ai addresses Control of Work and crew well-being in several ways. First, it integrates Control of Work software with streamlined step-by-step workflows, data validation and authorised crew sign-offs.

In addition, crew are provided tablets for vessel-wide site permit preparation and risk assessments, while on-board operations dashboards provide near real-time safety operations and workflow monitoring. Crew location can also be easily tracked with Crew Finder and Crew Assist.

Furthermore, an integrated ship-to-shore management platform streamlines digital approvals and communications. This digitised Control of Work data can be used to highlight safety, compliance, and operational excellence leading indicators for continuous improvements.

Ensuring a strong Control of Work is almost dependent on maintaining the physical and mental well-being of the crew conducting their tasks. SAFEVUE.ai helps to proactively manage workload, reducing risk of fatigue and, through connected wearable features, is able to provide situational awareness of nearby risks and help crew monitor their own well-being. This information can then be incorporated into health and safety programmes.

In essence, SAFEVUE.ai ensures the right person is at the right location and at the right time during the course of Control of Work planning and execution. Based on feedback from our customers, they have saved up to 4,600+ man-hours per vessel in a year through our integrated permits and Work-On-The-Go capabilities.

**COVID-19 gave rise to the crew change crisis. How can digital safety systems help to resolve such issues?**

With extended sailing times during COVID-19, reducing administrative burden through efficient digital workflows can help better manage mental and physical fatigue.

More frequent monitoring of physical well-being through wearable technology can also help to pre-empt serious health conditions before they occur.

**How have attitudes towards digitalisation changed within the maritime industry over the past few years?**

The digital evolution is shaping the maritime future in every aspect, taking advantage of the design of modern ships and new technologies like machine learning and AI.

About two-thirds of shipping companies have started on their digital journey and are exploring solutions as we speak. Embracing digitalisation entails much more than buying hardware and software. It requires a full vision, from understanding the actual and future needs of a fleet, to creating each step needed to make digitalisation happen. This means digitalising an otherwise paper-based model.

**How has SOL-X grown, and what is its vision for the next 5 years?**

SOL-X has grown strongly over time, deploying SAFEVUE.ai on vessels around the world. We have already signed agreements with leading ship owners/managers to roll out our solution across their fleets of LNG and oil tankers. Over the coming months, we will launch new and innovative product features that leverage our IoT data and AI capabilities to further our vision to build a safer maritime industry.

Mr Nigel Koh is the Chief Executive Officer of SOL-X, a leading Behavioural Based Safety company centred on human factors in the maritime industry. Combining deep industry knowledge with IoT capabilities and predictive AI, SOL-X's goal is to improve safety and compliance outcomes, increase operational productivity and enhance crew wellbeing.