



# Maritime technology taking flight in Singapore p5

**\$10m to develop  
startups in Maritime  
Singapore p2**

**Are we in a  
commodities  
super-cycle? p7**



# More funding for startups as Singapore aims to be Silicon Valley for maritime tech

Pearl Lee  
pearl@nutgraf.com.sg

Singapore will pump millions of dollars into startups and scale-ups in a bid to position the country as the Silicon Valley of the maritime technology world.

Senior Minister of State for Transport and Foreign Affairs Chee Hong Tat pledged to build a maritime ecosystem here, one that encourages experimentation and creative solutions.

To reach the goal, Maritime and Port Authority of Singapore (MPA) will set aside \$10 million from its Maritime Innovation and Technology (MINT) Fund to grow the number of maritime technology startups from the current 30 to 100 by 2025, said Mr Chee.

MPA will also launch a new grant called MINT-STARTUP, he announced yesterday at the Singapore Maritime Technology Conference.

It will disburse up to \$50,000 for startups, and up to \$100,000 for scale-ups working on solutions to tackle challenges faced by the industry.

“Technology’s pivotal role in helping the maritime sector stay resilient during the pandemic will continue to come through as we build the post-COVID world,” he said, noting that COVID-19 has accelerated digitalising efforts in the shipping and maritime sector.

MPA will provide sandboxes where startups can test out their new technology. “It is about providing a safe space to fail, so that companies and individuals have a conducive environment to try new ideas, and are prepared for many of these experiments to fail before a successful idea emerges,” he said.

MPA’s Maritime Drone Estate in Marina South, which officially launched yesterday, is an example. In the last two years, the space has allowed maritime industry players to test out their drone solutions.

On the global front, Singapore will push for common data standards to better integrate networks and systems in the industry, and boost the adoption of digital solutions across supply chains.

**“Technology’s pivotal role in helping the maritime sector stay resilient during the pandemic will continue to come through as we build the post-COVID world.”**

Citing the example of container shipping, Mr Chee said although containerisation began in the 1940s, “it was only when the sizes of containers were standardised in the 1960s that container shipping took off in a bigger way”.

One area that MPA has been working on with its partners is the bill of lading – a document that proves one’s ownership of cargo during transit. Supply chain players have traditionally held on to the hard copy of the document, but the processing of physical documents is inefficient and often creates delays.

Singapore is looking to gather industry players to propose solutions to encourage the industry to do away with physical processes and adopt electronic

bills of lading, after successfully completing a trial with Rotterdam. The trial saw processing time cut from the usual six to 10 days when dealing with hardcopies, to less than 24 hours with the electronic versions.

MPA is also working on enhancing ship-to-port connectivity by ensuring that ports and ships can share information effectively under its digital-OCEANS initiative, an interoperable information hub that aims to facilitate cross-border data exchange.

**Mr Chee Hong Tat**

tion hub, we must remain open to ideas and talents from around the world,” he said. ■

He urged industry players to participate actively to create solutions with MPA, and to look beyond the maritime sector, such as advanced manufacturing and e-commerce, to discover better ways of working.

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 Sivam 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

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

# Private sector can play bigger role to help maritime sector transform, say panellists

INNOVATION WITH



Top questions (3)

Zac  
Digital initiatives often only go as far as the 'weakest link' in the chain, whose tech adoptn requires much catching up. Which areas require attention in this?

Anonymous  
How can SMEs tap on funding and support to digitalize as this is not easy and it seems only the big corporations are able

Anonymous  
Does MPA have workshops to help SMEs digitize as there is still confusion on how far we need to go and not just the little bits of degitalisation

Join at  
**slido.com**  
#92631



PHOTO BY SEAN LEE

**Pearl Lee**  
pearl@nutgraf.com.sg

From left to right: Mr Ted Tan, Chairman, SEEDS Capital, and Deputy Chief Executive Officer, Enterprise Singapore; Ms Caroline Yang, President, Singapore Shipping Association; Mr Lew Chuen Hong, Chief Executive, Infocomm Media Development Authority; Mr Tan Chong Meng, Group CEO, PSA International; Ms Quah Ley Hoon, Chief Executive, Maritime and Port Authority of Singapore.

**T**he maritime landscape here in Singapore is largely made up of small and medium-sized enterprises (SMEs) and micro-SMEs, and size works against them when it comes to innovation and transformation.

But support from the private sector could help ease their digital transformation journey, panellists at the Singapore Maritime Technology Conference said yesterday.

"These (SMEs and micro-SMEs) are very small companies and they are technologically disadvantaged," said Mr Chua Chye Poh, founder of tech startup ShipsFocus, at a panel discussion on how the maritime sector can accelerate its digitalisation efforts. The startup won the Outstanding Maritime R&D and Technology Award in the International Maritime Awards 2021.

These small firms often lack the know-how to translate technological tools to practical applications that they can use, he noted, adding that they are often labelled as being slow to shift to new ways of working.

While government efforts – such as the Maritime Digitalisation Playbook which guides companies to develop their digitalisation strategies – offer some help, bigger corporates should and can play a more active role too.

Mr Tong Hsien-Hui, Executive Director of Venture Investing at SGInnovate, said the maritime ecosystem is lacking in "active participation by corporates to mentor these companies".

There is scope for the maritime sector to take a leaf out of the fintech playbook, said Mr James Tan, Managing Partner at venture capital firm Quest Ventures.

"If we use that playbook, we will be going out to the likes of Kuehne+Nagel to ask for their problem statements, releasing them to SMEs, micro-SMEs and startups, and encouraging them to tackle (the problem)," he said, adding that this is one way to foster vibrancy in the ecosystem.

Similar sentiments were echoed at a separate pan-

**“A haulage company may teach its staff everything to do with haulage, with little understanding of what role that data plays in the whole supply chain. While companies themselves may digitalise, we are slow to transform the whole industry because logistics is a team sport.”**

el discussion on the maritime sector's digital vision, moderated by Ms Quah Ley Hoon, Chief Executive of Maritime and Port Authority of Singapore.

is only as strong as its weakest link. While companies often wish for more government support, private companies can take the lead to help one another in the industry.

"Those who are seated here, you have your supplier and your customers. If you were to examine your immediate circle of business partners and there are weaker links...that can affect your success, why don't (you) take the first step of helping them? If all of us can do that, it raises the bar," he said.

Such exchanges will benefit the sector as a whole too, he said.

"A haulage company may teach its staff everything to do with haulage, with little understanding of what role that data plays in the whole supply chain. While companies themselves may digitalise, we are slow to transform the whole industry because logistics is a team sport," said Mr Tan. ■

**Mr Tan Chong Meng**

el discussion on the maritime sector's digital vision, moderated by Ms Quah Ley Hoon, Chief Executive of Maritime and Port Authority of Singapore.

Mr Tan Chong Meng, Group Chief Executive Officer of PSA International, said the maritime sector

# Building resilience: No longer only just-in-time, but also just-in-case



PHOTOS COURTESY OF PSA

Control Centre at PSA Pasir Panjang Terminal.

Jacqueline Woo

jacqueline@nutgraf.com.sg

For players like global port operator PSA International, the COVID-19 pandemic has marked a clear shift towards resilience, where it is not enough for supply chain players to only focus on just-in-time shipping.

They must also cater to “just-in-case” scenarios, said Group Chief Executive Officer Tan Chong Meng, speaking at a TOC Asia webinar yesterday, as part of the Singapore Maritime Week.

“COVID-19 is a reset. There’s no going back to life as it was before,” he said. “But it is also our best chance to reflect on how to reprogramme our world.”

Work to position PSA for the future, which includes taking into account such scenarios, had in fact begun well before the pandemic. With Industrial Revolution 4.0 transforming industries everywhere, the group was busying itself to prepare for a more advanced and digital world.

“We took that as an opportunity to reflect on our role as port operator and we realised we could not stay a port operator, but we also have the ability to look beyond our own boundaries and play a larger role within the ecosystem of the end-to-end supply chain,” he said.

“We felt logistics was a three-dimensional challenge. A lot of times we are focused on the physical flow, but we must not forget the regulatory flow and the financial flows. It’s only when these three flows move freely that we have a fully functioning supply chain.”

In 2018, PSA launched CALISTA, its digital global supply chain platform that brings together key physical, regulatory and financial activities of cargo logistics to serve logistics players and stakeholders. It also formed a unit known as PSA Cargo Solutions in 2019 to serve customers with inland location requirements, focusing on regulatory enablement, intermodal seamlessness, and digital efficiency.

**“Whenever we build port infrastructure now, if there’s an opportunity to use lower carbon concrete ... we would do that even if it costs us more.”**

**Mr Tan Chong Meng**

Amid the recent disruptions to supply chains worldwide, PSA has deployed additional resources and ramped up its capabilities to support the increased activity at the Port of Singapore. The PSA Cargo Solutions Southeast Asia team also launched a series of Value-Added Services to better support cargo owners.

Beyond technology and tapping digital tools to improve processes, a mindset shift is equally key. For instance, instead of only focusing on carbon emissions in operations, Mr Tan suggested that another angle to consider is the life cycle of an investment or product.

“We focus not just on operational carbon but also embodied carbon. Whenever we build port infrastructure now, if there’s an opportunity to use lower carbon concrete ... we would do that even if it costs us more,” he said. “You try to stretch your resources more, creating better life-cycle CO2 outcomes.”

In a post-COVID world, Mr Tan believes many governments

worldwide will want to encourage and motivate game-changing actions towards improving responses to climate change.

“There will still be a lot of things to do in making the supply chain itself more resilient, more reliable,” he noted. For instance, shipping lines and ports will need to re-examine whether the capacity of ships, container supply, and the way in which they plan for and manage risks can withstand the shocks of the next pandemic, and the one that comes after.

Getting started on the journey to become a sustainable supply chain solutions player, he added, could be one way to tackle those problems. ■



PSA Singapore’s Pasir Panjang Terminals.

# Fresh partnerships to boost innovation, R&D in maritime



Singapore and Norway reaffirmed their close ties with each other yesterday with a fresh Memorandum of Understanding (MOU) to promote cooperation in the maritime sector.

The MOU, which aims to catalyse research and the adoption of emerging technology, was signed by Maritime and Port Authority of Singapore (MPA) and the Research Council of Norway (RCN) at the sidelines of the Singapore Maritime Technology

Conference. The new MOU extends the partnership between both organisations for an eighth term.

Under the terms of the MOU, both MPA and RCN will jointly organise the International Maritime-Port Technology and Development Conference, one of the leading maritime technology conferences in the world. Both organisations will also support research in maritime digitalisation and sustainable shipping.

Innovation was also the driving force behind a second MOU inked by MPA yesterday.

The fourth MOU between MPA and PSA will see both organisations accelerate technology research and facilitate live trials in the areas of automated container port systems, advanced port optimisation techniques, and green port technologies for application in existing container terminals and the new Tuas Port. ■

## The future resides in Singapore's latest drone estate



Singapore's maritime sector is about to scale new heights – literally, thanks to Maritime and Port Authority of Singapore's newly-launched Maritime Drone Estate (MDE) at Marina South Pier.

The space, which was launched by Senior Minister of State for Foreign Affairs and Transport

Chee Hong Tat yesterday, is being set aside for the test-bedding and development of drone technologies for maritime applications. These include operations like shore-to-ship deliveries and remote ship inspections.

Whilst the pandemic might have upended the global maritime sector, it has also underscored the

importance of technology in ensuring the continuity of maritime operations, explained Mr Chee.

“The launch of the Maritime Drone Estate marks an important milestone in advancing Singapore’s journey towards the use of emerging technologies in the maritime sector. As we embark on this exciting future, we look forward to supporting our industry partners and growing more startups to build a thriving maritime innovation ecosystem.” he said.

As part of Singapore’s Sea Transport Industry Transformation Map to invest in new port capabilities through harnessing emerging technologies, the estate has already garnered the attention of key industry players. These include names like maritime firm Wilhelmsen and aircraft manufacturer Airbus, which have conducted trials at the drone estate.

Its close proximity to anchorages will encourage the testing of drone deliveries to vessels located offshore.

This will also provide a conducive environment for the development of regulatory and safety standards for maritime drone operations. ■

# Singapore should seize chance to be green financing capital: Panellists



**Derek Wong**  
derek@nutgraf.com.sg

**S**ince the global financial crisis of 2008, the maritime industry has witnessed the rise of alternative financing sources such as capital markets and private equity funds - which also offered more flexible and attractive loan options.

This continued through most of the decade, resulting in bank lending to maritime companies hitting a low in 2019, reported Hellenic Shipping News.

Today, the COVID-19 pandemic is shifting the financial landscape once again, with panellists at a forum discussing how Singapore could become a green financing capital for the industry that is proving more resilient than expected.

Contrary to what many may expect, the pandemic provided a fillip for the environment in lending terms, said Mr Julian Proctor, Chief Executive Officer of Purus Marine, a maritime-holding company that owns environmentally-advanced vessels.

Speaking at the 3rd Capital Link Singapore Maritime Forum by financial advisory firm Capital Link yesterday, Mr Proctor shared: "Now there's a laser focus from customers and regulators on environmental and social issues, and it's a trend that has accelerated post-COVID-19."

This has resulted in "incredibly positive tailwinds" in financing for his customers, who are large corporates and shipowners.

Agreeing that there have been unforeseen positive outcomes, Mr Axel Siepmann, Managing Partner

at corporate financial adviser Braemar Naves, added: "The world was shocked by massive

uncertainty (caused by the pandemic) in March last year, but many financial institutions have been surprised by how positively the shipping industry has coped with COVID-19."

He cited the boom in the container mar-

**"The world was shocked by massive uncertainty (caused by the pandemic) in March last year, but many financial institutions have been surprised by how positively the shipping industry has coped with COVID-19."**

ket as a case in point. It registered its best performance on record in 2020, according to maritime research consultancy Drewry.

"Some of them (financial institutions) might feel that shipping may be more resilient than its reputation suggests in the last five to 10 years," noted Mr Siepmann.

However, challenges remain for some in the industry.

Mr George Kypraios, Chief Executive Officer at Singapore-based corporate finance advisory Yefira Consulting, shared that it can be "very tough" for small- and medium-sized companies to get financing, especially those in the offshore energy sector.

On the other hand, there seems to be a sea of ready capital when it comes to financing for environmentally-friendly initiatives, said Mr To-

"There will be one set of parameters for environmentally friendly assets and another for traditional ones, and that gap (between the two) will continue to grow," he noted.

This is good news for Singapore, which

plans to set up a global decarbonisation centre soon to coordinate the reduction of shipping emissions.

It could draw like-minded industry players to the Republic, who could be seeking investment for research and de-

**Mr Axel Siepmann**

velopment in eco-friendly maritime projects such as creating more sustainable fuel, noted Mr George Cambanis, Managing Director of alternative investment tech platform Yieldstreet.

Carrying on the theme of green financing, Mr Proctor from Purus Marine said: "This is a phenomenal opportunity for Singapore to take leadership when it comes to green finance."

He further quipped: "I think you've got to grab the opportunity, and I'll be emailing MPA (Maritime and Port Authority of Singapore) soon."

"Me too!" Yefira's Mr Kypraios chimed in, to laughter from the other panellists and moderator Shanna Ghose, Partner at commercial law firm Hill Dickinson. ■

**"This is a phenomenal opportunity for Singapore to take leadership when it comes to green finance."**

**Mr Julian Proctor**

bias Backer, Co-founder of Fleetscape Capital, an alternative capital provider for the sector.

# Dry bulk shipping on the road to recovery



Justin Kor  
justin@nutgraf.com.sg

**A**fter a tumultuous few years, the outlook for dry bulk shipping seems bright. But it still remains unclear whether the largest shipping market in the world by volume is witnessing a commodities supercycle, said a leading maritime economist.

He was referring to rising speculation that it was heading in that direction.

“Overall, shipping should certainly do much better compared to what we’ve seen over the last few years,” said Mr Rahul Kapoor, IHS Markit’s Global Head of Commodity Analytics & Research, Maritime & Trade. “We’re positive on the market from a long-term perspective.”

He was speaking at yesterday’s Baltic Freight and Community Forum – Dry Bulk, organised by the Baltic Exchange and held in conjunction with the Singapore Maritime Week. The forum focused on the market outlook of the dry bulk freight and commodities market.

There were three factors for his optimism.

First, the world has seen the worst of the COVID-19 pandemic. Many countries are now on the road to recovery, as they lift restrictions and unveil huge stimulus packages. Vaccine developments have also lifted the global economic outlook.

“We’re effectively 12 to 14 months into COVID-19. But what we’ve seen over the last 12

months is that commodity demand has remained supportive in the medium term,” said Mr Kapoor.

While global gross domestic product plummeted 3.6 per cent last year, it is projected to rise significantly in the next two years: by 5.1 per cent in 2021 and 4.3 per cent in 2022. “The global output is looking very strong,” he added.

However, he noted that the expected rebound in economic growth is heavily dependent on the pandemic’s severity, citing the virus’ resurgence in India as an example.

Second, dry bulk shipping’s poor performance in the last decade due to poor demand and an overcrowded shipping market has also led to a silver lining. The exit of companies has removed some deadweight in the industry. “We’ve seen bankruptcy, many people leaving the industry,

shipping demand. Despite the raging pandemic, its economy has emerged relatively unscathed.

For instance, its iron ore imports hit a record 1.17 billion metric tons in 2020, and iron ore prices recently hit a 10-year high on the back of rising steel demand.

“We were in the midst of a pandemic, but China set multiple records for commodity imports across the market,” he said, adding that the country will continue to drive demand for the foreseeable future.

Ultimately, Mr Kapoor pointed out that it will be supply, not demand, that will determine dry bulk shipping’s fortunes. “Demand has never been a major problem in the dry bulk shipping industry, it’s the supply side that drives profitability,” he said.

Even while the near-term prospects remain bright, he believes that the sector is still not yet in the upswing of a commodities supercycle.

“We’re watching it closely at this point in time,” he said. “For now we’re calling it a cyclical upturn.” ■

**“We’re effectively 12 to 14 months into COVID-19. But what we’ve seen over the last 12 months is that commodity demand has remained supportive in the medium term.”**

**Mr Rahul Kapoor**

and many companies going belly up,” he said. “The overcapacity is reduced and that’s why it is driving growth.”

Lastly, China’s seemingly insatiable appetite for dry bulk commodities has been a key driver of

## Tomorrow’s Highlights Thursday, April 22



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

### Maritime Manpower Forum

The forum will discuss the issues of talent attraction and retention, efforts to future-ready the workforce, and the relevance of job redesign given the shift in jobs and skills needed for greater productivity and job satisfaction.

**Virtual Only**  
10:00am – 11:30am

### Singapore Shipping Forum

The seminar will provide insights on macroeconomic developments in the shipping industry, including decarbonisation, associated green financing issues and potential solutions.

**Virtual Only**  
2:00pm – 6:00pm

### Marine Insurance Asia

The conference offers insights into some of the most pressing issues facing shippers and insurers throughout Asia in 2021 and beyond. Sign up to hear from marine insurers, brokers and service providers.

**Virtual Only**  
2:00pm – 6:00pm



PHOTO BY SEAN LEE

Mr. Jon Loken is the General Manager of Chord X, which offers powerful data insight tools and hardware installations for the maritime industry. Its AI-powered solutions drive green shipping, lower operating expenses and enhance the reliability of fleets worldwide.

# Steering intelligent ship management from sea to shore

*To keep vessels running 24/7, teams at sea and on shore need to collaborate effectively. Chord X General Manager Jon Loken tells Samantha Boh how the company's solutions enable this by turning data into actionable insights.*

## Tell us about Chord X's core product.

Chord X is in the business of energy management, where we help ship owners, operators and users understand and get the best out of their vessels. We look at the energy system in a holistic way – from fuel to by-products.

After assessing the fuel, we provide predictive maintenance and performance insights on the engines that convert the fuel to power. Next, we monitor the power produced and used to propel the vessel forward. Lastly, we utilise our emission control product to look at the waste that is produced.

## What is the story behind Chord X?

Bridging the gap between the ship and shore is a challenge that we wanted to address. Hence, we started looking specifically at how owners and operators could best benefit from a solution that addresses this pain point.

We interviewed 300 potential users

and customers to shape products that meet their needs and wants. This led to the creation of the first MVP version of Chord X products – engineX and harmoniX – which were initially tested out on five vessels. We continue to actively build on this effort and are now quickly deploying them to more vessels.

## What are the barriers to efficient ship management?

Ship management today is transforming rapidly and is more efficient than ever before. But there is room for improvement and I observe a strong willingness to transform digitally.

The value chain is becoming more closely bound, with charterers wanting to reward the more efficient vessels. Ship owners are also rewarding good management of their vessels, while the managers are rewarding best practices among crew.

One barrier is how owners are incentivised to implement energy-

saving technologies. To verify good performance, we will need to improve the quality of data and how we use it.

Another barrier is the increasing amount of systems and software solutions that are used and maintained. They have become a burden rather than of help to users, which makes digital transformation a painful process that keeps stalling.

## How is Chord X helping to overcome these obstacles?

Chord X is just a little piece in a big jigsaw puzzle that ship managers are trying to solve. In fact, we see ourselves as a tool that will enable companies to solve this puzzle. EngineX empowers the crew to handle their job in the best possible way and harmoniX brings quality data from sea to shore, allowing insightful operational decisions to be made.

We strive to be agile and deliver data in the most flexible way to our

customers. A vessel superintendent and commercial ship manager use vessel data very differently, so our solution enables them to digest the data in ways that are of value to them.

Our intuitive and future-minded product helps our users free up time, allowing them to handle more vessels and business, which in turn leads to increased revenue and profits.

## How will IoT and AI-powered solutions shape the industry?

There is no question that these technologies act as catalysts to green the industry. For us at Chord X, Internet of Things (IoT) and machine learning has allowed us to develop a brand new product which we will launch this year – the first version of Emission Control.

This product will not only provide ship operators with constant monitoring of emissions but in the future also allow them to control emissions.