MPA ACADEMY SINGAPORE

HORIZON

MPA ACADEMY NEWSLETTER / NOV 2020 / ISSUE 08

02
FEATURE
Forging Ahead in the New Normal

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01
EDITOR'S NOTE

STAYING RESILIENT AND ADAPTIVE IN THE NEW NORMAL

One year has almost passed since COVID-19 swept across the world and the total worldwide cases hit 40 million in Oct 2020, with more than one million deaths from COVID-19. The Reuters data showed the pace of the pandemic continues to pick up as it took 32 days to go from 30 million global cases to 40 million, compared with the 38 days it took to get from 20 million to 30 million. The alarming rise in new virus infections globally has many countries racing to contain a resurgence of COVID-19 as the winter influenza season looms. As the pandemic continues to rage on, and with no quick medical breakthrough for inoculations in sight, governments and industries around the world have to stay resilient and adapt quickly to tackle the challenges in a new normal.

Singapore saw its first coronavirus case on 23 Jan 2020 and implemented circuit breaker measures on 7 Apr 2020 which lasted till 1 Jun 2020. During this period, most workplaces were closed and dining-in at eateries was banned. Together as a nation, we had to each play our part to curb the spread of infection. Fast forward to Oct 2020, our efforts finally paid off when there were zero cases of local COVID-19 transmissions on 13 Oct 2020. While this is a significant milestone and achievement, we cannot afford to be complacent. New cases will be expected as the country slowly opens up its borders and shifts its focus to economic recovery.

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In *Feature*, we highlight how MPA/Maritime Singapore will forge ahead in the new normal through our twin pursuit of digitalisation and decarbonisation, and how international collaboration is key. Under digitalisation for instance, International Maritime Organisation (IMO) intends to work together with MPA and the World Bank, along with other interested parties, to support IMO Member States in the digitalisation of their ports, particularly in the implementation of Maritime Single Windows. On the decarbonisation front, the IMO and Singapore introduced "NextGEN" which is envisaged to be a collaborative global ecosystem to identify opportunities and gaps, and to facilitate synergies and effective allocation of resources to address maritime decarbonisation across all stakeholders, including IMO Member States, industry and academia. The future of work will be very different in a post-coronavirus world, especially with the rise of digitalisation and sustainability in shipping, hence we would also need to upskill and reskill our maritime workforce.

On the home front, MPA is promoting the use of artificial intelligence in the maritime industry with an inaugural Maritime Artificial Intelligence Clinic webinar which was attended by 110 participants on 21 Sep 2020. Together with the Singapore Shipping Association, Singapore Maritime Foundation, Singapore Maritime Institute and PIER71, the webinar was part of a series of thought leadership events for industry experts to share their experiences and thoughts on new and emerging trends/technologies that will impact the maritime industry.

In this issue, we have Mr Punit Oza, Executive Director of the Singapore Chamber of Maritime Arbitration and MPAA Senior Adjunct Fellow, share his insights on "What Next?" for the Maritime Singapore Ecosystem and how Singapore could stay ahead of the curve even during this unprecedented time. He also examines some of the challenges brought on by the pandemic and why Maritime Singapore cannot afford to rest on its laurels to stay ahead of the curve.

During this challenging period, we re-connected with our first recipient of the World Maritime University (WMU) – Koji Sekimizu PhD Fellowship in 2019, Ms Deniece M. Aiken, and one of our MPA Academy Alumni members, Mr Levan T. Akitaya, who attended the 3rd Advanced Maritime Leader's Programme (AMLP) in 2019. Ms Aiken, who is from Jamaica, talks about her area of research and how COVID-19 has impacted her PhD programme and Jamaican maritime industry. Mr Akitaya, who is from Palau, shares with us a glimpse of how the Bureau of Marine Transportation Palau has taken preventive measures to keep its community safe from the virus.

In *Highlights*, we interviewed Mr Chan Keng Nee, MPA's Principal Manager, Operations Process & Assurance Team, Transformation Office, who has been at the forefront of Singapore's Port Operations Control Centre (POCC) development for the past 35 years. He was formerly the Controller (Port Operations Centre) during which he was closely involved in the evolution of the POCCs and development of four generations of the Vessel Traffic Information System.

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Last but not least, the future of work may be very different in a post-coronavirus world, especially with the rise of digitalisation and sustainability in shipping, and we would need to ensure that the training of technical competencies for our staff does not stop. While e-learning is not new in MPA, the use of online learning has accelerated and taken various forms during the COVID-19 crisis. MPAA will continue to explore online training as a safe and effective alternative to classroom training to ensure that our staff are well equipped to perform their jobs effectively.

As 2020 draws to a close, our hope is that a vaccine would be found as soon as possible to end the pandemic. Meanwhile, we have to stay resilient, press on in the new normal and tackle the challenges brought on by the COVID-19 situation.

We hope you will enjoy reading this issue of HORIZON and please let us know your thoughts at MPA_Academy@mpa.gov.sg

We wish you safe and well.

Tan Suan Jow
Dean, MPA Academy

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02
FEATURE

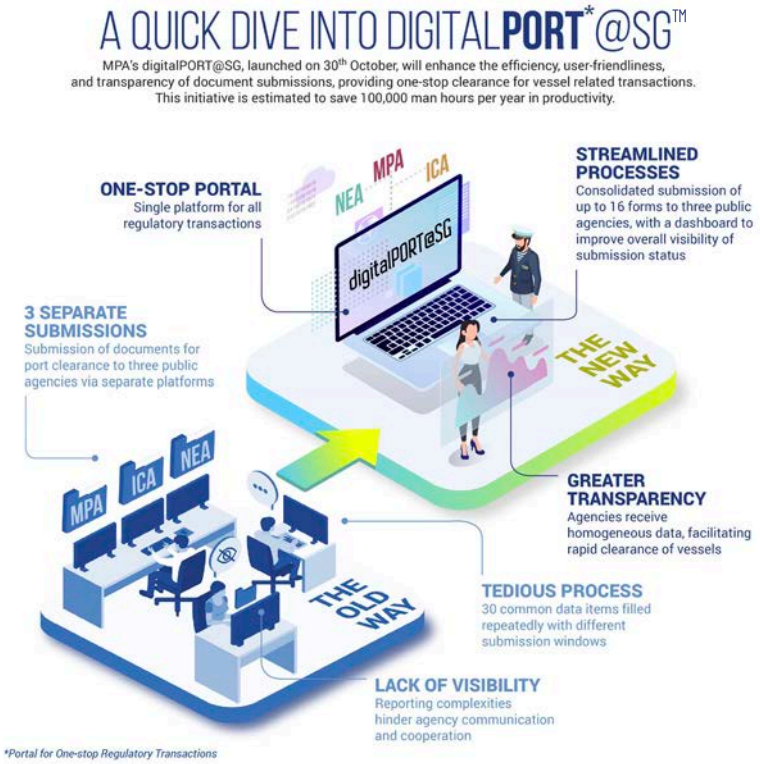
FORGING AHEAD IN THE NEW NORMAL

The world is experiencing unprecedented changes due to the COVID-19 pandemic. Early this year, global trade slowed down in the wake of lockdowns as governments scrambled to contain the rapid spread of the virus. The profound economic impact from this global health crisis has plunged the world into a major recession – the worst since the Great Depression. The International Monetary Fund has projected global growth at -4.4% in 2020 – an upward revision of 0.8% compared to its June update. While Singapore has not been spared, based on advance estimates for the third quarter of 2020[1], the Singapore economy expanded by 7.9% on a quarter-on-quarter seasonally adjusted basis, rebounding from the 13.2% contraction in the preceding quarter.

While the COVID-19 pandemic has slowed and disrupted global trade, Singapore's port performance has remained relatively stable. From Jan to Sep 2020, vessel arrival tonnage reached 2.17 billion GT, an increase of 3.1% year-on-year, but vessel arrivals totalled 74,529, a decline of 27.2% year-on-year. Container throughput fell about 1.0% from Jan to Sep this year, compared with the same period last year. Despite the pandemic, the Port of Singapore remains open to serve the trading needs of world markets, as well as being a vital gateway for critical resources to fulfil Singapore's domestic needs.

To overcome challenges and seize new opportunities during the COVID-19 crisis, we would have to focus on growing a resilient industry through digitalisation; driving sustainability in shipping; and last not but least, building a resilient workforce in the face of technological changes.

[1] The advance GDP estimates for the third quarter of 2020 are computed largely from data in the first two months of the quarter (i.e. Jul and Aug 2020). They are intended as an early indication of the GDP growth in the quarter and are subject to revision when more comprehensive data become available.



Growing a resilient industry through digitalisation

The pandemic has accelerated digitalisation efforts and sparked off much interest in digital investment as companies look to streamline and update their operations, in particular around logistics. With the challenges presented by the COVID-19 crisis, MPA has forged ahead with transformation through sectoral digitalisation. digitalPORT@SG™ which is a one-stop portal for port related clearances was launched in Oct 2019 for improving port efficiency and preparing for the next generation port at Tuas. By harnessing technology, digitalPORT@SG™ streamlines vessel, immigration and port health clearances across three Singapore agencies into a single application by consolidating 16 separate forms. This translates to an annual savings of some 100,000 man-hours for the local maritime industry. Shipping companies are now able to submit, track and receive approval for arriving and departing ships through the portal seamlessly, and port clearances have been 100% transacted via digitalPORT@SG™ since end Sep 2020.

Under digitalPORT@SG™ Phase 2, the portal will be enhanced into a single integrated digital platform with the industry to facilitate the booking of marine services from service providers. It will provide Just-In-Time (JIT) service to facilitate optimal vessel arrivals and departures to the Port of Singapore to minimise waiting time at the anchorages as well as to enhance ship turnaround time through artificial intelligence, thereby optimising port resources and efficiency. The first Minimal Viable Product for JIT operations for container ships is expected to be ready by 2H2021. It will eventually build and link digital marketplaces, and integrate with key maritime platforms through data exchange and seamless user logins by 2H2022.

digitalPORT@SG™ forms the backbone of MPA's digitalOCEANS™ strategy to achieve seamless port-to-port connectivity, effective information exchange and efficient transactions across the maritime transport chain. The success of digitalOCEANS™ will require governments and the industry to commit to common data exchange protocols, and connect isolated "data lakes" into digitalOCEANS™. To this end, MPA in Jul 2020 signed a memorandum of understanding with five international partners, to develop and adopt common data standards and Application Programming Interface (API) specifications, which will facilitate data exchange for port and maritime services transactions. This collaboration will also support MPA's digitalOCEANS™ initiative, where individual data platforms of port authorities, port operators, shipping lines, logistics companies and platform providers can exchange data and interoperate through a common set of APIs. As the maritime sector is a global business, MPA's Chairman, Mr Niam Chiang Meng pointed out that "To truly reap the benefits of effective information exchange, we need to move beyond digitising single nodes in the maritime supply chain. We hope that more will join us in linking up ships, port authorities and platform providers into a seamless digitalOCEANS™ to facilitate port-to-port connectivity and efficient trade transactions across the globe".

At the "Future of Shipping – Digitalisation" webinar jointly organised by the International Maritime Organization (IMO) and MPA on 8 Oct 2020, the key message was that international standards and collaboration were needed to unlock digitalisation's full potential to drive efficient, resilient and green shipping. During the webinar, Mr Kitack Lim, IMO Secretary-General, highlighted "Digitalisation is key

Fostering Global Interoperability through Open/Common Data Standards & API Exchanges

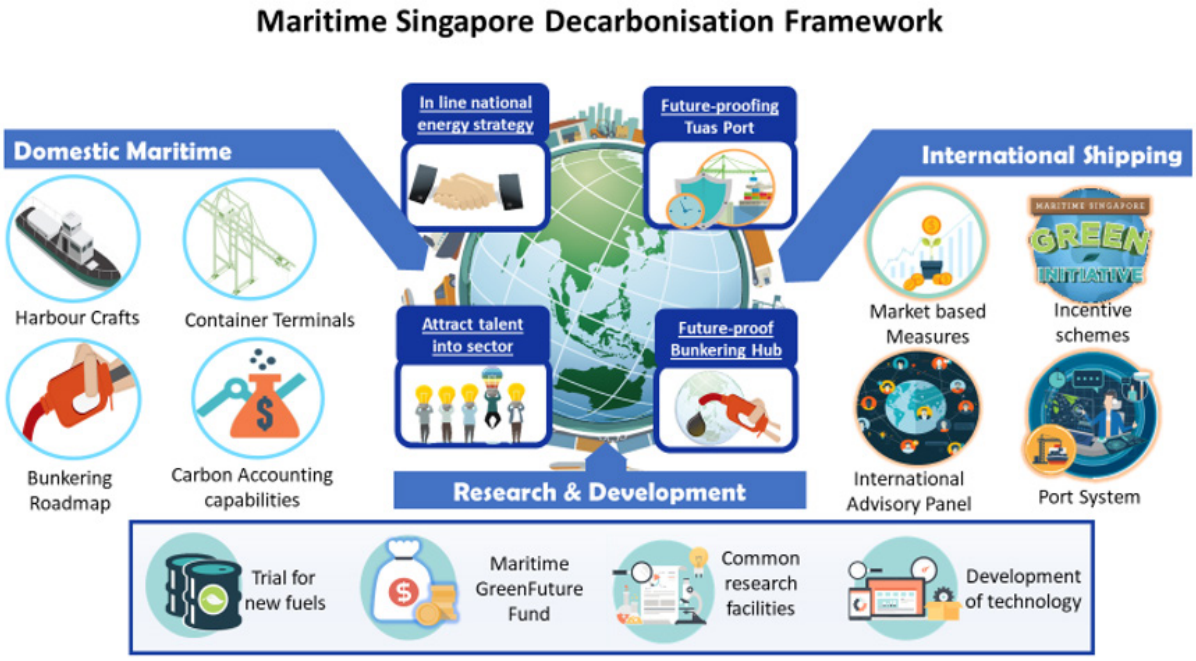
in enabling the post-COVID recovery, strengthening the resilience of the global supply chain and taking shipping into a new era" and IMO is working to ensure shipping can embrace the digital revolution – while ensuring safety, environmental protection as well as cyber security. Mr Lim also announced that IMO intends to work together with MPA and the World Bank, along with other interested parties, to support IMO Member States in the digitalisation of their ports, particularly in the implementation of Maritime Single Windows.

Acknowledging IMO's vital role in this digital transformation, Mr Chee Hong Tat, Singapore's Senior Minister of State of the Ministry of Transport and Ministry of Foreign Affairs, said "Digitalisation across global supply chains is a mammoth task" and Singapore, together with our industry, will continue to collaborate with IMO and Member States in their digitalisation efforts.

With these initiatives in mind, MPA will continue to build up a strong network of industry players to enable the innovation ecosystem in Maritime Singapore – supporting R&D, start-ups, tech partners and maritime companies' innovators.

Driving sustainability in shipping

While the COVID-19 pandemic has been the topline issue for 2020, decarbonisation continues to be a high priority on Maritime Singapore's agenda. Singapore is committed to sustainable international shipping as guided by the targets of IMO to achieve its 2030 goal of reducing carbon intensity of



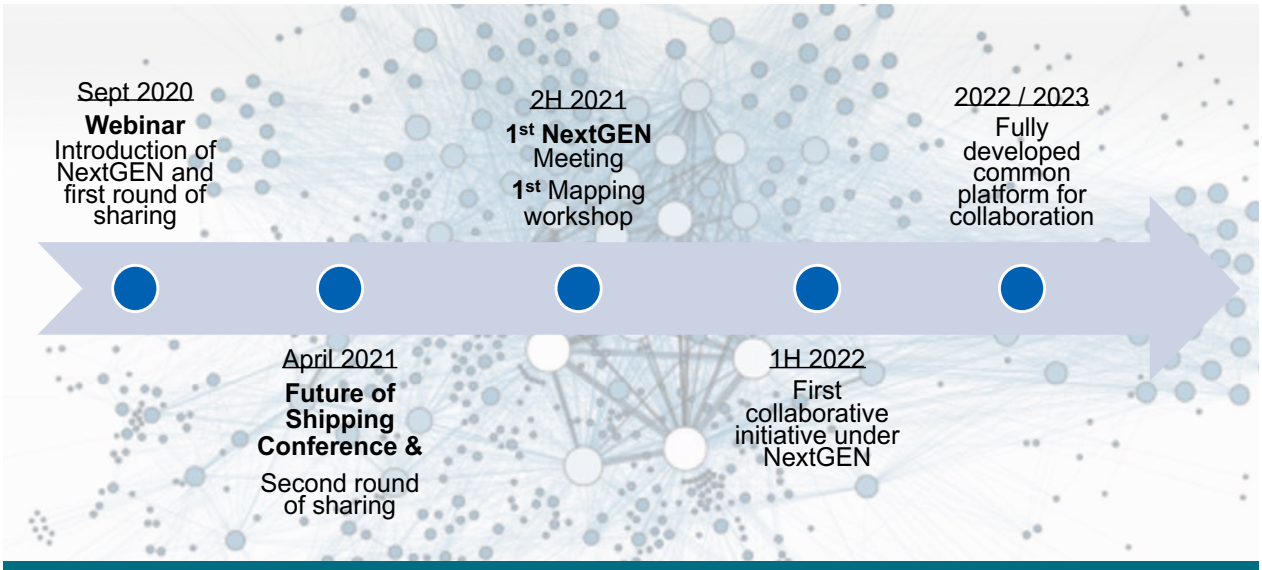
MPA has developed the Maritime Singapore Carbonisation Framework Blueprint 2050 to chart Maritime Singapore's strategy towards a low carbon future. The blueprint covers three main areas: domestic maritime, international shipping, and research & development.

shipping by 40% per tonne mile, and its 2050 goal of cutting total annual greenhouse gas (GHG) emissions by 50%, from 2008 levels.

Under MPA's Decarbonisation Framework, MPA will launch the Maritime Singapore Decarbonisation Blueprint 2050 by 3Q2021. The blueprint will chart Maritime Singapore's strategy towards a low carbon future. As part of developing the Maritime Decarbonisation Blueprint 2050, MPA and the Singapore Maritime Foundation (SMF) have also set up an international advisory panel (IAP) in Feb 2020 on decarbonisation in the maritime sector to garner inputs from local and international leaders to shape policies that could help accelerate the transition, and proposed actions to be taken by Maritime Singapore. The IAP is expected to launch its report in mid-2021.

In Mar 2020, MPA started a Maritime GreenFuture Fund (together with private and government partners with an initial funding of S$40m) to accelerate efforts in decarbonisation R&D and solutions for sustainable maritime transport. One major recent initiative under Maritime GreenFuture Fund was the setting aside of S$9m to co-fund up to three consortiums for the next five years focusing on Harbour Craft Electrification to support the local harbour craft industry in reducing their GHG emissions.

MPA's latest decarbonisation initiative was "NextGEN", introduced by the IMO and Singapore at the IMO-Singapore "Future of Shipping – Decarbonisation" webinar on 17 Sep 2020. NextGEN (where GEN stands for "Green and Efficient Navigation") is a concept of a collaborative global ecosystem to identify opportunities and gaps, and to facilitate synergies and effective allocation of resources to address maritime decarbonisation, across stakeholders, including IMO Member States, industry and academia. IMO Secretary-General Mr Kitack Lim called for more action to speed up research into zero



IMO-Singapore NextGEN: Timeline

carbon marine fuels, and to achieve this, he said "IMO is stepping up its efforts as a global forum and promoter in R&D in zero carbon marine fuels, bringing together interested stakeholders from public and private sectors, and also private and development banks and other potential donors around the world." Singapore also seeks to be a "living laboratory" to evaluate, pilot and commercialise maritime decarbonisation solutions and hopes to connect with likeminded partners in NextGEN. NextGEN is thus envisaged to be the one-stop shop for all initiatives related to decarbonisation, which participants will tap on to share ideas, seek resources and find relevant partners.

Building a resilient workforce in the face of technological changes

Aside from growing a resilient industry through digitalisation and driving sustainability in shipping, MPA will support maritime companies in their continued training and development of their employees.

To support the maritime industry, MPA launched the MaritimeSG Together Package[2] which is effective from 1 May 2020 to 31 Dec 2020 to provide financial support to the industry and to encourage continuous training and upskilling of maritime workforce by increasing MPA's co-funding support to 90% for selected short courses and certifiable courses under the Maritime Cluster Fund (MCF) scheme. These measures seek to encourage upskilling and further support maritime companies in their digital transformation efforts during this challenging period.

To build a pipeline of maritime manpower, MPA also introduced a new MCF-Internship Reimbursement Scheme to help maritime companies continue to provide students who are Singaporeans or Singapore

[2] To prepare and support the maritime industry for a prolong battle against COVID-19, MPA has rolled out a SGD27 million MaritimeSG Together Package to provide targeted support for maritime companies, individuals and seafarers. The package includes: further financial support for maritime companies such as port dues concession and rebate on counter rental and overnight berthing; greater support for upskilling and digital transformation efforts; and financial and employment support for Singaporean seafarers. These took effect from 1 May 2020, on top of economic relief measures announced earlier.

PR with internship opportunities. MPA will co-fund 50% of the internship allowance paid by maritime companies, capped at $500 per month per intern, for up to a maximum period of six months.

Singapore's position as a major hub port and maritime centre cannot be taken for granted. While the future may be uncertain, MPA remains committed to ensure that our port remains open for business as we tackle the challenges of COVID-19. MPA's Chief Executive, Ms Quah Ley Hoon, aptly summed it as follows – "While we cannot predict what the 'new normal' holds for us in international shipping, the industry will be in a better place if we take steps to enhance international cooperation, drive digitalisation in our business and uplift our workforce".

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03
CONTRIBUTION

MARITIME SINGAPORE ECOSYSTEM: WHAT NEXT?

BY MR PUNIT OZA, EXECUTIVE DIRECTOR OF THE SINGAPORE CHAMBER OF MARITIME ARBITRATION AND MPAA SENIOR ADJUNCT FELLOW.

Singapore's founding Prime Minister, Mr. Lee Kuan Yew, once said, "What I fear is complacency. When things always become better, people tend to want more from less work." While he was talking about complacency among the general populace, this applies as much to the whole country as well as the ecosystem.

Xinhua-Baltic Exchange has rated Singapore as the leading International Maritime Centre (IMC) of the world for the last 7 years. Maritime Singapore has not become nor should become complacent. It must continue to re-invigorate itself and adapt to the changing world around us.

Learning from the past and adapting to the "new normal"

When we look at London's rise into a leading maritime centre over the years, till it was overtaken by Singapore, it is closely linked to the colonial past of Great Britain.

While the Industrial Revolution provided the greatest boost to the industrial and manufacturing activities, it could only be sustained by supply and demand – supply of raw materials for the manufacturing activities and demand for the finished goods manufactured. The colonies provided both – a cheap and abundant supply of raw materials and natural resources and a ready market for finished goods. As colonization gained momentum, the industrial production helped the growth of ancillary services such as trade, shipping, finance and legal services. The British Pound was the "default" currency of trade well into 1960's and this position was usurped by the US Dollar thereafter.

Post-colonization, we did see a decline of industrial and the ancillary services but very few tangible substitutes were initially available. Over the past 50 years, the industrial production has decisively moved into Asia, along with trade, shipping, finance and legal services. London remains an important centre but has lost its pre-eminence.

The key observation here is that there has been a decoupling of the various aspects of the ecosystem and Singapore's rise has not been on back of huge industrial production, but on providing value-added services to the world. This is important as the ability of Singapore to adapt to changes is much greater, when the ecosystem is nimble and service focussed rather than being asset heavy and slow to change.

While COVID-19 has decidedly impacted Singapore's economy, the fact that the global economy is adjusting to the "new normal" is sufficient cause for Singapore to return to providing value-added services, albeit in new forms and means. The Maritime Singapore ecosystem is no exception to this – it will continue to service the global trade but will need to constantly re-invent itself and think outside the box.

Individual companies are facing different challenges due to COVID-19 and related issues. They are all adapting to these challenges in their own ways. Work from home has become the norm and even where exceptions are allowed, most companies are working on a roster basis with only a few employees attending the office at any given time. For this system to succeed, the companies and their employees need to have access to the top of the rack infrastructure in terms of equipment and connectivity. Singapore is quite well equipped to provide same.

Another challenge with Work from home is loss of team camaraderie, due to absence of physical interaction within the entire team. One does not realise this, but the team members learn a lot from each other as they observe and interact with each other. This is missing now. Some companies have formed "mini-teams" which come together on scheduled days and manage a part of the activity. This hybrid model is here to stay for some time to come.

The actual dwindling and changing trade flows, ability to efficiently run the ships due to lack of adequate crew change opportunities resulting in a fatigued crew, and the physical impact of employees

and crew contracting COVID-19 are real challenges as well. Here the power of information technology, collaboration with government authorities and harnessing the predictive Artificial Intelligence are potential solutions and they will equip the companies with tools to blunt, if not prevent, the adverse impact of these challenges.

We have to keep in mind that the maritime industry is used to market cycles and has weathered past shocks such as the 2008 Financial Crisis and come out stronger from these cycles and shocks. Though currently imbibing a little more uncertainty, COVID-19 pandemic will hopefully be another "speed breaker", surmounting which the industry will again pick up speed and recover.

New roads being built do not necessarily mean that old paths have to be destroyed

It is important that the strong foundation laid so far is not wasted and the measures that have proved a success are continued. The Maritime and Port Authority of Singapore (MPA) has been extremely successful in bringing the major maritime players into Singapore, some of them even moving their headquarters into Singapore. Enterprise Singapore[1], the government entity committed to enterprise development and development of Singapore as a global trading hub, has had the same success with trade companies. This makes Singapore totally unique, in that the maritime and trade companies are literally a stone's throw from each other. This is a huge advantage and only valued when it is not around.

These efforts of attracting new companies to come in and current companies to expand their operations and activities must continue. For example, with a thriving digital and innovation ecosystem, more companies must be encouraged to set up or expand their digital operations in Singapore, taking advantage of this ecosystem. The linkages must be strengthened even further and aggressive

[1] Enterprise Singapore (ESG) is the government agency championing enterprise development. Its mission is to grow stronger Singapore enterprises by building capabilities and accessing global opportunities, thereby creating good jobs for Singaporeans. ESG also supports the growth of Singapore as a hub for global trading and startups.

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canvassing and pitching must be done by ventures such as PIER71, a collaboration between MPA and NUS Enterprise on developing the first industry-wide acceleration programme for the port and maritime industries, to the maritime companies in Singapore, Asia and the World.

Further, the personnel at MPA will be able to efficiently highlight the relevant value propositions of the ecosystem if they understand how a shipping entity works and uses this vibrant ecosystem. Projects targeting this need are also currently underway to provide exactly this understanding.

You do not need to be miles ahead of competition but just a few steps

Maritime Singapore has been smart enough to undertake a few sustainable measures and invest for future. This has ensured that even with an ever-changing environment, we are still a few steps ahead. The world is levelling at a rapid pace and technology travels across the globe in a flash, taking away any first mover advantage.

Investments in talent is one of those investments for the future. With a growing reservoir of young maritime talent and fantastic skills upgrade programs for the current workforce, the companies will look

to expand in future, within Asia & beyond, using Singaporean talent and that could be a real "first mover advantage".

Another linked aspect to remember is that, unlike all other professions like law and medicine, commercial shipping is one of the few professions which does not have mandatory entry qualifications and no continuous professional development at all. Maritime Singapore must try and equip the current and future commercial maritime professionals, working in Singapore, with some basic qualifications in commercial shipping and provide a certificate for such qualifications, which should command some positive value when such professionals apply for positions in Singapore.

The IMC 2030 Advisory Committee[2] was established by the MPA in 2016. In their report, the Committee, chaired by Mr Andreas Sohmen-Pao, Chairman of BW Group, and comprising 21 other global business leaders and experts from diverse sectors such as maritime, finance, commodities trading, logistics, finance and technology, highlighted the value of bodies such as Institute of Chartered Shipbrokers in terms of Maritime Education and Professional Qualifications. A possible tie-up could bring such a course into existence and thereafter it is the cumulative efforts of the community, which can practically implement such an effort through employment practices.

Why should I voice out my "non-traditional" views? Because I know they will be heard objectively and implemented diligently

As the ecosystem develops, ideas that would have previously seemed "radical" or "non-traditional" get accepted as "out of the box thinking". The receptiveness and reaction to such ideas turns positive. Maritime Singapore has evolved to such a stage quite quickly. This ecosystem is primed to change the way the maritime industry operates and lead the way to such a change.

An "out of the box" idea could be to offer an all-inclusive "Maritime Singapore" package to companies who are either already in Singapore or planning to locate to or open an office in Singapore. This package could give the companies membership and access to all the various relevant Maritime Singapore bodies and organisations. Assume that a ship owning company sets up operations in Singapore and opt for this package, they will automatically get membership and access (subject to individual vetting procedures) to Singapore Shipping Association, Baltic Exchange, Singapore Chamber of Maritime Arbitration and all related bodies. Choosing this package would make it easy for the companies to move into the Maritime Ecosystem and MPA would be actively facilitating such a move.

Another idea could be to set up an interactive platform for the companies to access ALL the current digital solutions on offer in Maritime Singapore ecosystem (and even beyond) indicating which type

[2] The International Maritime Centre (IMC) 2030 Advisory Committee submitted the IMC 2030 Strategic Review report to the Singapore Government in 2017. The Committee's vision is for Maritime Singapore to be the Global Maritime Hub for Connectivity, Innovation and Talent, and this is centred on strengthening existing clusters of maritime and related activities and creating new ones.

of shipping activity they are most suited for – chartering or operations or dispute resolution etc. By getting constant updates and developments, the interest in as well as the uptake of such digital solutions will increase. Currently there are lots of "exchanges" which collate the various accelerators, which are active in maritime but do not actually help categorize and update the status of the actual digital solutions on offer.

It takes a village….

As they say, "it takes a village to raise a child". Maritime Singapore has succeeded so far and will continue its successful run only with complete participation from all the stakeholders and it must provide the tools to ensure the greatest participation from such stakeholders. As the global challenges such as COVID-19 have highlighted, we are much more connected globally than ever before and thus eventually the "village" must expand beyond the shores of Singapore, with Maritime Singapore and its ecosystem playing a key role in maritime developments across Asia and beyond.

What we must never be is complacent and what we must always be is competent.

Views expressed by the author may not necessarily be those of MPA.

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04
INTERVIEW

SHAPING THE FUTURE OF MARITIME GOVERNANCE

BY ANGELA CHEW

Following the launch of the World Maritime University (WMU)-Koji Sekimizu PhD Fellowship on Maritime Governance in Jun 2019, Ms Deniece M. Aiken from Jamaica become the first recipient of the Fellowship in Mar 2020. Supported by the Maritime and Port Authority of Singapore (MPA), the Fellowship comes under Singapore's enhanced technical co-operation and training package for the International Maritime Organization (IMO) and its Member States. The Fellowship seeks to nurture the next generation of skilled maritime professionals, while equipping them to contribute to the international shipping community.

Spearheaded by the WMU with support from MPA and Dr Koji Sekimizu – former Chancellor of WMU and former IMO Secretary-General – the PhD Fellowship facilitates research on the role and impact of the IMO and relevant United Nations (UN) agencies in maritime governance over the past 60 years.

The first Fellowship recipient, Ms Aiken, is a Maritime Attorney with eight years' experience in the maritime industry. Apart from sitting on the board of directors of the Caribbean Maritime Institute and the American Caribbean Maritime Foundation, she is the Founding President of the WMU Women's Association – an association formed to connect, educate and inspire women in the maritime industry, and to promote female maritime professionals. In addition, she is a lecturer in maritime law

and a member of the International Maritime Lecturer's Association, Director of Corporate Affairs of the Women in Maritime Association, Caribbean and a law columnist for Portside Caribbean – the premier publication of the Caribbean port industry. This issue, we caught up with Ms Aiken to find out about her area of research and how COVID-19 has impacted her PhD programme and Jamaica's maritime sector.

Ms. Deniece M. Aiken - Maritime Attorney, Jamaica

| What made you pursue a career in the maritime industry?

Unique. Crucial. Fascinating. Multicultural. These four words come to mind whenever I think of the maritime industry. I was first introduced to maritime theory while studying for my Bachelor of Science degree in International Relations. After that, I was convinced that I would pursue a career in the maritime sector. A few years after graduation, I become a maritime law lecturer, and later obtained my Masters of Science degree in Maritime Affairs. I also continued to enhance my knowledge in this sector through professional workshops and courses.

In my current position, I give advice on maritime matters, provide legal representation for commercial maritime entities, draft policies and participate in regional and international fora on new and emerging maritime matters. It has been an enriching experience being involved in this industry, and my initial fascination with it has not changed.

| Tell us more about the Fellowship and why it interests you.

The Fellowship is awarded by MPA for a period of three years and facilitates the undertaking of doctoral research on maritime governance under the primary supervision of a member of faculty at the WMU. It involves annual visits to the IMO headquarters in London, research at the Maritime Knowledge Centre and the discussion of issues with the IMO Secretariat. There is also an Advisory Committee, consisting of key maritime experts including former IMO Secretary-General Dr Koji Sekimizu, which provides further insight on maritime governance.

There are several elements that drew me to the Fellowship, including direct supervision from a well-learned and experienced faculty, access to global maritime professionals, opportunities for discourse with the IMO Secretariat and attendance at IMO meetings, among others. I am looking forward to the entire experience and my research having a positive impact on the maritime industry.

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| What is your research area and why is it important for the maritime sector?

My research delves into maritime governance with a focus on the IMO and the issues surrounding the implementation of maritime conventions by IMO Member States. Maritime governance is characterised by intergovernmental decision-making through international agreements. The aim is for the newly introduced conventions to be ratified and implemented at the national level in the IMO Member States. The lack of implementation creates restrictions on the states' abilities to take the necessary actions to adequately address the matters for which the conventions were introduced.

My research is therefore critical as it aims to review and analyse the barriers affecting state party implementation of maritime conventions, highlight key findings and recommendations to address these challenges and over time, contribute to the overall development and efficiency of the industry.

| What do you hope to gain from this Fellowship?

The Fellowship will allow me to further hone my research, analytical and problem-solving skills, and improve written and oral communication, along with overall information management. I also expect to gain career-related benefits, such as professional advancement through participation in maritime and other higher education training programmes as well as increased professional networking. It will also allow me to contribute to existing knowledge on maritime governance, which will ultimately advance my career.

| How has COVID-19 impacted your PhD programme?

So far, the pandemic has resulted in the rescheduling of the annual visit to IMO and the restructuring of initial data collection mechanisms. The review and collection of physical data from the various data sources identified have also been postponed.

| How has COVID-19 impacted Jamaica's maritime industry?

Jamaica's maritime industry is very active within the Caribbean region, with a considerable amount of both cargo and cruise traffic. However, it has been impacted by the pandemic. To curb the spread of COVID-19, the Government of Jamaica implemented the Disaster Risk Management Act, along with new measures, including the closure of airports and cruise shipping ports.

Aimed at facilitating the continuation of trading activities, certain services and personnel were

exempted from the curfew restrictions. These services include the loading and unloading of ships, storage and delivery of goods at or from docks, wharves and warehouses, and the personnel required to execute these services. Despite these measures, the country experienced a noticeable decline in shipping activity, particularly in cruise shipping, which has come to a complete halt globally. This has significantly affected the economy, which is considerably reliant on income from tourism. Jamaica, therefore, reopened international air travel to tourists on 15 Jun 2020, with testing and mobility restrictions for all arriving passengers.

| How do you think COVID-19 will impact the recovery of the cruise industry in the Caribbean region and what will the Jamaican government be doing to revive this industry?

Amidst the extended global restrictions on cruise shipping, it is important that countries develop new income streams to supplement the loss resulting from the decline in cruise traffic. The Jamaican government has supported the recovery of the cruise and tourism sector through three measures:

- Introducing temporary unemployment benefits for self-employed tourism workers.
- Establishing new training programmes for tourism workers to gain new skills and allow for other employment.
- Establishing a multi-stakeholder tourism task force to plan and devise strategies for recovery.

While these efforts are commendable, much more needs to be done by Caribbean and other small island developing states to adequately recover from the negative economic effects of the pandemic.

| What has the Jamaican government done to minimise disruption from COVID-19 to the shipping industry?

To mitigate the effects of COVID-19, the Maritime Authority of Jamaica (MAJ) introduced the following measures:

- Continuing the provision of the full suite of registration, technical and seafarer certification services via traditional and purpose-built electronic platforms.
- Providing guidance for the facilitation of vessel surveys and inspections in the case of the expiry of certificates of validity or where the flag state surveys and/or inspections become due.
- Encouraging shipowners to make the necessary arrangements for seafarer repatriation at the end of their Seafarer Employment Agreement (SEA), outside of any other mutually agreed agreement between the seafarer and the shipowner.
- Successfully advocating for the classification of seafarers as "essential workers" to facilitate repatriation of Jamaican seafarers and transit of all seafarers through a controlled process.
- Resuming the issuance and renewal of seafarers' documentation.
- Providing guidance regarding the expiry of seafarer medical fitness certificates.

| What do you think the maritime industry needs to do to stay resilient in the face of COVID-19?

To remain resilient in the face of COVID-19, the maritime industry will need to improve its adaptability, security and agility.

Adaptability. Amidst the current travel and physical distancing restrictions, digital technology and communication platforms are critical in facilitating the continuation of national and transnational activities within the maritime industry. At the same time, there remains the need for continued compliance with maritime laws and policies as well as greater efficiency in shipping. Embracing widespread use of digital technology and the eventual large-scale digitisation of maritime and port activities are, thus, key for the industry to remain resilient.

Security. The national restrictions imposed to manage and curtail the spread of COVID-19 have legal and contractual implications. One such instance concerns the expiry of the SEA. Since the COVID-19 outbreak, seafarers have been facing unexpected impediments to their rights to repatriation and transit to join and/or change vessels further to the provisions of their SEAs, due to national border restrictions imposed by many countries worldwide. In order to sustain the maritime industry, upholding security across the entire scope of maritime activities, especially matters involving seafarers, is of great importance. Seafarers are key players in the maritime transportation system, and are vital to ensuring the industry remains resilient in the face of unexpected incidents.

Agility. With the unexpected impact of COVID-19, industry stakeholders need to be flexible and adapt quickly. The maritime industry traditionally holds annual meetings that require the physical presence of the IMO Secretariat, IMO Member States and other industry stakeholders to discuss maritime matters as well as introduce and amend policies to regulate international shipping activity. When physical meetings are not possible, these regulatory matters are sometimes deferred, resulting in delays in addressing urgent matters. The maritime industry will need to be more agile to respond to issues that require swift action even if no physical meetings can be held.

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05
INTERVIEW

CONVERSATION WITH MPA ACADEMY ALUMNI

BY RAHITA ELIAS

The Micronesian island of Palau, situated in the western Pacific Ocean, may be a relatively small maritime nation. Even so, it is committed to delivering the same world-class standards as the bigger players, says Mr Levan T. Akitaya.

Mr Levan T. Akitaya
Chief, Division of Safety and Security,
Bureau of Marine Transportation
Ministry of Public Infrastructure, Industries and Commerce, Palau

Prior to finishing high school, it was time for me to decide on a college or university. During the process, I had applied to and was accepted by both the California Maritime Academy, and the Chaminade University in Honolulu.

At the time, the California Maritime Academy was more attractive with regards to its uniqueness, semi-military structure, and the high rate of success of every graduating cadet. When I completed my studies and graduated with a Bachelor of Science degree in Marine Transportation in 2011, 98 per cent of the graduating class had accepted a job prior to graduation. Immediately after graduation, I began working at Ports America, which is a stevedoring company in Oakland, California, for nearly two years.

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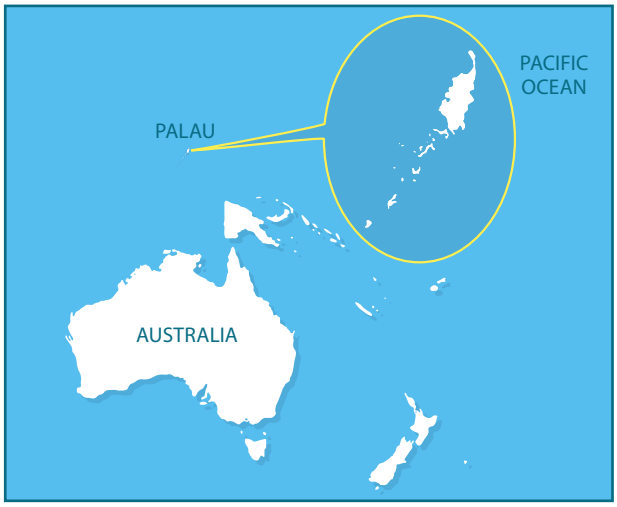
Return to Palau



After spending 11 years studying and working in the US, I returned to Palau in 2013 to be with my family – because no matter what, there is no place like home. I had always known that I would return home one day, I just did not know when. Unfortunately, I lost a family member, which coincidentally compelled me to return home earlier than expected.

Upon moving back home to Palau, I took up the position of Chief, Division of Marine Transportation, Bureau of Commercial Development, for four years. My responsibilities then included overseeing vessel surveys, inspections and registration of domestic vessels in the Republic, and managing the testing and licensing of maritime personnel and motorboat operators. After about four years, I took some time off.

In 2019, I returned to work as Chief, Division of Safety and Security, Bureau of Marine Transportation, Ministry of Public Infrastructure, Industries & Commerce. My bureau is in charge of administering the operation and management of national seaports and other entry ports, and for implementing maritime security policies and regulations.

Palau's challenges and opportunities

Palau's maritime industry has many challenges and opportunities. The main challenges are a shortage of trained maritime personnel, and the lack of popularity of a sea-going career among the younger generation. For instance, over the past decade, the entire maritime industry in Palau has depended on just one harbour pilot.

At present, another challenge is the global COVID-19 pandemic. While Palau is one of the few countries with no confirmed cases, we have had to take steps to prevent the virus from entering our country. Since late January, the Bureau of Marine Transportation has been implementing strict policies for entry. For example, we have closed our borders, and are only accepting inbound common carriers. This is to ensure that we continue to receive the necessities through shipping, yet keep our community safe from the Covid-19 coronavirus.

Despite these challenges, our maritime industry also has many opportunities. Those in the industry have several training avenues available to them, including the United States Coast Guard Academy,

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and Republic of China (Taiwan) Naval Academy, as well as programmes offered by the Japan International Cooperation Agency (JICA), Pacific Community (SPC), and Singapore's Maritime and Port of Authority (MPA).

AMLP highlights

For myself, I attended MPA's 3rd Advanced Maritime Leader's Programme (AMLP) in 2019, and found it to be very useful. The programme exposed me to larger players in the maritime industry such as Mr Andreas Sohmen-Pao, Chairman of BW Group, and Mr Ong Kim Pong, PSA International's Regional Chief Executive Officer, Southeast Asia, who play such critical roles in their respective organisations, and, in turn, affect many others in the industry.

One thing I found particularly useful was that on the last day of the Programme, we attended a whole-day course on Leadership in Crisis Communication. Although the course was the toughest in the AMLP, I liked the fact that it required me to think very quickly and have the correct terminology in my thought process.

Another thing great about the Programme was that I got to highlight to my fellow AMLP participants that although our respective ports and operations differed in terms of size, number of vessel calls, and geographical location, our issues could be similar.

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Let me explain with some figures. At the Programme, the MPA informed participants that there were 1,000 vessels in Singapore's waters at any given time. On the other hand, the Port of Palau receives on average five cargo vessels a month. Despite the big difference in numbers, we are still compelled to hold our agency and our office to the same exacting standards as any International Maritime Organization member state. I felt that it was important for me to show this to my peers from other maritime nations.

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06
TALK

PROMOTING ARTIFICIAL INTELLIGENCE IN THE MARITIME INDUSTRY

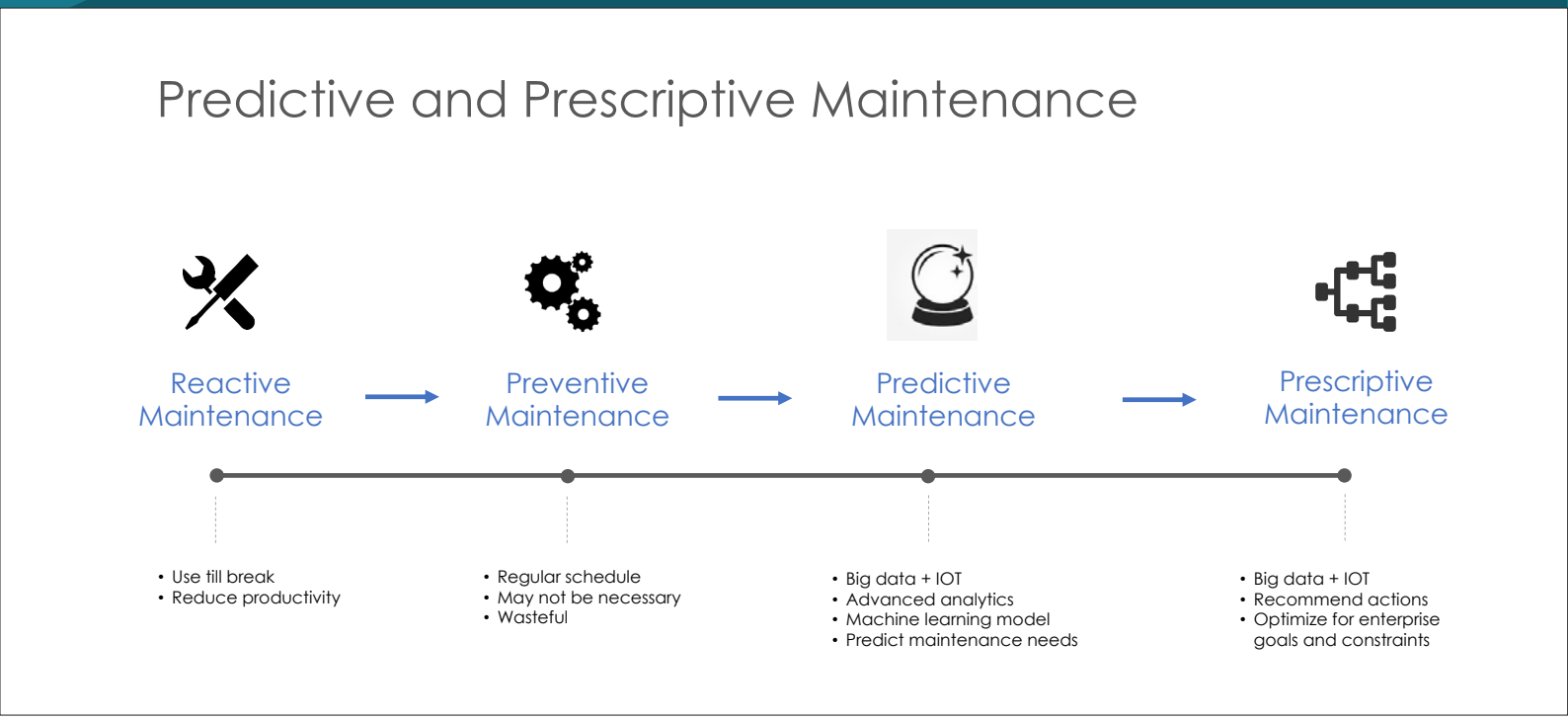
BY CHRIS CHUA

On 21 Sep 2020, 110 participants across the shipping industry came together for the inaugural Maritime Artificial Intelligence (AI) Clinic webinar organised by the MPA Academy and MPA's Innovation, Technology and Talent Development Division (ITTD), with support from the Singapore Shipping Association (SSA), Singapore Maritime Foundation, Singapore Maritime Institute and PIER71. The webinar was part of a series of thought leadership events for industry experts to share their experiences and thoughts on new and emerging trends and technologies that will impact the maritime industry.

Offering a platform for leading AI practitioners to share how AI can enhance business competitiveness and explore potential ideas for employing it, the event featured three speakers: Mr Kevin Lee, Head of AI Advisory and Adoption at AI Singapore (AISG)[1] ; Mr Gavin Yeo, Assistant Director of Sectoral System Development at MPA; and Ms Nidhi Gupta, CEO and Co-Founder of PortCast.

The event was hosted by Mr Kenneth Lim, Senior Director (ITTD)/Chief Technology Officer at MPA, who opened the webinar by highlighting the importance of understanding the potential of AI and thinking about its applications, so that maritime leaders can harness the technology to address their challenge statements, while building capabilities and exploring collaboration within the industry.

[1] AISG is a national AI programme office that is funded by the National Research Foundation (NRF). It aims to catalyse the adoption of AI in Singapore.



Credit: AI Singapore

AI's value, applications and successful use cases in the maritime sector

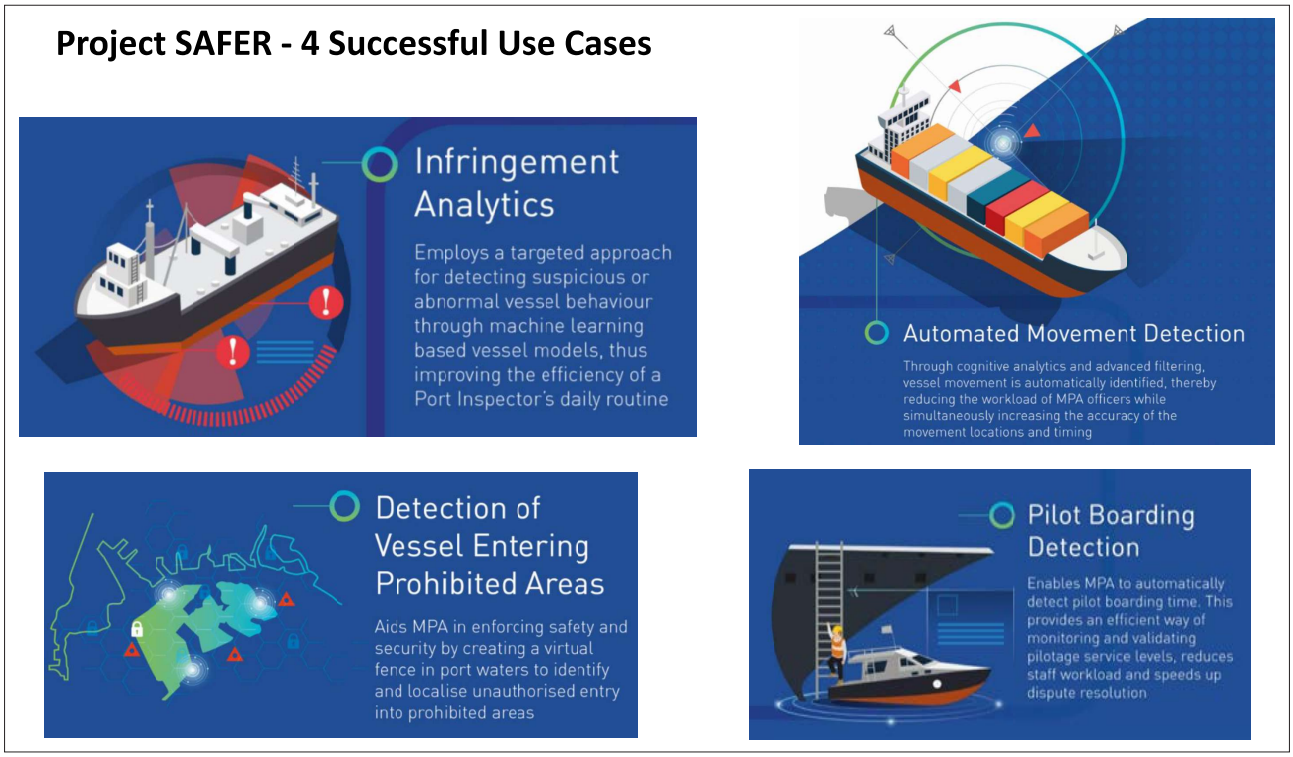
In the first presentation, Mr Kevin Lee shared what AI can do for organisations, its applications and successful use cases in the shipping industry. Touching on AI basics, he highlighted how traditional analytics shows how things behaved in the past and offered insights for decision-making. However, AI goes beyond this to offer additional value by utilising past data to deliver predictions that help us make better judgements in the future, while incorporating non-traditional and non-structured data such as text, pictures and videos to generate more precise predictive models. Meanwhile, machine learning – a subset of AI – refers to algorithms whose performance improves as it gets exposed to more data over time and picks up patterns on its own.

Moving on to AI applications, Mr Lee highlighted that they ranged from computer vision (CV) to robotics and automation. The use cases for AI in the maritime sector included equipment optimisation, predictive analytics and route automation, among others, which can help to enhance companies' competitive advantages if deployed effectively. Additionally, other successful maritime AI use cases ranged from path intrusion detection to twistlock detection and vessel detection, to automated physical security and predictive maintenance. By harnessing big data and Internet of Things (IoT) data as inputs for a machine learning model, predictive maintenance allowed businesses to predict when equipment maintenance was required, while prescriptive maintenance looked holistically at an organisation's needs to recommend actions that optimise for enterprise goals and constraints.

Enhancing port operations and enforcement through sense-making analytics

Next, Mr Gavin Yeo shared insights about how MPA has leveraged AI to augment its port operations and enforcement through Project Sense-making Analytics for Maritime Event Recognition (SAFER). Project SAFER works by capturing data feeds from MPA's systems and sensors, validating this data and processing it through the data analytics layer to generate results in the form of real-time alerts and scheduled reports. Following live trials to validate the sense-making modules of Project SAFER, four successful use cases were attained.

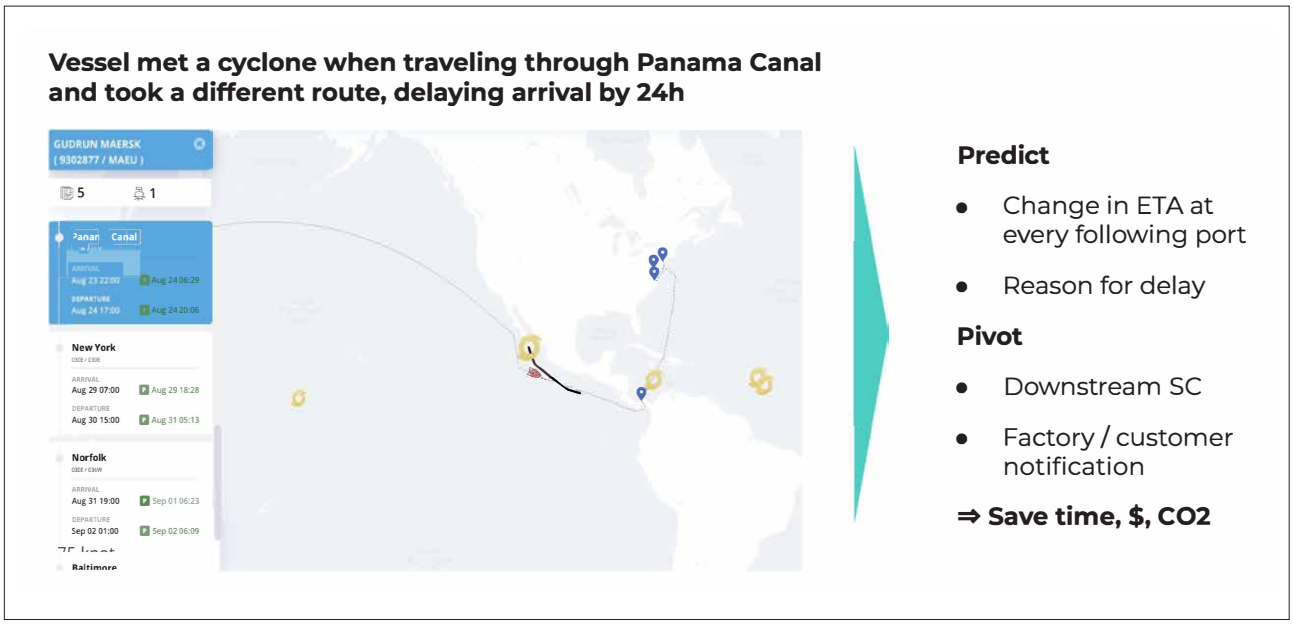
The first, infringement analytics, improved the efficiency of MPA's Port Inspectors by employing machine learning to detect suspicious vessel behaviour. The second use case pertained to the detection of vessels entering prohibited areas, which enabled more effective security enforcement by creating a virtual fence in port waters to identify and localise unauthorised entry into sensitive areas. Third, automated movement detection allowed greater accuracy of data on vessel movement and location, while reducing the workload of MPA officers. Lastly, pilot boarding detection provided an efficient way of validating pilotage service levels and sped up dispute resolution.



Moving forward, MPA will be operationalising Project SAFER by developing an AI-based command, control and communications system. Beyond providing a comprehensive situational awareness

of vessel activities within port waters, this system will facilitate infringement detection with analytics-based decision-support tools, while shortening planning and execution time through a unified workspace.

Harnessing AI to augment supply chain efficiency in container shipping



Credit: PortCast

The third speaker, Ms Nidhi Gupta, discussed how PortCast has leveraged AI to enhance supply chain efficiency in the container shipping sector through predictive visibility and demand forecasting. The resilience of global supply chains has been affected by external disruptions, ranging from COVID-19 to the change in customers' expectations. Beyond contributing to productivity losses, higher supply chain costs and lower customer retention levels, this has led to about $30 billion in losses for the global container logistics industry. Two use cases were highlighted that aimed to mitigate these adverse impacts.

For the first use case, predictive visibility was used to forecast the estimated time of arrival (ETA) of shipping containers. This was employed in cases where weather disturbances have delayed shipments, unforeseen events that have caused vessels to detour and skip a port, or operational changes in bill of lading (BL) that have led to a lack of trucks and eventual demurrage and detention (D&D) charges. By leveraging AI, this enabled predictions about the change in ETA at every following port, the scheduled change, the BL vessel change and the reason for the delay. This yielded several benefits, enabling downstream supply chain changes to be made and factories and customers to be proactively notified, while generating time and cost savings and reduced carbon dioxide (CO_2) emissions.

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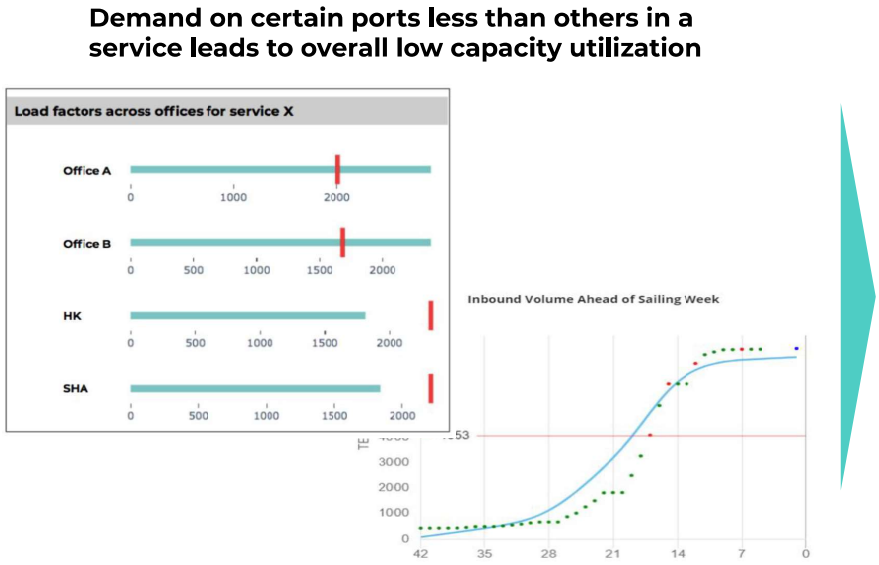

Credit: PortCast

Secondly, PortCast has used demand forecasting to predict container volume demand between any two ports. This was aimed at addressing situations where demand on certain ports was less than others in a particular service, which resulted in overall low capacity utilisation. By harnessing AI and machine learning, predictions on the demand forecast for each port in a service could be made up to six weeks ahead, in addition to forecasts on the load factors per port in service and booking behaviours. By bringing together external data from various sources in the supply chain – from consumption and production patterns to capacities in the market – AI facilitated data orchestration, while enabling real-time updates in a secure enterprise manner. Besides facilitating better decisions by the shipping liner on smarter pricing, this has contributed to higher capacity utilisation, more efficient asset repositioning and improved profitability. Collectively, predictive visibility and demand forecasting has ensured greater data accuracy, frequency and granularity, while enabling supply chain control towers to be more intelligent.

How AISG helps companies embark on their AI adoption journey

Finally, Mr Lee shared how AISG can help Singapore-based firms begin their AI adoption journey. AISG focuses on four areas – AI education, exploration of industry use cases, discovery of possible AI applications and preparation through data readiness. Organisations can either buy or build their own AI solution. The considerations include whether a standard solution exists, the possession of internal AI capabilities and their desire to develop proprietary intellectual property (IP), among others. For companies with a unique problem statement and no existing standard solution, it was advisable for

them to build their own AI solution. In this regard, AISG could help firms do so through its hundred experiment (100E) programme and assist firms in building up their internal AI capabilities through its AI Apprenticeship Programme (AIAP). AIAP entailed assembling an AI engineering team to build a minimum viable product (MVP) for the company, after which the IP would reside with the firm and AISG would facilitate knowledge transfer to the company's technical team.

Additionally, AISG offered sizeable subsidies, with local companies needing to pay only 10-30% in cash. Furthermore, the AI Bricks programme allowed resusable components that were developed for AISG's clients to be offered to Singapore firms to aid them in their digital transformation journey. Before embarking on an AI project, companies need to assess the business problem to solve, have lots of relevant data digitised, set aside a small team to run the AI project and obtain company leadership buy-in and sponsorship. In terms of prioritisation, companies should first focus on AI projects with higher data quality or technical feasibility rather than those with high business value, since data was the most important prerequisite.

Q&A session

Responding to a question about the lead time required to engage AISG for an AI Discovery session, Mr Lee said that two weeks was needed. The overall process comprised several steps. This included engaging the company in the discovery process, examining its problem statement, looking through its data and going through advisory engagements, before a report was generated for the client. When queried about the most common data format used for an AI project, Mr Lee said that this depended on the problem statement and the size and complexity of the data.

On whether AISG would help companies with the installation of IoT devices for predictive maintenance projects, Mr Lee said this was better done by the company's system integrator or equipment manufacturer.

Replying to a question about the types of projects that ship management or shipbuilding companies engage AISG for apart from predictive maintenance matters, Mr Lee said this included CV, anomaly detection and warehousing type of applications.

Closing remarks

In closing, Mr Kenneth Lim highlighted that the Maritime Digitalisation Playbook, which was jointly developed by the MPA, SSA and Infocomm Media Development Authority (IMDA), allowed companies to assess their digital maturity, while facilitating them in charting a roadmap for their digital transformation by harnessing AI as a key enabler.

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07
HIGHLIGHTS

ENHANCING NAVIGATIONAL SAFETY IN SINGAPORE'S WATERS

BY RAHITA ELIAS

Mr Chan Keng Nee, MPA's Principal Manager (Operations Process & Assurance Team), Transformation Office, has been at the forefront of Singapore's POCC development in the past 35 years. He talks about his role in the evolution of the POCCs and the progression from pure VHF communications to today's cutting edge technology, and beyond.

I have been involved in Singapore's Vessel Traffic Information System (VTIS) for almost 35 years. The proudest moment for me was the day I was asked to take charge of Port Operations Control Centre (POCC) operations, and became the Controller (Port Operations Centre) in 1996. Before that, I had only played a supporting role in reviewing the processes, developing the Standard Operating Procedures (SOPs) and the training programmes, and planning for the development of the VTIS. Taking over the running of the operations was natural for me as I was already very familiar with both operations and the systems.

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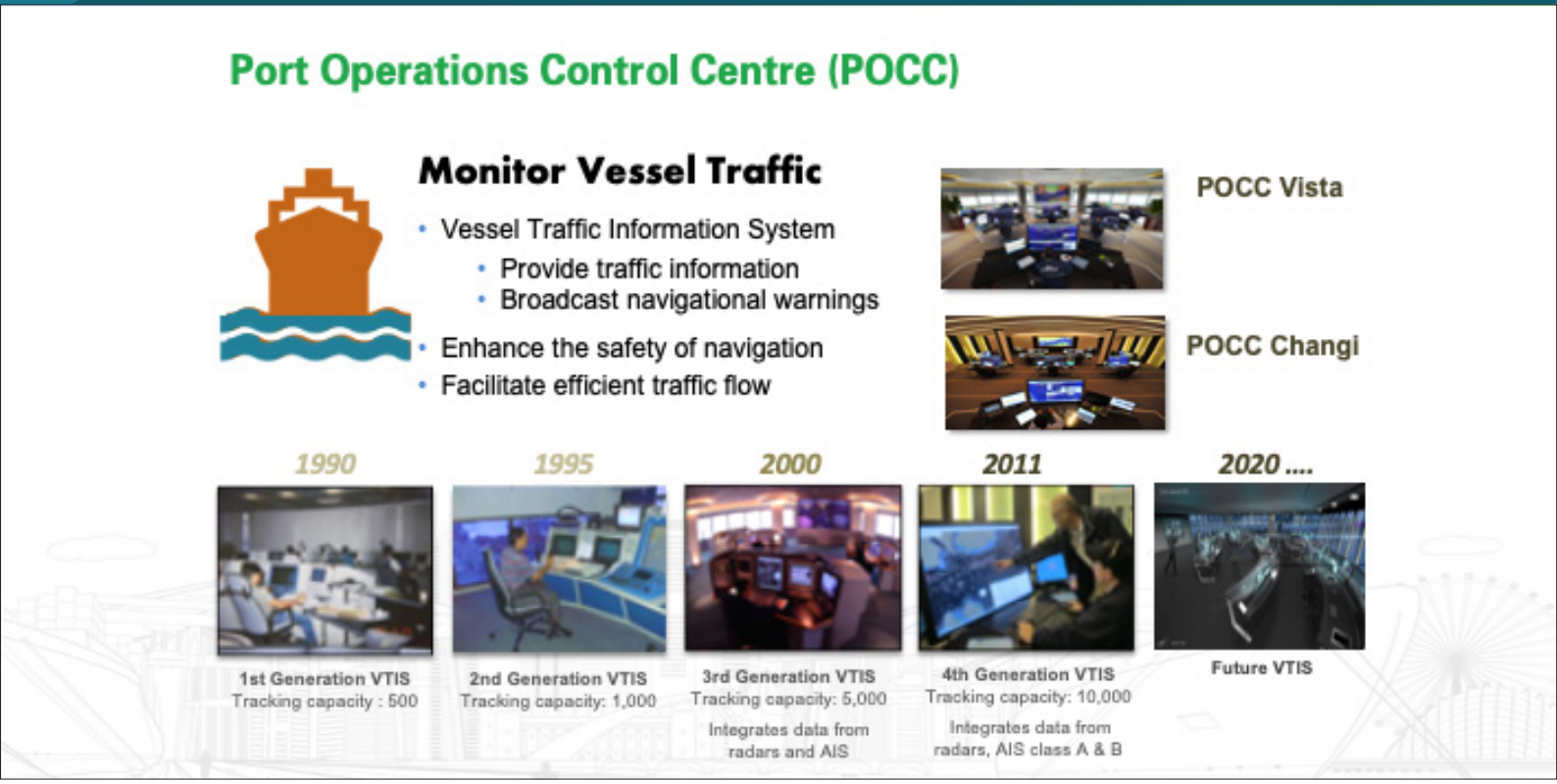

To me, the significant achievements have been the big projects that had contributed to the development of Singapore as a safe and secure global hub port. They would be the development of each of the POCCs – the first in Tanjong Pagar Complex (TPC), the second in PSA Vista, and the third in Changi. Each was developed to enhance maritime and port security, and each new generation of VTIS is aimed at enhancing operational efficiency. So each new ideation was an improvement over its predecessor.

In the beginning…

I suppose you could say my POCC journey began in 1972. I was 18 years old when I saw a newspaper advertisement for the position of a Harbour Pilot at what was the Port of Singapore Authority (PSA). The offer included a sponsorship to study at the Singapore Polytechnic, a sea-going career, and then a job as a pilot. I responded to the advertisement, and was successful.

After completing my nautical studies in 1973, I sailed with the now-defunct Neptune Orient Lines before starting work as a pilot with PSA in 1979. I performed piloting duties for about ten years, and obtained the Class A1 pilotage licence which qualified me to pilot ships of any size and to anywhere in the Port of Singapore.

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1st Generation VTIS (top left) and pre-VTIS days.

Upgrading the POCC

In 1983, I was one of the four harbour pilots who were tasked with undertaking the review of the Port Operations Control Centre following an incident where the derrick of a drillship struck the Sentosa cableway, killing seven people. The comprehensive review would focus particularly on the control of shipping traffic in our port waters.

We took about three to four months to review the operations, and implement a plan to upgrade and modernise Port Operations Control Centre. The upgraded POCC was to be located in TPC, and was established in 1984. Despite the upgrades, we still depended only on VHF radio as a means of communicating with the ships that call here. The next step would be the Vessel Traffic Information System.

Developing the VTIS

I too was involved in this next stage of upgrades. Instead of returning to my pilotage duties, I continued to assist the Port Master, who had asked me to stay and help in further upgrading the POCC. The upgrades would include the introduction of the VTIS, where radar would manage traffic and enhance navigational safety in our port and the Singapore Strait.

Since we had no experience using radars and other electronic equipment, we went on a study trip to several European ports that were already using them. This learning journey helped us to calibrate the requirements for our own radar system.

In 1990, the POCC at TPC was outfitted with a radar-based VTIS. This 1st Generation system had five radars, positioned to view traffic in the Singapore Strait. Equipped with four operators' workstations, it could handle up to 500 tracks.

I remember when the radars were first installed – we were all so excited and exhilarated because we could, for the first time, see the ships' movements in real time on a colourful graphic display. It was like having a bird's eye view of the traffic situation. Previously, when we depended on VHF alone, we would only have the approximate location of vessels.

We were also excited because this real-time picture and information would enable us to do a lot of value-added work such as warning ships when they were sailing too close to each other, identifying vacant slots for ships to anchor, and co-ordinating pilots to board ships when they arrived.

Continued improvement

The next set of upgrades took place in 1995. On top of the five radars that were already monitoring the Singapore Strait, four radars were added at various locations along the coast to cover our port waters. In addition, another six workstations were installed at the POCC. This expanded system, which was the 2nd Generation VTIS, had a capacity of 1,000 tracks – double that of the 1st Generation.

Then in the late 1990s, our Management decided that it was essential to set up a back-up POCC and upgrade the system to handle the additional traffic more effectively. Since we also had to deal with the Y2K rollover date problem, the new 3rd Generation VTIS would be Y2K-ready.

Singapore would then have two POCCs, with each designed for full redundancy. One centre would fully back up the other without performance and service delivery degradation. Independent data communication links that transmitted signals from remote sensors, such as radars and radio equipment, would support each centre. The two hubs would be fully integrated so that a transaction (e.g. a data entry) executed in one would be automatically updated in the other. Therefore, both would always have the same picture at any point in time.

The 2nd POCC, located in PSA Vista, was commissioned on Jan 20, 2000, and was installed with the 3rd Generation VTIS. The new system was among the first in the world to use the Automatic Identification System (AIS). It also utilised the MPA-produced Electronic Navigation Chart (ENC) of Singapore.

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Applications were developed for the ENC so that we could detect any unauthorised entry into a prohibited area, monitor vessels approaching shallow waters, and so on. A CCTV system, equipped with day and night cameras, was added to complement the radars monitoring traffic in our port. With this upgrade, our POCC capacity was increased from 1,000 to 5,000 tracks.

Into the 21st century

More changes were ahead for the POCC as the shipping industry continued to evolve and transform. In addition to the advent of mega ships, the new century also saw an increase in terrorist attacks. All these called for greater maritime situation awareness, a more secure control centre for contingencies, and greater collaboration and cooperation among Singapore's maritime agencies.

Singapore decided to establish a control centre in Changi Naval Base, to be known as POCC Changi, and to upgrade the POCC Vista. Both would have the 4th Generation VTIS, which would have a capacity of 10,000 tracks.

POCC Changi was commissioned in July 2011, while the upgraded POCC Vista was re-commissioned on Sept 2012. POCC Tanjong Pagar was retired in Dec 2012 during a decommissioning ceremony where the system was powered down.

The enhancements of the 4th Generation VTIS included an enhanced anti-collision function with an escalating alarm capability. The Human-Machine-Interface (HMI) was also improved. The operator is now able to display the output sets from different asystems on a single monitor, rather than on multiple monitors. He/she can also assign a CCTV camera to follow the movement of a vessel automatically based on radar tracking.

Human element vital in technology

Down the road, further upgrades are on the cards, both for the port of Singapore in general as well as for the POCC. MPA has put in place the Next Generation Port 2030 (NGP 2030) initiative which includes building a 65 million-TEU container port in Tuas. To serve and support this new port, we are developing the Next Generation Vessel Traffic Management System (NGVTMS). We have set up our NGVTMS Lab to develop and test a host of innovative operating concepts, business rules and algorithms, and technologies which, if found to be valid, would be incorporated into the NGVTMS in 2025 and 2026.

Planning will also take into account that the datasets of the future will grow with the digitisation of the maritime eco-system, the emergence of more advanced sensors, and the proliferation of the Internet of Things (IoT). MPA will have to leverage on technology like data analytics and artificial intelligence to develop advanced sense-making and decision-support systems within the NGVTMS to support our operations.

However, while technology plays a large and growing part in our work and everyday life, we remain mindful that technology is just an enabler. At the end of the day, we will need people to monitor things and intervene when they go wrong. For example, the autonomous ships in the future would still have a remote control centre, where human beings will monitor the operations of these ships at sea, and take over control in the event of an emergency.

Understanding the importance of the human element will play a key role in leveraging on new and emerging technologies at our POCCs.

08
HIGHLIGHTS

STEPPING UP ONLINE TRAINING

The COVID-19 pandemic took the world by surprise and is changing the way we all do things. How we work, hold meetings and discussions has been quite different from what many of us are used to.

To support continuous learning of technical competencies for our staff, MPAA had to quickly replace classroom training with more online learning. While e-learning is not new in MPA, the use of online learning has been accelerated and taken various forms during the COVID-19 crisis.

First, we stepped up the e-learning for our marine surveyors under our contract with Videotel, an online maritime training provider. Before the COVID-19 pandemic, MPAA and MPA's Shipping Division engaged Videotel in 2019 to provide online training for our marine surveyors as part of their compulsory training. They were given access to videos which cover technical topics ranging from risk management, safety and security to IMO conventions and ship operations on Videotel's online platform. The feedback received on the use of Videotel's online learning platform has been encouraging. Mr Kelton Lim, Senior Marine Surveyor, shared that "The courses are simple, easy to navigate and bring out the important points.", while Mr Wang Jiangtao, Senior Marine Surveyor, felt that "Videotel is a good platform for us to refresh ourselves, and also to gain more knowledge for those areas that we are less familiar with. "Hence, we have extended the Videotel's access to other officers from Registry Department of MPA's

Shipping Division and Operations and Marine Services Division to allow more officers to benefit from the e-learning.

Next, we sourced for online technical training provided by various training service providers as classroom training had to be stopped temporarily when Singapore entered the circuit breaker period from 7 Apr 2020 to 1 Jun 2020 to pre-empt escalating COVID-19 infections. MPAA sourced for online courses on topics ranging from technical to shore-based maritime knowledge. This helped to ensure that training did not come to a halt during the COVID-19 pandemic. We reached out to various Divisions and enrolled their officers to relevant courses (e.g. ISO 9001:2015 Quality Management System Internal Auditor Virtual Training and Maritime Risk Assessment) based on their requirements. For instance, Md Hanafie Bin Palal, Senior Watch Supervisor, Vessel Traffic Management Department, attended the online IMO Model Course 3.21– Port Facility Security Officer course which he found informative and beneficial as the course trainer was experienced and managed to impart his knowledge very well. Even after the circuit breaker period ended, safe distancing measures had to be put in place for classroom training to ensure the safety of our officers and classroom training was limited to 5 persons per class.

Third, MPAA organised webinar training sessions for MPA officers instead of having them as classroom seminars as part of our efforts to continue to build up their industry knowledge. Together with

MPA's IMC Division, MPAA organised webinar training sessions on "Shipping Entity and Eco-system Knowledge (SEEK)" which were conducted by Mr Punit Oza, Executive Director of the Singapore Chamber of Maritime Arbitration and MPAA Senior Adjunct Fellow. MPAA's first ever webinar was successfully conducted on 7 Jul 2020 for a group of about 50 officers from various Divisions. We received positive feedback on our first webinar session. One of the participants, Ms Kamisah Jamain, Executive, IMC Division, said that "It was an engaging webinar session, even though done remotely. (I) enjoyed Mr Oza's presentation – it gives me a good perspective of the maritime industry and understanding of the various stages of a commercial shipping entity. Enjoyed the Kahoot quizzes at the end too!". Following the first session, the second SEEK webinar titled "How do shipping entities manage risk and draw support from the Eco-System" was conducted on 23 Sep 2020. Also, led by Mr Oza, the session saw three other industry players, namely, Mr Apostolos Boutos, General Manager, Thenamaris Singapore, Mr Rashpal Singh Bhatti, Vice President Maritime and Supply Chain Excellence, BHP, and Mr Michael Jorgensen, Head of Dry Bulk, Torvald Klaveness, joining in for an engaging and interactive session.

With the shift away from classroom training in MPA (and many parts of the world), some may wonder whether the adoption of online learning will continue to persist post-pandemic. However, we recognise that classroom training will always have a role as not all elements cannot be fully replicated in a virtual environment. Until the time comes when larger scale classroom training can resume, MPAA will continue to source for online training as a safe and effective alternative to classroom training.

TRAINING COURSES FROM

APRIL 2020 - NOVEMBER 2020

VESSEL TRAFFIC OFFICERS

- IMO Model Course 3.21 - Port Facility Security Officer
- IMO Model Course 6.10
- Maritime Risk Assessment
- Maritime Risk Management and Incident Investigation
- Oil Spill Clearance - IMO Level 2
- VTS Operator Course V103-1 Module 3 & 6

MARINE OFFICERS, PORT INSPECTORS, PORT CHEMISTS

- Emergency Preparedness & Crisis Management
- IMO Model Course 6.10
- Incident Investigation & Root Cause Analysis Implementation
- ISO 9001:2015 Quality Management System Internal Auditor
- LNG - Systems
- LNG Bunkering Course - Management and Operational Level
- Maritime Risk Assessment
- Maritime Risk Management and Incident Investigation
- NICF - RPA Developer Foundation Training
- Oil Spill Clearance - IMO Level 2
- Oil Spill Clearance - IMO Level 3
- Robotics Process Automation Begins with Me

MARINE SURVEYORS

- E-learning Modules on Risk Management, Safety and Security, IMO Conventions and Ship Operations
- IMO Model Course 6.10
- Practical Risk Management and Management of Change

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PORT SYSTEMS OFFICERS

- ISO 9001:2015 Quality Management System Internal Auditor
- Occupational First Aid Course
- Work-at-Heights Course for Workers

HYDOGRAPHERS, CARTOGRAPHERS, SURVEY OFFICERS

- Supervise Safe Lifting Operations

IT OFFICERS

- NICF - Certified Information Systems Security Professional
- NICF - Certified ScrumMaster
- NICF – Cloud Native Solution Design
- NICF - DevOps Foundation
- NICF - RPA Developer Foundation Training

IMC OFFICERS

- Inaugural Shipping Entity and Eco-system Knowledge (SEEK) Webinar
- SEEK Webinar - How do shipping entities manage risk & draw support from the Eco-System

ALL MPA OFFICERS

- Cybersecurity Awareness e-Learning
- Growth Mindset Programme
- Tableau Fundamentals and Intermediate

PLANNED TRAINING COURSES FROM

NOVEMBER 2020 - APRIL 2021

VESSEL TRAFFIC OFFICERS

- IMO Model Course 6.10

MARINE OFFICERS, PORT INSPECTORS, PORT CHEMISTS

- Enhanced Bunkering Course
- IMO Model Course 6.10
- Oillspill Clearance

MARINE SURVEYORS

- E-learning Modules on Risk Management, Safety and Security, IMO Conventions and Ship Operations
- ISO Auditor Course
- Safety Investigation into Marine Casualties and Marine Incidents

HYDOGRAPHERS, CARTOGRAPHERS, SURVEY OFFICERS

- IHO Cat 'B' Marine Cartography and Data Assessment
- IHO Cat 'B' Marine GeoSpatial Information
- QGIS Foundation/Immediate Course

ENGINEERS

- Dispute Resolution & Security of Payment Act
- Geotechnical Design
- Quality Fee Method and Price Quality Method Frameworks by Building and Construction Authority

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PORT SYSTEMS OFFICERS

- Managing Work-at-Heights Course

IT OFFICERS

- NCIF - Certified Scrum Master
- NICF - Managing Cybersecurity Risk

STRATEGY AND POLICY OFFICERS

- Enterprise Risk Management
- Strategic Planning

INTERNATIONAL MARITIME CENTRE OFFICERS

- SEEK Webinar

BUSINESS CAPABILITY DEVELOPMENT OFFICERS

- Structured Tax Training

ALL MPA OFFICERS

- Cybersecurity Awareness e-Learning
- Design Thinking Workshops
- Media Training

UPCOMING EVENTS

(BY INVITATION)

NOVEMBER 2020 TO APRIL 2021

10th Maritime Public Leaders Programme (Virtual) – Jan 2021
Participants: Senior maritime officials

4th Advanced Maritime Leaders Programme – April 2021 (To be confirmed)
Participants: Senior maritime officials

13th Maritime Safety Management Course conducted by MPA and Japan Coast Guard – Feb 2021
Participants: Maritime officials

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About us

As the training arm of the Maritime and Port Authority of Singapore (MPA), the MPA Academy was repositioned in 2014 to be a full-fledged academy with a dedicated premise with a focus on global maritime leadership training. The academy's vision is to be a global learning centrefor maritime and port administration. The academy's mission is to enhance the specialist skills and knowledge of MPA officers and to conduct flagship training programmes for overseas port and maritime officials, including supporting the training needs of the International Maritime Organization (IMO) as a Council member. The MPA Academy's dedicated facility is located at PSA Building and was officially launched in October 2015.

Subscribe

To subscribe, please email MPA_Academy@mpa.gov.sg

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