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Providing thought leadership on the role of ports in a connected world

Leader of change

Maritime and Port Authority of Singapore chief
Quah Ley Hoon on building a digital
trade hub amid pandemic times



Leadership lacks diversity
Call to reshape maritime workforce

Failure to connect
Ports are bottlenecks for trade data

View from astern
Historical context on current fuel debates



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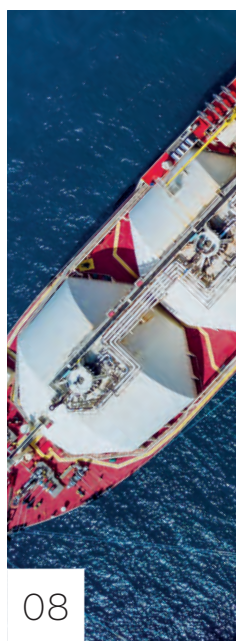
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EDITOR'S COMMENT



INES NASTALI
Editor

The real sword of Damocles

CONTRIBUTERS



PENNY THOMAS:
Freelance journalist

Rewind the clock by 250 years and clippers and schooners ploughed the oceans. Few lessons can be learned from those bygone beauties to support today's fuel shift. Any wind-powered vessel introduced into the fleet would look very different to those of yesteryear. However, the shift from sail to steam shares a striking similarity to today's transition – the variety of partnerships pursued across disciplines and industries to move shipping into its next great age. ■

Diversity and inclusion are areas of concern for the maritime industry, with the balance largely skewed towards men. Proof of this deep-rooted history recently came to me in the form of an image that was shared on social media amid a marketing campaign. The image captured a press conference at the SMM fair. Of the 23 journalists in the room, all were male. That said, the image is from the 1970s, a time during which female journalists were an exception, and which also explains the ash trays.

But even today, it is rare that I attend events where the technical expert is a woman and I am often the only female journalist in the room – and as such have gotten used to being positioned front and center in group photos.

Had I been someone with a less welcoming experience in the sector, this could have been extremely off-putting. Let me give you an example: A few years back, at an event about offshore wind energy, a government representative asked if I had been able to follow the discussion. When I enquired why he asked, he nonchalantly replied, “because you’re a woman”. Let that sink in – he genuinely believed that my gender made me less likely to follow a technical discussion.

Indeed, my supportive environment, which includes a female mentor that I have had since I entered the industry, has proved invaluable on two fronts - encouragement and retention. Both of which are integral for an engaged and talented workforce. I believe working with people from a range of backgrounds is crucial to advancing one’s mindset and eradicating stereotypes. With backward-thinking people in charge, there is no path forward.

One of the editorial remits this magazine has is to showcase this multitude of viewpoints.

When planning each edition, we try to demonstrate our commitment to diversity when it comes to interview candidates, but it has been consistently difficult to find female leaders along the supply chain.

However, there are many initiatives that promote diversity and we share some of them here to create awareness. For example, to add statistics to this debate – a crucial step to counter anyone arguing that there is no diversity problem. I would therefore like to invite you to take the IMO and WISTA Women in Maritime survey, conducted by IHS Markit, to help draw up an accurate diversity picture: bit.ly/WomenInMaritimeSurvey. I also invite you to continue this discussion with me at the next World Ports Conference webinar on 18 March. Join Flor Pitty and Despina Theodosiou – also featured in this edition’s debate – among other speakers, to discuss why a diverse workforce also brings business opportunities: bit.ly/WPCDiversityWebinar.

This is vital as with the current age and gender profile, maritime risks that the human element becomes obsolete. This is not due to the threat from autonomous technology, seen as a sword of Damocles poised to steal jobs, but choices to exclude talent despite warnings of staff shortages. Also keeping in mind, the recent abysmal treatment of crew rendering seafaring extremely unattractive.

If we are committed to finding resilient ways to counter climate change, hurdles to digitalization, and threats to business innovation, we must admit the lack of diversity in maritime is the real sword of Damocles looming over us. ■

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SHEM OIRERE
Freelance journalist

While Cameroon is rich in natural resources, the biggest hindrance holding back the country from benefiting from its advantageous location has been the acute inadequacies of its transportation infrastructure and challenging investment policies. However, now, with the Kribi Multipurpose Terminal by ICTSI and the planned expansion of the Kribi deepsea port by the Chinese, Cameroon could soon be Central and West Africa’s most sought-after commercial hub and trade route. ■



TONY SLINN
Freelance journalist

My interest in hydrogen began when I read about engineer François Isaac de Rivaz’s invention of an internal combustion engine fueled by a hydrogen-oxygen mix. That was in 1806. Why had we not progressed given the green imperatives of the past decades? So what sparked the article was the volume of good news from ports, shippers, manufacturers, governments, and scientists. Despite obstacles, hydrogen uptake is gaining ground – and maritime is a world leader. ■



IN CONVERSATION WITH QUAH LEY HOON

Advancing the game

One year into the COVID-19 crisis, *P&H* catches up with the Maritime and Port Authority of Singapore's chief executive Quah Ley Hoon and IAPH managing director Patrick Verhoeven to talk about the pandemic's impact on the maritime nodal point

INES NASTALI

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hen it comes to innovation in maritime, eyes often turn to Singapore and its Maritime and Port Authority (MPA) chief executive Quah Ley Hoon.

Having been officially in office since 2019, the business expert

turned journalist has initiated several projects that have catapulted the city state into top position.

Having joined the MPA from outside the maritime industry with a fresh perspective, her main aim is to dust off the physical paperwork needed in shipping and trade it in exchange for virtual systems.

Quah and her team are also aided by the southeast Asian city's location that has always served as an important port and connection between East and West, going back to the 14th century.

Based on this history, Singapore has developed into one of the global bunkering hubs, together with mainland China, the Netherlands, South Korea, the UAE, and the US.

For Patrick Verhoeven, IAPH managing director, Singapore's main maritime asset is its integrated, one-stop-shop approach to maritime business: "You don't have many port authorities in the world that are also maritime authorities. Singapore succeeded in creating a business-friendly environment for shipping, ports, and logistics,

attracting both established companies and innovators. The fact that MPA is also representing Singapore in the IMO makes it one of the few delegations that actually has a close affinity with the ports industry.

One year into the pandemic — and into the introduction of the IMO low-sulfur regulations for maritime fuel — Quah takes stock of the influence COVID-19 has had on MPA's business. "At the beginning of 2020, we thought the new IMO regulation would be the biggest challenge of the decade, little did we realize that we will face a pandemic. But you know, we actually survived through the IMO 2020 regulation and not only did we survive through, it went very, very smoothly," Quah said at a webinar on ship-shore relations hosted by IAPH and IHS Markit.

"The port of Singapore stood resilient in 2020 despite the COVID-19 pandemic. Singapore remains the world's top bunkering port with bunker sales volume growing to 49.8 million metric tons, an increase of 5% from 2019," Quah said. "Container throughput in Singapore registered 36.9 million teu in 2020, a slight decrease of 0.9% from 37.2 million teu registered in 2019. The country's cargo throughput held steadfast at 590.3 million teu in 2020. In addition, vessel arrival tonnage totaled 2.9 billion gross tonnage, a slight increase from 2019," she added.

Singapore's position as bunkering hub influences the course of global future fuel supply, which is why it is worth looking at the focus Quah has set to move the decarbonization efforts further than low-sulfur and transition fuels such as LNG.

Pictured: MPA CEO and Singapore Maritime Foundation board member Quah Ley Hoon at a foundation reception in January 2021.

Photo: Singapore Maritime Foundation

"In line with meeting the IMO's greenhouse gas emissions targets, Singapore has been actively developing its ecosystem and infrastructure for LNG bunkering. LNG serves as a viable and clean transitional marine fuel to reduce carbon emissions from ships. From this year onwards, Singapore will have an LNG bunker supply capacity of up to 1 million metric tons per annum, which translates to about 300 ship-to-ship LNG bunkering operations yearly," said Quah. "Meanwhile, MPA is also studying future fuels such as hydrogen, ammonia, and biofuels," she added.

Verhoeven agreed that while the number of viable low- and zero-carbon fuels is limited, it is challenging for ports to decide on the bunkering infrastructure they should invest in. "Fuels such as LNG score well in terms of technical maturity, fuel availability, safety, and energy costs, but these are indeed transitional fuels. When we talk about genuine zero-carbon fuels, such as hydrogen, ammonia and methanol, there are still multiple barriers to overcome," Verhoeven said. Therefore, "Cooperation between the main bunker ports will be essential going forward, if you know that most of the investments in zero-carbon fuels will be land-based and taking into account that currently 60% of global bunker sales takes place in those six countries."



Pictured: A Singaporean seafarer receives the COVID-19 vaccination.

Focus on crew changes

While the future fuels debate for ships is vital, the pandemic has shown once again that without seafarers, no ships or cargo can be transported anywhere. Severe issues and bureaucratic hurdles have emerged from the pandemic, hindering crew changes. Instead, it leaves seafarers with no choice than to accept prolonged sea time, expired contracts, and a knock on their mental health. In addition, this exposes the entire maritime industry to delays and bad publicity.

Recognizing her responsibility for global crews, Quah therefore acted fast to ensure crew changes can still be facilitated — unlike in many other ports around the world. "Since 27 March 2020, the MPA has facilitated over 100,000 crew changes of various nationalities through Singapore from more than 6,700 ships. About 99.5% of them are foreign crew," she told *P&H*.

Verhoeven pointed out that, "this is the advantage of having a one-stop-shop system. Through our COVID-19 Barometer we have asked our members to report about the status of crew change activities in their ports. We found that nearly half of the responding port authorities did not have any competence in this matter, having to leave decisions entirely in the hands of health and border control authorities. Even if they may lack the formal jurisdiction, I believe port authorities should take an active interest in this matter. Although they may be less visible, seafarers are an integral part of a port community just as dockers and other port workers. All should be recognized as essential workers and get priority for vaccination."

Indeed, as part of Singapore's measures to protect front-line workers, shore-based personnel who are required to board vessels at the port, such as marine pilots or seafarers who are Singaporeans or long-term residents, have been prioritized for vaccination against COVID-19.

"Singapore has now vaccinated over 17,000 front-line maritime workers so that they can stay safe while providing essential services at the port. Singapore is one of the first countries to prioritize vaccinations for frontline maritime workers," Quah said.

To carry out safe crew change in Singapore, MPA has also established a Crew Change Facilitation Center (CFC), which is a dedicated facility to house transit crew so that they can be segregated from the community.

"MPA has also worked closely with industry partners, including the Singapore Shipping Association, the Singapore Maritime Officers' Union, and the Singapore Organization for Seamen to develop the Singapore Crew Change Guidebook, which reflects safe and pragmatic procedures on crew change to minimize risks to public health in Singapore and the shipping community," said Quah. Again serving as role model to the industry, "the IMO has circulated the guide to IMO member states to offer a model to address crew change in other ports".

Combining Quah's passion for digital advancement and solving the crew conundrum, the MPA cooperated with the above partners, as well as the International Transport Workers' Federation, the International Maritime Employers' Council, and the International Chamber of Shipping to establish the Singapore Shipping Tripartite Alliance Resilience Fund. The fund aims to promote safe crew changes and includes trialing digital solutions such as tamper-proof smart wearable technologies, and accrediting medical and holding facilities in crew-supplying countries under the CrewSafe audit program.

Going digital

The COVID-19 pandemic has undoubtedly accelerated digitalization overall in the maritime sector. During this time, companies had to learn the hard way



how important it is to have a digital infrastructure to ensure business continuity. “For example, enterprises are developing solutions for remote operations and remote ship surveys,” Quah explained.

She is convinced that “businesses that operate digitally and provide digital services in a secured way remain competitive and resilient”.

Asked, which of the tools that she has set out since she took over at the helm of MPA has come in handy to navigate the pandemic, she mentioned digitalPORT@SG, a portal for regulatory transactions. “Launched in October 2019, phase one of digitalPORT@SG streamlines vessel, immigration, and port health clearances across multiple agencies into a single application by consolidating 16 separate forms,” the maritime and port authority head said.

Always on the lookout for time-efficient management, Quah, who received her business and economics education in Switzerland, France, and Australia, pointed to the time savings this brings. “Ship masters and ship agents can now submit, track, and receive approval for arriving and departing ships through the portal. As a result, the industry can save up to 100,000 man hours per year,” she said. Tools such as this are part of Quah’s playbook to encourage the “adoption of common data standards and application programming interfaces to facilitate digital port transactions among ships, port authorities, and platform providers”.

As part of taking business online, MPA also signed a memorandum of understanding with DBS Bank to identify areas of collaboration, which include streamlining and enabling payment transactions among users of maritime services to expedite end-to-end payment life cycles.

“The pandemic has incited us to campaign for acceleration of digitalization in the port sector,” said Verhoeven. “The current picture resembles that of a pyramid. At the top you have a relatively small group of highly sophisticated smart ports such as Singapore, Hamburg, and Los Angeles, and at the bottom, a very large group of ports that still have to make their first steps in digitalization, ports that haven’t even implemented the mandatory IMO requirements on digital ship-shore communication.”

He added, “The barriers are not of a technological or budgetary nature, but essentially have to do with a lack of trust in port communities that prevents

“Digitalization is a matter of change management”

PATRICK VERHOEVEN
IAPH MD

data collaboration. Digitalization is in the first place a matter of change management, data collaboration, and political commitment. We have teamed up with the World Bank in publishing a roadmap for ports, outlining critical short and medium actions that each port in the world can take to accelerate digitalization and strengthen its resilience. We hope we can develop this into a full-fledged capacity building program with the support of the leading ports.” (see page 28 for details on the World Bank/IAPH report)

Autonomous shipping

Setting up this digital infrastructure is part of the preparations to enable autonomous shipping in Singapore. Together with the IAPH and other partners, MPA will work on the Maritime Autonomous Surface Ships Ports project (MASSPorts).

This includes developing guidelines, regulations, and conditions for trials in ports, and establishing common terminology, form and standards of communication, ship reporting and data exchange to enhance system interoperability across various ports. MASSPorts also hopes to facilitate port-to-port trials.

“The IAPH shares a common goal with MASSPorts in creating a collaborative ship-shore interface between vessels and port infrastructure, where autonomous ships and other nodes of transportation integrate seamlessly into global supply chains. We look forward to collaborations in areas of ship-shore connectivity,” said Quah.

Verhoeven agreed, saying that he was most looking forward to develop an integral view on automation. “Ports are places where various types of autonomous vehicles will come together with traditional vehicles, not just in shipping, but also on road and rail, and in terminals, where automation is already applied today.”

Consequently, “This creates a hugely complex environment and we need the best minds in the industry to come together. Autonomous vehicles may still seem very futuristic, but we need to be prepared. We should not forget the security dimension: the more digital and automated you go, the more vulnerable you become to cyber attacks,” Verhoeven concluded.

With the first part of the digitized Tuas mega port coming online this year, the maritime industry will be sure to witness the fruit of Quah’s digital labor as well as follow her future course. ■



PERSPECTIVE FUTURE FUELS

Remember the time when vessels used to sail on oil

The last time the shipping industry had a true fuel switch is almost, but not quite, beyond living memory. Coal was the hot topic until the 1920s, and from then on we have only known a maritime world singularly dominated by oil (read more on historic fuel switches on page 34).

It is now looking more likely that this decade is going to be among the last where oil domination continues.

The IMO's greenhouse gas strategy has put down a marker for the shipping industry, making it a great challenge for this generation to find a pathway toward future decarbonization.

However, this is aided by the fact that decarbonization is becoming a motivating and driving factor for banks, investors, and customers further up the supply chain and they are now starting to act on it.

While the industry still has some untapped efficiency gains and technologies to explore, the biggest factor in decarbonization is the fuels that we use – and the fuel environment in shipping is becoming ever more complicated.

The blueprint

Smaller tonnage has always been the test bench for the industry, and offshore support vessels (OSV), ferries, and other coastal tonnage have rapidly adopted alternative fuels, such as LNG, LPG, and methanol.

This smaller tonnage that uses alternative fuels has also installed batteries in either pure electric or hybrid configurations. Meanwhile, a shift to alternative fuel in the deepsea and large-tonnage segments has always seemed to be just around the corner,

but the first signs of a real change we might have seen in 2020.

The year 2020 was certainly a bad year for newbuild orders. However, a trend emerged toward the end of the year. With a big shift toward alternative fuels, it was starting to impact orders of the largest tonnage. A report by Clarksons put the number of alternatively fueled vessels on the orderbook at 27% in terms of gross tonnage at the end of 2020, with notable orders in the tanker and container segments. This is weighted toward LNG – the current frontrunner among transition fuels, with Clarksons putting the number on order at 15.1 million gt.

Focus on LNG

According to the DNV Alternative Fuel Insight (AFI) portal, which provides an overview of alternative fuels in shipping



ABOUT THE AUTHOR

MARTIN WOLD is a senior consultant with DNV Maritime. He has experience in technical and financial evaluation of alternative fuels and abatement technologies for ships, including LNG, scrubber, low-sulfur fuels, batteries, hydrogen, and biofuels.

– including vessels and bunkering infrastructure – 238 LNG-fueled vessels are on the orderbook in 2021. The AFI also points to exponential growth in installed tank capacity – more than tripling from 2020 to 2022. Based on this data, we expect the number of LNG vessels to approximately double over the next two years.

Small steps with big effect

A surge in the number of larger vessels running on alternative fuels could spark a real step change for the industry. If the number of larger vessels doubles, it could result in a four-fivefold increase in fuel consumption. This will help create the demand that continues the buildout and expansion of LNG

bunkering infrastructure in major shipping ports, and, in turn, build confidence in shipowners looking at an alternative fuel for their next vessel.

Currently, the AFI lists 117 LNG bunkering solutions in operation globally, but the coming surge is already apparent, with another 60 confirmed and more than 50 under discussion.

To support this natural growth, there are a growing number of ports as well as

Pictured: A tanker delivering liquefied natural gas is moored at an offshore terminal.

flag states that are beginning to apply differentiating port fees based on emissions.

These strengthened rebate schemes will help make the business case for alternative fuels more attractive and appealing.

This is especially important as ports not only function as transportation hubs nowadays, but also focus on residential

development and therefore, improving air quality for the local population becomes even more important.

Branching out

In addition to the major hubs where we are likely to see LNG

offered, there are opportunities for ports by working with local shipowners, utilities, and governments to provide options that fit individual needs and take advantage of regional capacity.

The recently announced plans by Yara International to produce green ammonia for ship fuel in the Netherlands and Norway and the Canadian methanol-fueled Waterfront Shipping fleet are prime examples here. The move to establish a liquefied hydrogen

fuel supply chain for shipping in Norway is an example of how the gradually increasing certainty of supply could spur greater adoption in vessels (read more on the hydrogen economy in our feature on the next page).

Ports, especially those in or close to urban areas, which could make electrification and low-carbon and low-emission fuels available in partnership with local and national governments, local ferry and tug operators, and other owners, offer additional opportunities for greener operations and will again improve quality of life for the local population.

Offshore wind is another area where, if local conditions are good, ports could anticipate supporting hybrid OSVs with plug-in charging locations. Offshore recharging buoys are also an interesting emerging possibility for ports to utilize local offshore wind surpluses.

The transition to carbon-neutral fuels will have major implications for the whole shipping, logistic, and fuel supply chain. We need to start producing the supply of lower and carbon-neutral fuels in major ports, as well as developing the onboard solutions and corresponding regulations. However, if the ordering and infrastructure trends continue, we will be part of the generation of people who look back on the time when ships still sailed on oil. ■

“We expect the number of LNG vessels to approximately double over the next two years”





FEATURE FUELED BY HYDROGEN

Looking for the ultimate answer

As the International Maritime Organization's 2050 deadline drives ports and shipping to slash greenhouse gas emissions by 50% and carbon emissions by 70%, hydrogen, the most abundant element in the universe, is gradually taking a leading role. However, it is not an easy road

TONY SLINN



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nergy transition is a major component of IAPH's sustainability strategy announced in October 2020. The association later revealed that it has joined the IMO-Norway GreenVoyage2050 project as a strategic partner.

A joint venture between the Norwegian government — providing US\$5.4 million funding — and the IMO, the GreenVoyage2050 project aims to transform shipping and support developing countries to meet their commitments. IAPH, through its new Climate and Energy Committee, will focus on uniting energy transition- and environment-related port initiatives, serving as a conduit to policymaking at IMO level.

In November, IMO's 75th Marine Environment Protection Committee (MEPC75) meeting agreed a package of short-term technical and operational measures to address ships' greenhouse gas (GHG) emissions.

During the meeting, IAPH introduced the Energy Efficiency Existing Ship Index, the Carbon Intensity Indicator, and strengthening of the ship energy efficiency management plan. IAPH is evaluating integration options with its Environmental Ship Index (ESI), which assesses vessels' GHG emissions and has registered around 8,400 vessels and about 60 incentive providers since 2013.

Pictured: Ljósafoss Hydropower Station, where Landsvirkjun looks to produce hydrogen with the Port of Rotterdam.

Photo: Landsvirkjun

Those offer discounts to ship operators that use low emission fuels. The Rotterdam Port Authority sponsored US\$8 million this way in 2019.

In January 2021, IAPH took those ambitions a step further under an agreement with the Green Award Foundation. — “It takes the ESI to the next level in terms of full-time administrative support, governance, and further expansion,” noted IAPH technical director Antonis Michail. Read more on this on page 38.

But before, let’s look at which place hydrogen has.

Shippers’ options

While IMO’s MEPC 75 short-term measures will have stricter newbuilding designs, many industry observers felt clarity was lacking and that measures lacked the ambition needed to reach IMO’s 2050 goals, while alternative fuels pricing, potential take-up, and infrastructure needs remained contentious.

Regardless, new ship orders fell by more than 50% in 2020 owing to green fuel confusion, according to a January 2021 IHS Markit report, which pointed out that with the life of a commercial ship averaging 20–25 years, opting for a technology that does not take off could be costly.

Container line AP Møller-Maersk does not rate transitional fuels as a good idea and has kept its fleet capacity flat since 2018, while aiming for net-zero emission fuel solutions only. “We don’t believe LNG will play a big role for us as a transition fuel because it’s still a fossil fuel. Buying ships today that won’t be delivered for two years and last for 25 years is a risk when we don’t know exactly what fuels we’ll be using from 2030,” stated Maersk CEO Søren Skou, who chairs the newly formed Mc-Kinney Møller Center for Zero Carbon Shipping (MCZCS).

In partnership with ABS, Cargill, MAN Energy Solutions, Mitsubishi Heavy Industries, NYK Lines, and Siemens — and backed by US\$65.5 million of Maersk’s funding — MCZCS focuses on exploring new fuels and technologies that will support decarbonization.

While there is uncertainty, IHS Markit principal consultant Krispen Atkinson sees hydrogen as a major clean-fuel favorite — and several shipping lines agree with him. In December 2020, K Line joined the Japan Hydrogen Association that aims to establish a supply chain for the fuel. A month later, operator MSC joined the industry body Hydrogen Council as a steering member. Launched by 13 founding members in 2017, the council now boasts more than 100 members in over 20 countries, including major liners CMA CGM and NYK Line.

Global momentum

Before looking at ports’ contributions to the hydrogen economy, it is worth glancing at some of the evolving initiatives. The EU announced its Green Deal strategy in July 2020 simultaneously with the launch of the European Commission’s European Clean Hydrogen Alliance (ECH2A). The latter is an ambitious strategy with the objective to develop and deploy hydrogen technologies and install at least 40GW of hydrogen electrolyzers by 2030. ECH2A envisages an investment pipeline of US\$519 billion at that time and currently has more than 250



Above: A 2,500m³ liquid hydrogen tank at Kobe Port Island, Hyogo Prefecture, built as part of the Hydrogen Energy Supply Chain.

partners, including industry leaders, national and regional governments, and the European Investment Bank.


“From 2030 to 2050, renewable hydrogen technologies should reach maturity with large-scale deployment,” ECH2A executive VP Frans Timmermans stated, adding, “The hydrogen economy can be a growth engine to help overcome the economic damage caused by COVID-19.”

Port initiatives

As you read this, the world’s first hydrogen refueling station should open at the port of Antwerp. Built by Compagnie Maritime Belge, subsidiary of CMB TECH, it is capable of supplying green hydrogen not just to ships, but also to trucks, cars, and buses. “The launch of *Hydroville*, the world’s first hydrogen-powered passenger vessel, instigated the station,” CMB TECH managing director Roy Campe told *P&H*. “Until now, *Hydroville* has been fueled by a tube trailer, but to supply larger ships with hydrogen, a refueling station is a necessity.”

Rotterdam also plans to be a hydrogen hub and is working with Gasunie to develop a backbone across the port that should be operational by 2023. Shipping and storage are also being studied as part of this - for example shipments produced via hydropower by Iceland’s electricity generator Landsvirkju.

Neighboring port Amsterdam is working with Groningen Seaports and Port of Den Helder under the Hydroports initiative to build a large-scale blue hydrogen plant planned to be operational in Den Helder by 2027. Blue hydrogen is produced using natural gas and Hydroports plans to capture and store the resulting CO₂ in empty offshore gas fields. Amsterdam’s strategy head, Eduard de Visser, told *P&H* that in collaboration with Nouryon and Tata Steel, the port is also planning a 100 MW green hydrogen plant capable of producing 15,000 metric tons of hydrogen annually. It is also working with Gasunie to examine whether a regional hydrogen pipeline between IJmuiden and Amsterdam is feasible.



Belgian dredging and offshore giant DEME is taking capacity to another level, announcing in December 2020 that it was working with Oman's port of Duqm to build a green hydrogen plant with a first-phase capacity estimated between 250MW and 500MW. Called Hyport, it takes advantage of abundant wind and solar power and the port itself for exports.

Staying in the Middle East, port operator DP World has committed to a zero-carbon future by 2050 via its Carbon and Energy Reduction Strategy, representative Hakam Kherallah told *P&H*. "As part of our long-term approach, we see hydrogen as both an energy source and a maritime fuel — and electrolysis gives us an opportunity to capture surplus renewable energy and store it."

In Australia, Brisbane CEO Roy Cummins explained to *P&H* that the port is "committed to achieving net zero-carbon emissions by 2030. In the short term, we have a goal of reducing our fiscal year 18 baseline emissions by 24% by 2024/25."

In the US, the ports of Long Beach and Los Angeles approved their Clean Air Action Plan in 2006. That was updated in 2017 with new goals of 100% zero-emission cargo-handling equipment by 2030 and 100% zero-emission trucks by 2035. "The ports remain neutral with respect to the type of technology and equipment used to meet these goals," representative Rachel Campbell told *P&H*. "One of our development efforts, however, is the shore-to-store project with Toyota and Kenworth to develop hydrogen fuel cell on-road trucks to move cargo from dockside to distribution centers and ultimately to stores. The aim is to demonstrate the longer range of this type of zero-emission truck, along with its fast refueling capabilities."

Overview

Finally, *P&H* asked global ports and transportation consultancy Jacobs for its thoughts; ports and maritime energy sector technology leader Chris Hutchings, and ports and maritime market director Patrick King put their heads together.

"Many recent reports forecast that hydrogen will become a big part of the future energy mix as an energy source and a transportation fuel. The picture for marine transport seems much less clear, as its storage will reduce cargo capacity and profitability and the technology demonstration is at an early stage. Ferry services are the early adopters as the supply infrastructure can be developed with the vessels and capacity requirements are limited," Hutchings said. "Other clients in the US and Europe are transitioning from existing hydrocarbons-based infrastructure to hydrogen. We've also heard limited talk about ammonia as a shipping fuel from our ports clients," King added.

Looking ahead, they concluded, "Our view is that the future of fuels for shipping is likely to be more diverse than in the past. Certainly, in the medium term there will be room for both hydrogen and ammonia alongside other fuels, while the costs, technology, and availability battles are fought. In the meantime, several ports and some shipping lines are progressing with the intermediate option of using LNG." ■

International efforts

Several EU member countries have developed significant hydrogen projects:

- In Austria, the country's largest renewable energy producer, Verbund, is developing a Europe-wide network to produce, transport, and use green hydrogen.
- Finland boasts Flexens's green Power2AX hydrogen production and storage and ferry fuel project in the autonomous Åland archipelago. It "aims to materialize the joint concept of wind power-integrated local hydrogen production for a fuel cell ferry – annual diesel saving would reach 990,000 liters, reducing CO₂ emissions by 2,840 metric tons."
- In January 2021, French ENGIE and Total have signed a cooperation agreement to design, build, and operate the country's biggest green hydrogen plant. It will have a 100MW capacity, be powered by solar farms, and produce 5 metric tons of hydrogen daily.
- In Germany, around 10GW of domestic electrolysis capacity for green hydrogen will be available by 2040 at the latest.

Outside the EU, nations drive hydrogen forward:

- Canada is backed by C\$1.5 billion of government funding to establish Canada as a global hydrogen supplier – the country is already among the world's top 10 hydrogen producers and predicts a market worth C\$12 trillion by 2050.
- Japan unveiled a hydrogen strategy in 2017, aiming to import about 300,000 metric tons by 2030. It is now planning an international hydrogen supply chain using ships – Kawasaki Heavy Industries has already launched the world's first liquefied hydrogen carrier and Mitsui OSK Lines studies not only hydrogen fuel cells but wind propulsion for a coal carrier.
- Scotland hosts the Orkney-based European Marine Energy Center (EMEC) will combine manufacturer Invinity Energy Systems's 1.8MW/h vanadium flow battery with tidal power. The system will store tidal electricity during high-power periods and discharge it during low-power periods to create continuous, on-demand electricity to turn into green hydrogen using EMEC's 670kW electrolyzer. EMEC operations technician Jerry Gibson explained to *P&H* that its trial ferry, with its "diesel-hydrogen injection system aboard the *MV Shapinsay*" will overcome regulatory challenges, "and project HyDIME can act as a stepping stone to future marine hydrogen projects".
- Norwegian marine battery manufacturer Corvus Energy partnered with Toyota in January 2021 to build hydrogen fuel cells. Starting with supplies for short sea ferries, they will be available for commercial delivery from 2024. ■



Diversity quotas entail employee attributes, such as gender and disability. At present time, some individuals are not given the opportunity to hold key positions in any industry, including the maritime and port sectors, for reasons of gender and disability, even if they are qualified.

Employment and business activities have been dominated and controlled by men throughout history, as they have been considered to be the only individuals with greater possibility of holding the best and higher-paid jobs. This situation has also created unfair hiring practices in the maritime and port industries.

Nevertheless, in no way can we exclude opportunities for, and participation by, men and non-disabled in employment and business activities, especially in the maritime and port industries, provided they are duly qualified. We therefore promote equality of gender and disability and consider that qualification factors are to be taken into account in hiring an individual, no matter the gender, or if the individual is disabled or not, as all individuals are equal under the law.

Here, we would like to mention Goal 5 of the UN 2030 SDGs “to achieve equality between genders, and to empower women and

girls”, which particularly encourages all organizations and countries to offer women equal opportunities, in all fields and levels. This has increased the number of national, regional, and international programs destined to promote gender equality.

As a result, the inequality women have experienced in the maritime and port sectors has changed for the better,

as there are more companies and government agencies making efforts to offer equal employment opportunities, no matter the gender of applicants. This has motivated many women to develop their own capabilities in not only administrative positions, but also in management and operations areas.

We are pleased to mention that the Panama Maritime Authority supports and contributes to various regional and international initiatives to promote inclusion of, and participation by, women in the maritime and port sectors, such as representing the network of Women of the Maritime Authorities of Latin America as general coordinator. We consider that the port industry needs to be reinforced by offering equal development opportunities to pave the road toward consolidation of women empowerment in every country, quotas help to do this. ■



THE DEBATE

Do ports need a diversity quota for senior management roles?



DESPINA THEODOSIOU | CEO of Tototheo Maritime, president of WISTA International



We should start the discussion about diversity quotas in ports from the society's point of view. For example, we see how women are having a positive impact on the economy.

As a result, we are collectively creating a better world, and statistics are supporting that. The World Bank and various United Nations bodies have researches that show engaging everyone in societal growth and providing them equal opportunities and benefits have the potential to transform the global landscape and influence the trajectory of our collective future. However, when it comes to mandatory requirements about diversity, the debate has to be more nuanced for two simple reasons. First, diversity is not only an issue of regulation, but it is also an issue of attitude and belief, and second, no one likes to be told what to do. So here are the reasons, in my opinion, for and against diversity quotas in port environments.

Quotas will engage groups with specific characteristics, such as gender, ethnicity, race, and age, so that they have an opportunity to participate and progress. It shows that a company or a culture is open to change and willing to raise the opportunities for those excluded in the past. With mandatory requirements, the choice is made for that

company, and it becomes easier to then begin the process. In short, diversity quotas in port management are a quick fix to a pressing problem, and they help companies and port authorities start the long and not necessarily easy journey they need to go down.

Quotas are a simple and effective strategy for getting a company's diversity up to speed. Quotas also help inspire young women and school leavers to pursue a position in a shipping or port environment – all too often we hear that certain industries and sectors are not attractive simply because they are not welcoming.

However, no one likes to feel they are given a role in an organization simply because they met a mandatory requirement, and certainly if there is a better person who was turned away as a result. Forcing change does not create inclusivity.

Diversity should be heralded, not as placing any particular group of people above another, but by respecting everyone equally in their ability and potential. Diversity is not just about reaching a target; it is about creating a position in a workforce where everyone is merited on ability and skills, not gender or any other individual differences or characteristics. ■



SIXTY-FIVE

Readership results: Should ports have a diversity quota for roles within their management teams?

65%

35%

MARCH/APRIL | DIVERSITY

POLL RESULTS

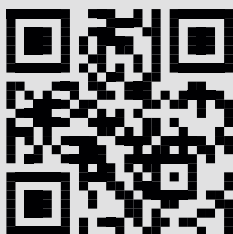
For this edition, we wanted to start a discussion about diversity. A much-needed one judging by the debate entries we received from Flor Pitty and Despina Theodosiou, and also the response we received from our interviewee Heidi Heseltine, which you can read on the next page.

While different arguments speak for and against quotas to enrich the senior level port workforce with a more diverse team, our readers voted that they are needed and might have even benefited from them already, with 65% speaking in favor of them and 35% against them.

This is an ongoing discussion that we will continue throughout 2021. ■

MAY/JUNE | INNOVATION

THE POLL



Should port authorities not only be landlords but business and societal entrepreneurs?

Port communities consist of a variety of stakeholders, often with very different interests. To align these interests and to maximize competitiveness of their ports, there is a growing consensus that port authorities should go beyond their traditional regulatory and landlord roles and take an active community building role, both toward businesses and society.

This will ensure ports develop sustainably. Some advocate that port authorities should go one step further and take on an entrepreneurial role in stimulating innovation and new business. Do you agree? ■

Either scan the above QR code or use the web link below to submit your answer to this month's poll:

🌐 bit.ly/IAPHMayJunePoll

Heidi Heseltine



A recent survey shed light on the lack of diversity in maritime. P&H spoke to one of the forces wanting to change this

INES NASTALI

Heidi Heseltine is on a mission. She has been working in the maritime industry for over 30 years and the lack of female and ethnic minority representation is something she can no longer accept.

The CEO of recruitment company Halcyon therefore went on a mission to add hard facts to what until recently has been anecdotal evidence to anyone who has ever visited a maritime event at least in Europe: there is not enough diversity in the maritime industry.

Heseltine thus founded the Diversity Study Group (DSG) in 2019, recruited companies, such as Maersk and AET Tankers, to work with her and become members. They then designed a survey that asks questions you normally do not ask — from age to religion, ethnicity, and disabilities — to find out who the shore-based maritime workforce is made of.

As of February 2021, she found “61% of our survey population is male, 37% female. Males account for 82% of director level or heads of department roles, females 17%. All roles from the top level down to team leader and senior manager are dominated by males at around 70%”, she told *P&H*.

This is contrasted by the roles at the other end of the seniority level, Heseltine said. “At the junior level, 55% of roles are held by females. Due to lack of historical data, we cannot ascertain currently if this is normal and females subsequently leave the industry or if it is a reflection of recent gender initiatives.”

In regard to ethnic backgrounds, she found that “46% of the DSG survey population is white, 37% Asian, 7% Hispanic/Latino, and 1% is black. About 83% of C-suite roles are held by white

males and 66% of director level or head of department roles are also held by white males”, Heseltine said.

Those figures confirm the lack of diversity in maritime.

The good news

However, the maritime industry is not alone in its need to become more diverse. “The FTSE 100 in 2020 had no black CEOs at all and only 10 out of 297 chairmen, CEOs, or finance chiefs were from ethnic minority backgrounds,” she said. Similar to maritime, white males accounted for 84% of executive directorships. There was a notable rise of women holding non-executive directorships with 89.5% of the roles women occupied at board level

being non-executive.

“In total, there were five women CEOs,” Heseltine summarized.

This global trend can again be seen in maritime. “In the short term, as with the FTSE 100, we are seeing a rapid increase in the number of female non-executive directorships,” she

said, adding a disclaimer that “this offers support for gender representation but is not a long-term solution given these individuals are not employees and are not core to an organization’s day-to-day activities”.

Becoming a better company

She also warns of tokenism. “There’s some head nodding but nothing to back it up. I understand for some it’s a not a business priority,” she said.

However, diversity should be seen as a business opportunity. “A McKinsey 2020 report shows that inclusion and diversity are critical for business recovery, resilience, and reimagination after COVID-19. When companies invest in diversity and inclusion, they are in a better position to create and

make more adaptive, effective teams.

Research has shown that equity-enhancing measures can boost economic growth in achieving gender equality, which could add \$4 trillion to the US economy and closing the black-white wealth gap could add \$1.5 trillion,” Heseltine quoted.

More than numbers

To her delight, Heseltine has overall seen a lot of collaboration with these efforts, which she thinks is amazing. “I’ve been in shipping for 30 years and have not seen this before. We normally work with our blinkers on and don’t share,” she said. Her own career started as a receptionist for a tanker company from where she moved to ship operations in the tanker but also in the dry bulk sectors before she moved to recruitment. In 2008, she reorganized herself and became a self-employed founder of her recruitment company.

While teamwork is one step toward improving diversity, at the same time, it “doesn’t work if you don’t have the accountability,” Heseltine said.

Therefore, members of the DSG can compare their survey results against other members on a dashboard to see how they are faring in terms of role type, gender, or background. At the same time, getting this right is a not a simple tick-box exercise, which is why Heseltine feels torn when it comes to introducing diversity quotas. “Quotas cause challenges. They will only work if you have strong practices in place,” she said. Otherwise, companies risk their quota hires being seen as that and not taken seriously.

Given how global maritime is, Heseltine is confident that “we can do well” in establishing a diverse workforce.

The recruiter is therefore looking for more participants in the study. “We absolutely want to hear from other companies,” she said, inviting IAPH members to take the survey. ■

Take the survey here:

 bit.ly/DSGSurvey

"About 83% of C-suite and 66% of director level roles in maritime are held by white males"

Failure to connect

A newly published IAPH survey on transmitting facilitation data electronically has shown that only one-third of respondents have corresponding systems in place. *P&H* looks at what the challenges behind implementing a digital maritime paper trail are

INES NASTALI AND IAPH DATA COLLABORATION COMMITTEE

On 8 April 2019, the IMO Convention on Facilitation of International Maritime Traffic (FAL Convention) made it mandatory for national governments to introduce electronic information exchange between ships and ports. The COVID-19 pandemic has shown that the maritime industry urgently needs to establish these networks and issued several calls to authorities to do so.

However, a recent IAPH survey into the matter showed that about a third of the global sample of ports has not commenced the process of implementing respective electronic data exchange systems, and for those that have, another third is either designing or implementing their system with only the final third being operational.

"The major barriers to conform with the FAL requirement for electronic data exchange are twofold: first, multistakeholder interests in port communities and established practices and cultures need to be addressed to enable the sharing and reuse of data, which is key for achieving efficient electronic reporting and clearance of vessels, cargo, crew, and passengers," IAPH stated in its report.

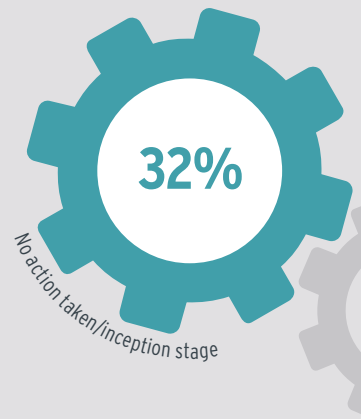
"Second, the legal framework is a barrier, as it can frequently depend on competing or overlapping public administrations and governmental agencies at municipal, state, or national level."

The survey was supervised by the IAPH Data Collaboration Committee that brings together experts from some of the world's most advanced ports in terms of digitalization with the aim of supporting the wide-ranging adoption of secure electronic data exchange in ports.

The confidential survey took place in October 2020 and was open to all ports. It received 111 valid responses from port authorities and port operators worldwide. The response by port type, size, *modus operandi* vis-à-vis cargo, and passenger traffic, as well as in geographical spread was sufficiently diverse to represent a worldwide sample of ports.

14%
North America

18%
Central and South America



Respondents by region where operational systems exist

Right: Looking at the regional analysis of the results, very significant variations can be observed on the degree of implementation and the maturity level of electronic data exchange systems in different parts of the world. As illustrated, Europe leads the implementation, and this is to be expected owing to the application of relevant legislation at the level of the European Union (2010/65/EU) since 2015. Despite the advanced presence of this same EU legislation, it appears that several European countries continue to face challenges in implementing electronic data systems to comply with the FAL requirement.

The Middle East/Central Asia and Africa appear to do quite well comparatively, but caution is required in interpreting these outcomes owing to the smaller number of respondents in these regions. The Americas and many parts of Asia and Oceania appear to be notably lagging behind.

Data upload

Which data needs to be transmitted electronically since April 2019?

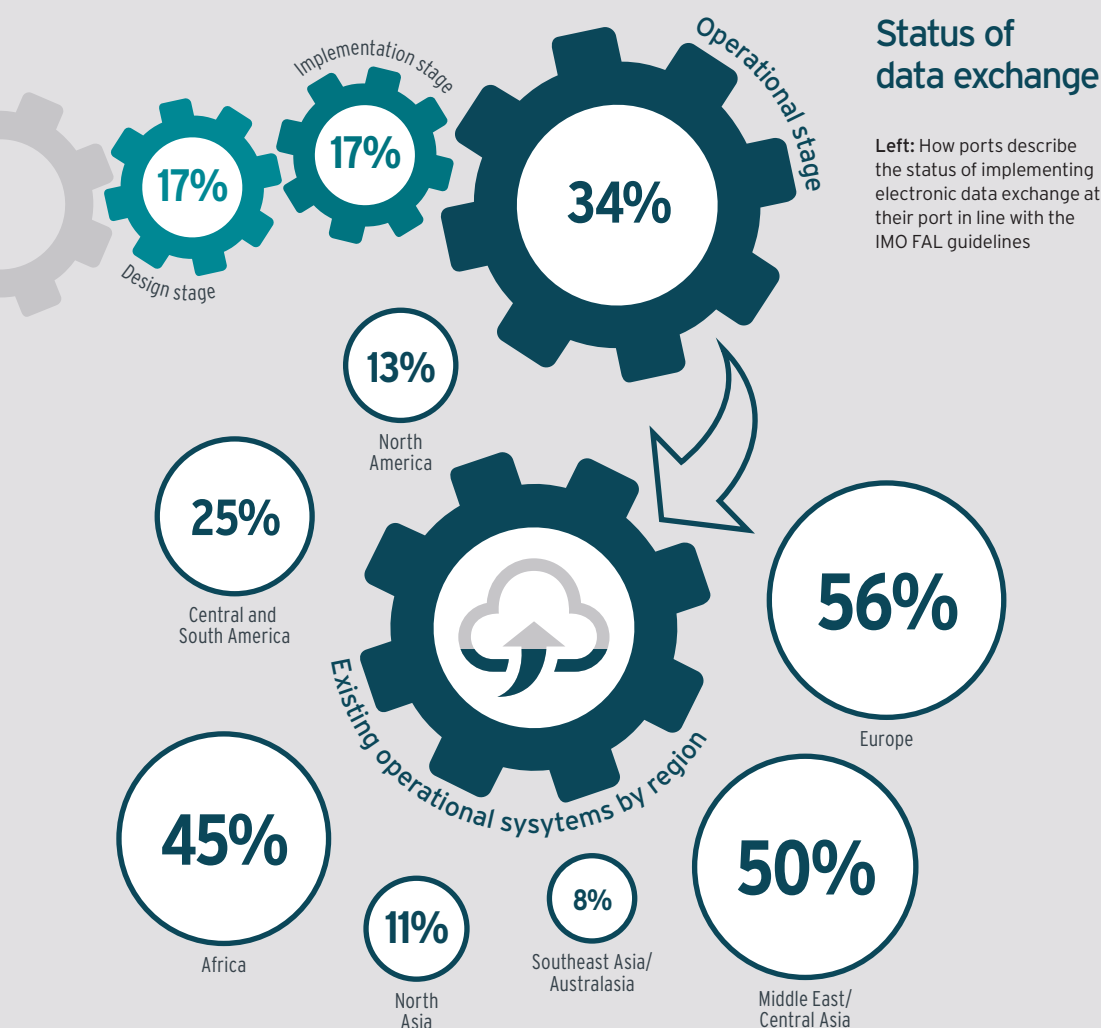
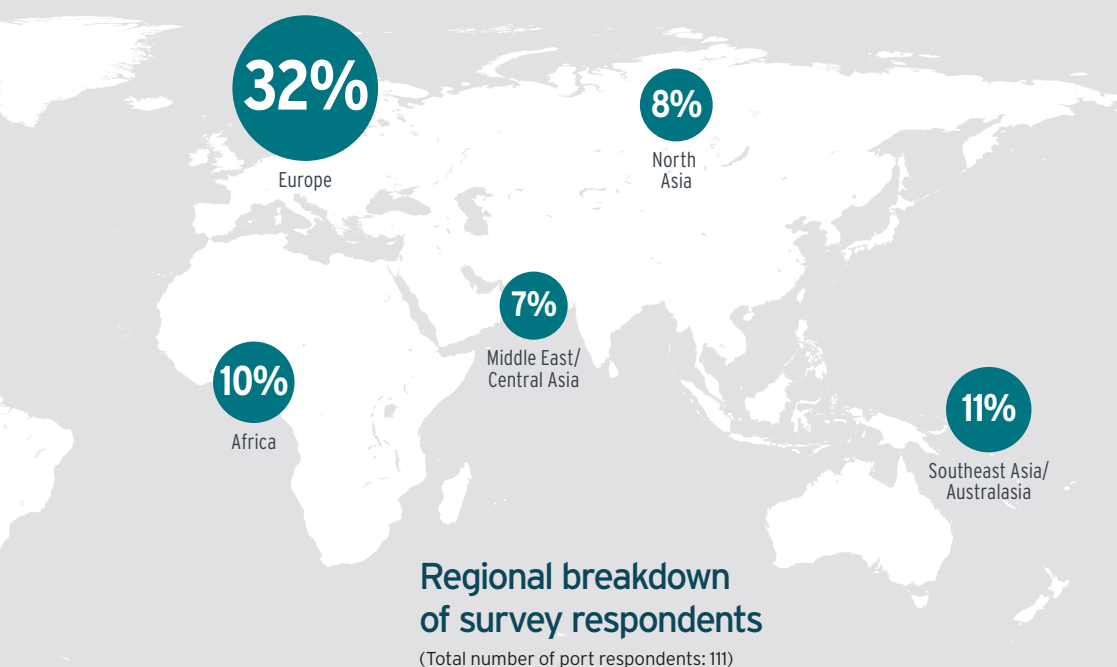
The FAL Convention includes in its Standard 2.1 a list of documents that public authorities can demand from a ship and recommends the maximum information that should be required. Public authorities shall not require additional information. For all the data sets below, and for only those, national governments are required to implement systems for enabling their electronic transmission as of 8 April 2019. The aim is to facilitate the clearance of vessels, cargoes, passengers, and crew.

- IMO General Declaration (FAL form 1)
- Cargo Declaration (FAL form 2)
- Ship's Stores Declaration (FAL form 3)
- Crew's Effects Declaration (FAL form 4)
- Crew List (FAL form 5)
- Passenger List (FAL form 6)
- Dangerous Goods (FAL form 7)

Three additional declarations entered into force on 1 January 2018:

- Security-related information as required under SOLAS regulation XI-2/9.2.2
- Advance electronic cargo information for customs risk assessment purposes
- Advance notification form for waste delivery to port reception facilities

Two other documents may be required under the Universal Postal Convention and the International Health Regulations.



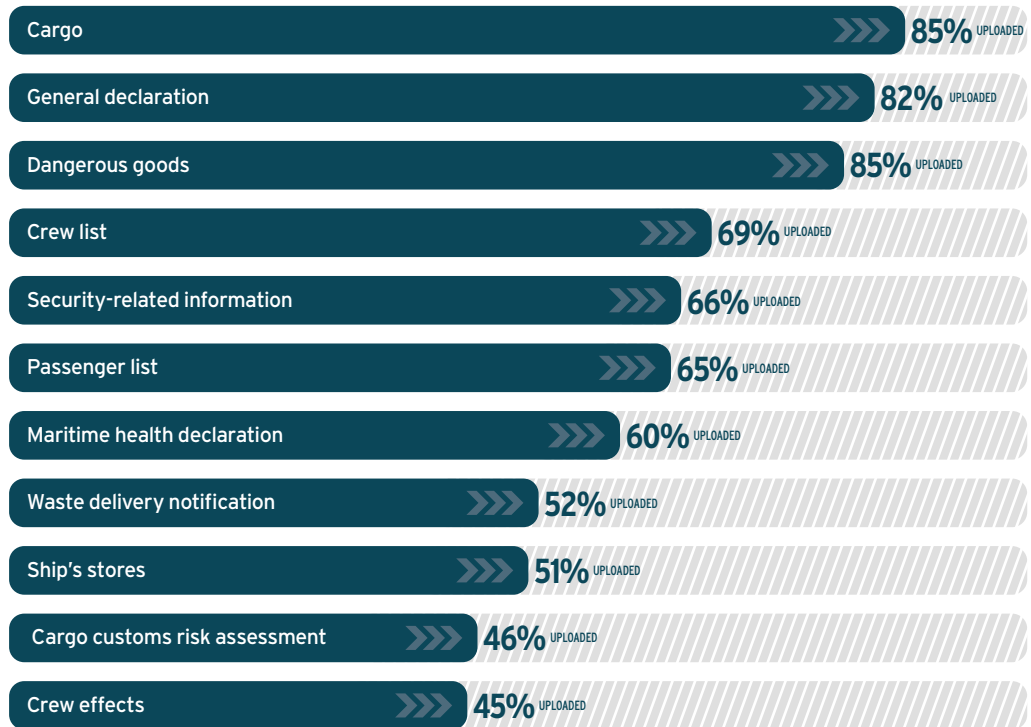
Types of possible electronic data exchange

(Total respondents: 65)

Right: Despite the fact that 38 ports claim to have fully operational systems, it appears that a number of them does not enable the electronic transmission of required FAL information, such as ship's stores (FAL form 3) and crew effects (FAL form 4), where only 33 and 29 ports do so at the moment.

The same observation stands for some of the additional data sets such as advance electronic cargo information and waste delivery notification.

Even within this particular respondents' sample, the fact that more than 30% of ports are unable to electronically process crew lists and 40% cannot electronically exchange maritime health declarations with vessels, are major barriers to resolving the crew change issues that have emerged from the COVID-19 crisis. This will continue to seriously impact vessel crew welfare.



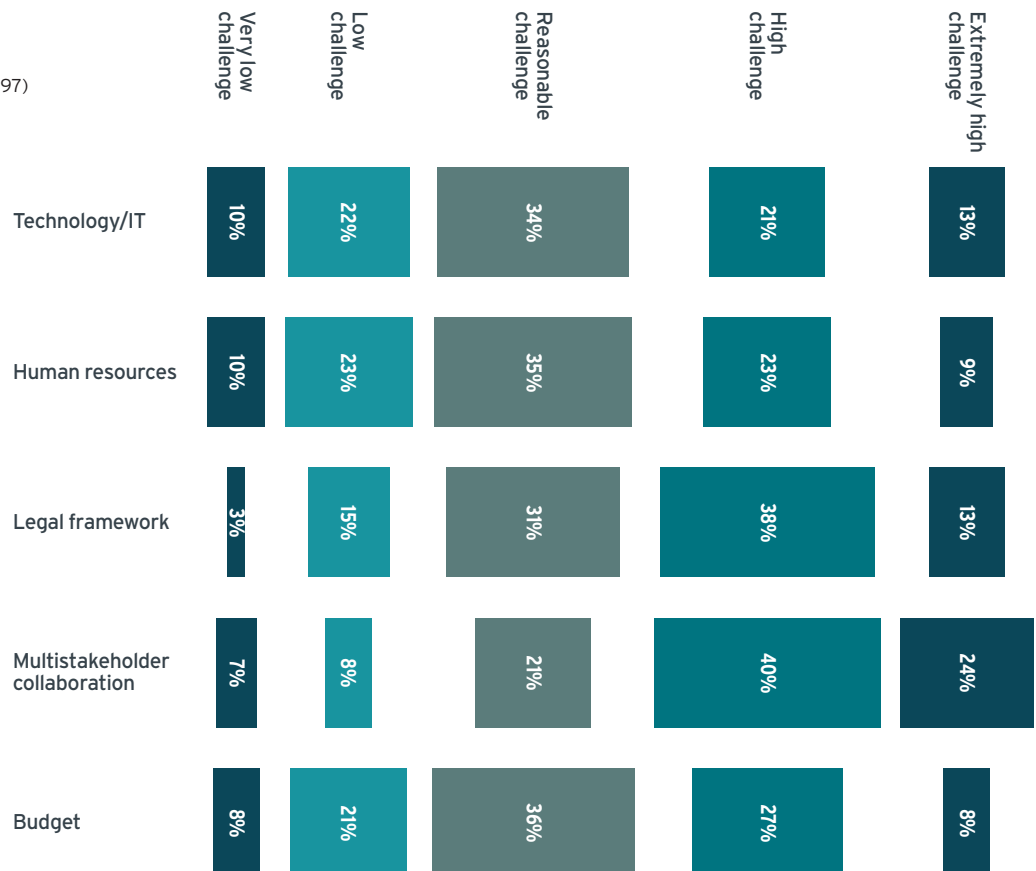
Challenges

(Total number of port respondents: 97)

Right: The survey's responses provide a clear insight into the reasons behind the current low level of compliance with the FAL requirement on electronic data exchange. "We have a significantly high rate of valid survey responses – 87% – from ports that point to two main barriers of implementation, namely multistakeholder collaboration and legal framework," the IAPH said.

Nearly two-thirds of ports rate the first as a high or extremely high challenge. The latter was rated by more than 51% of all ports with the same two high challenge scores.

These clearly overshadow other categories that are typically perceived as hurdles to achieve progress in any IT endeavor at a port, namely technology, budget, or human resources.



Have you sought external financial assistance?

(Total respondents: 97)

Right: Only 18.5% of respondents approached any international development banks or other organizations to assist with implementing electronic systems at their port or for their member state.

17.5%



Yes

82.5%

No

Regional breakdown: Ports that have sought support

(Total respondents: 97)

23%



North America

29%



Central and South America

13%



Europe

33%



Africa

13%



Middle East/
Central Asia

0%



North Asia

8%



Southeast Asia/
Australasia

Above: Looking at the regional breakdown of ports that went to apply for external help, significant variations can be seen.

The request for support appears to be a common practice in Africa and Central/South America as opposed to North Asia and Southeast Asia/Australasia.

A diversity of organizational approach is also worth mentioning. Ports that responded in the comments section with specific organizations have pointed toward requests for support at regional level, with the Inter-American Development Bank, African Development Bank, and the Connecting Europe Facility for Transport,

a funding mechanism for the European Union, mentioned more than once.

On a nongovernmental organization/institutional level, organizational approach for capacity building support includes the International Port Community Systems Association and the IMO.

IMPLEMENTATION TIMELINE

Right: The timeline for implementing electronic data exchange systems at responding ports.

21%

Less than
6 months

26%

Between 6
and 12 months

54%

Beyond 12
months

Above: Bearing in mind the three-way split among ports at the inception, implementation, and operational phases for electronic data exchange, the fact that only 54% of the 97 respondents see further developments beyond 12 months and about 80% of the respondents are opting for implementation beyond 6 months is of concern.

The sense of urgency to accelerate digitalization, which is also a part of responding to the COVID-19 pandemic, does not seem to be

aligned with the actual foreseen time frames for putting in place or improving electronic data exchange systems as required by the FAL Convention.

Governments and public authorities require support to accelerate efforts to digitalize key processes in nautical and supply chains to increase resilience against future crises.

Looking at the regional split, the regions with the most cited time horizons beyond 12 months

are in North America with almost 70% of ports, Southeast Asia/Australasia at 67%, and North Asia at 57%.

Europe also has a relatively high figure for beyond 12 months, which stands at 55% of ports. ■

Click here for the full data set and analysis:

bit.ly/IAPHFALSsurvey



KRIBI CONTENEURS TERMINAL
CAMEROUN

UNE FENÊTRE
SUR
L'AFRIQUE



OUVERTURE LE 02 MARS 2018

PROJECT FOCUS EXPANDING CAMEROON

Added value

With the Kribi Multipurpose Terminal online and rail and road infrastructure being built, Cameroon positions itself as the future deepsea hub in the Gulf of Guinea

SHEM OIRERE AND INES NASTALI

Commercial operations at the Multipurpose Terminal (KMT) of the Port autonome de Kribi (PAK) in Cameroon commenced in the last quarter of 2020, further enhancing the Central African country's drive for an integrated, high-performance, and cost-effective maritime transport network run from its first deepsea port in Kribi.

Kathy Magne, managing director of KMT, a subsidiary of Manila-based International Container Terminal Services (ICTSI), which won a 25-year concession contract to operate KMT, told *P&H*, "KMT will not be handling containers but general, ro/ro, project, dry bulk, and oil logistic cargo, as well as container freight station services". Container services are already being handled by the Kribi Conteneurs Terminal, which has been in operation by CMA CGM, Bolloré, and China Harbour Engineering Company (CHEC) since 2018.

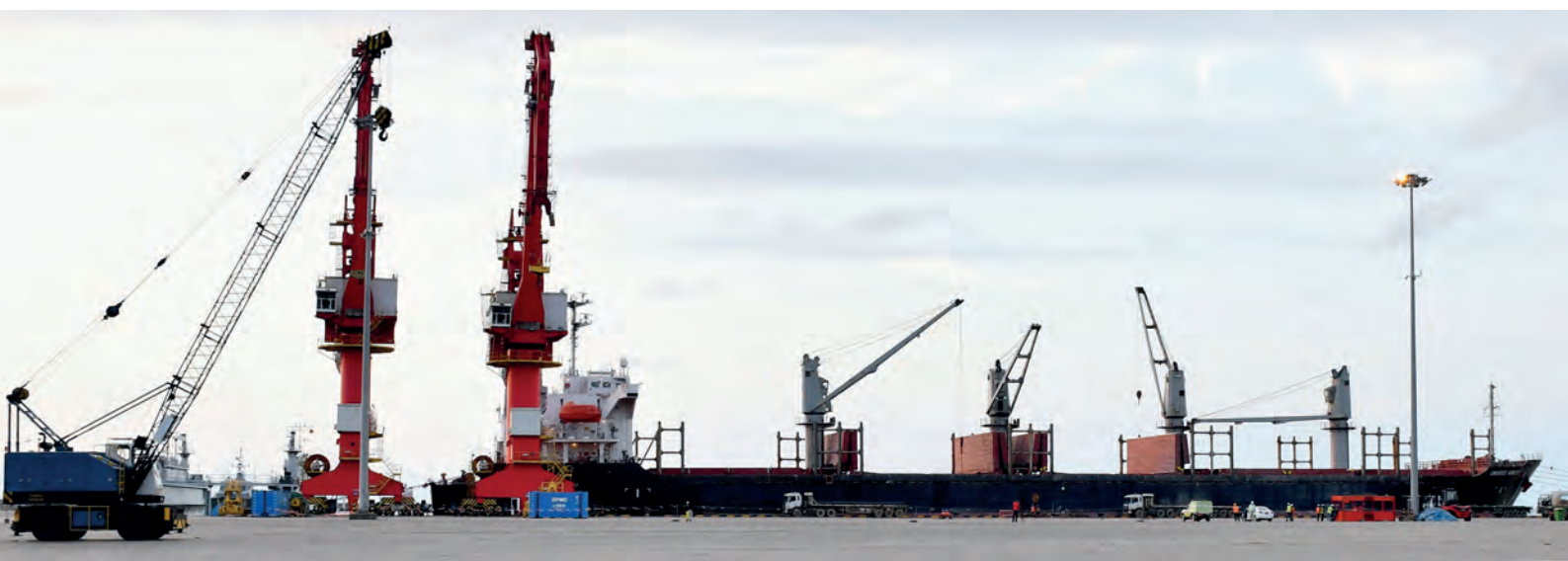
Summarising the year 2020 for both terminals, PAK general manager, Patrice Melom, said while the port could have done better without the pandemic, throughput goals were achieved. "We had hoped for 376 ship calls in 2020 and this figure was exceeded, reaching 457."

It started in 2019

The launch of commercial operations at KMT paves way for ICTSI to implement a \$150 million investment program targeting infrastructure, modern handling equipment, training of personnel, and installing internet of things solutions to ease operations at the facility, which has a current annual capacity of 1.5 million metric tons.

Pictured: A billboard advertising the Kribi container terminal stands at the roadside of Kribi, Cameroon.

Photo: Adrienne Surprenant/Bloomberg via Getty Images



ICTSI's concession contract to develop, operate, and maintain the 16-m-deep KMT, which currently features a berth of 265m, a 10 ha yard, and a 5,000m² warehouse. This capacity will increase in the second phase to three berths totaling 615m, and 33ha of yard space to handle up to 5 million metric tons of cargo by 2024.

ICTSI's journey to take control of the KMT facility started in June 2019 when the PAK, which holds a 25% stake in the terminal, declared the Philippine-based terminal investor the preferred bidder for the project.

The KMT concession contract signed in July 2020 came two years after a similar agreement between PAK and the Kribi Port Multi Operators (KPMO) consortium – which consisted of French logistics firm Necotrans and nine Cameroonian companies – was terminated owing to Necotrans's administration in 2017. This left KPMO to – unsuccessfully – look for another partner while it run KMT under a transitional agreement. KPMO director Alain Claude Atangana Zang labelled the decision to hand over operations to a foreign company a “disavowal of Cameroonian expertise”, local news outlet *Cameroon Tribune* reports.

Improving the flow

The competitive plans for Kribi, including modern road access and an adjacent free zone, which secured the bid for ICTSI, are aimed to attract more non-containerized cargo from Douala port, which handles up to 90% of Cameroon's exports and imports.

However, Douala has long been associated with inefficiencies such as prolonged dwell times that has constrained Cameroon's external competitiveness and hampered the growth of the Central African transport corridors. Kribi, located on the Atlantic Ocean, offers direct nautical access as opposed to the river port of Douala with its 8 m draft. “The new Kribi port is now the deepest between Tema in Ghana and Cape Town in South Africa,” Magne said.

According to Cameroon's transport minister Jean Ernest Masséna, “Kribi deepsea port has already contributed to decongesting Douala port, and enabled the reduction

Pictured: Kribi Multipurpose Terminal.

Photo: ICTSI

of wait time for the passage of goods by improving and enhancing the competitiveness of our ports.”

Particularly, the road access is seen as a corner stone to drive this. “There's a new road network and there is no congestion at Kribi port, and the land is ready for industrial and logistics projects in the Kribi economic zone,” said ICTSI.

For example, key roads, rail lines, and an oil pipeline linking the Kribi deepwater port to Chad and the Central African Republic are ongoing while others are already operational. The transport links include roads among Kribi, Lolabé, and Edéa, as well as between Douala, Bangui, Ngaoundere, Belaba, and N'Djamena – about 8,000km of road in total. The port and its terminals are also to be supported by the railway projects of Douala-Ngaoundere-Bangui (922km) and Douala-Ngaoundere-N'Djamena (922km).

Some of those works have been under way since 2015, with delays caused by the government failing to appoint a motorway operator and non-payment of accounts, PAK stated. “This is the big point for improvement, the weak link in our port. Although our influence in this area is rather limited because this is an issue that falls within the purview of the government's prerogatives. And we all know that our country, like other countries in the world, is suffering the effects of an international financial crisis,” Melom said.

It is estimated that highway works between Lolabé and Kribi will be finalized in October 2021.

Attracting business

Those road upgrades are a mean to help Cameroon's overall economic growth, which was expected to reach 4.3% in 2020 owing to “an increase in natural gas production, with a new liquefied natural gas offshore terminal coming online, the slight downturn in the oil sector, and sustained momentum in the construction, housing, and services sectors”, according to the World Bank.

In order to achieve the growth, it will “require the

investment share of GDP to increase from about 20% in 2015 to 30% in 2035, and productivity growth to reach 2% over the same period from its average zero growth rate over the past decade," the World Bank estimated.

Moreover, Kribi port and its terminals have capacity to support services to Central Africa's regions. The oil and gas industry is backed by the existing 1,070km Chad-Cameroon oil pipeline linking the Doba oil fields in southern Chad to a floating storage and offloading vessel in the city of Kribi, nearly 30km from KMT. In addition, the port has a 61m oil and gas quay to support the local hydrocarbons industry.

Another project to help this is the aforementioned free trade zone in the port. Melom said in January 2021 that PAK is working together with Cameroonian authorities to obtain the free zone status and secure funding for the industrial zone. "The Cameroonian market is obviously attractive, but there are still facilities to be built and tax allowances to be introduced to boost development," he said.

In the digital space, ICTSI implemented the Logstar terminal operating system, a cloud-based solution to support the integration of vessel, gate, yard, and warehouse operations with billing and reporting systems in the last quarter of 2020. "With the support of the local port users and our shipping line partners, we believe that the benefits of automating processes and information flow at KMT will help us deliver even greater efficiency beyond our fence and throughout our customer supply chains," said Magne.

Part of this digital rollout is also the port community system that PAK is working on. "Its implementation is being done gradually, module by module, but there are already many activities that pass through this channel: access, ship management, cargo management, and others. There are interfaces with Camcis [Cameroon Customs Information System] from customs and eGuce from the single window. All the stakeholders are informed and use this platform, which is becoming a must," Melom said, adding that while this process is not without challenges, it is necessary. "We're convinced that this irreversible choice, which inevitably implies a difficult and tiring period of transition, is the price to be paid to allow our port to make the qualitative leap to modernity."

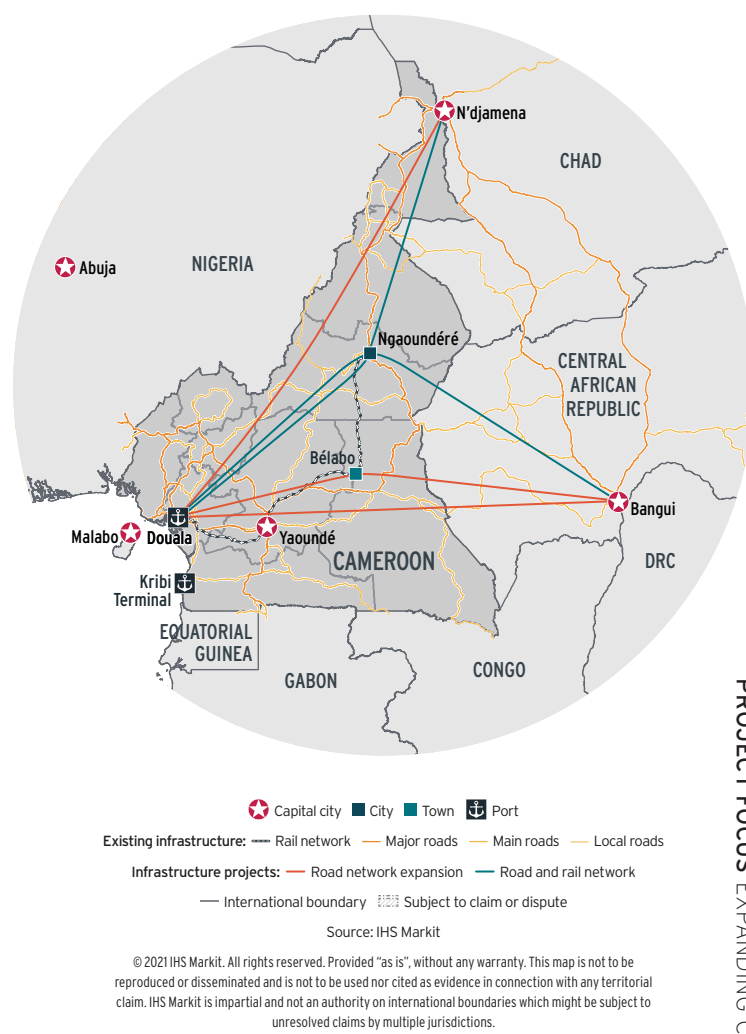
Troubled waters

Those investments are hoped to pay off when more throughput is expected once the second phase of expanding the port is concluded and commissioned.

Cameroon has signed a \$794 million expansion agreement with CHEC, which also developed the first phase. The Export-Import Bank of China is providing up to 85% of the expansion financing through two concessional loans while the government of Cameroon is paying the remaining 15%.

Issues arose in November 2020, when the Cameroonian Ministry of Trade sealed a shipment of 7,300 metric tons of rebar, which were imported by CHEC for use in the expansion. To protect the local mining and production, a ban on rebar was introduced in 2016, but CHEC and PAK claimed the local rebar did not meet standards, *Business in Cameroon* reported.

Tapping into the mining business has been on Cameroon and PAK's agenda for a while with natural resources, including bauxite, cobalt, diamonds, gold, and iron ore.



However, projects such as the Mbalam-Nabeba iron ore mine in the Democratic Republic of the Congo (DRC)/Cameroon have been postponed for years.

In a latest dispute, both mining companies Sundance and Avima Iron Ore were ousted from their projects in December 2020 by the government of DRC after Sundance said it had invested \$400 million in Mbalam and Nabeba. It is now seeking \$8.76 billion damages, which it based on the price of iron ore at the time of the announcement.

The Congo government instead assigned the mining licenses for Mbalam-Nabeba, Badondo, and Avima to Sangha Mining. "Sundance doesn't know who the beneficial owners of Sangha Mining are," Sundance said.

Only days before, Cameroon's mining minister Gabriel Dodo Ndoke said the government will collaborate with a "consortium of five Chinese state-owned companies" to operate the Mbalam mine. While he did not disclose which companies were involved, CHEC has previously voiced interest to establish a mining business in Cameroon.

The dispute might hamper PAK's agreement with Avima Iron Ore, which it made in June 2020 to establish export traffic from the mine through Kribi, but for now, the port focuses on expanding its cargo throughput. ■





An unwanted prison sentence

There is not much movement in the crew change crisis that 400,000 seafarers with overdue sea time currently face.

The latest IAPH COVID-19 Barometer, which was published at the end of February, indicates one of the reasons for this: a lack of co-ordination. "The feedback to the survey also reemphasized that ports have no say in neither decisions related to crew changes nor in terms of overlooking the implementation process, as these changes depend on other authorities beyond the port," the survey analysis said. Industry bodies and shipping companies have signed numerous declarations over the past months, committing to help the crew, but the situation has not much changed since the height of the pandemic. "On a global scale, 44% of ports that provided information on crew changes reported no crew changes had taken place in week 6 of 2021," the report said. Proving further that this is a political rather than an operational issue, ports responded saying that "whenever crew changes take place, they are successful in all respects. Domestically registered vessels continue to perform crew changes, but foreign crew changes have occurred with no concern or delay".

However, out of 174, only "55 IMO member states and two associate members have designated seafarers as key workers", the IMO warned at the launch of the World Maritime Theme dedicated to seafarers in mid-February. "This humanitarian crisis threatens global trade and safe navigation," Kitack Lim, IMO secretary-general said in his launch address.

As part of its efforts to put seafarers at the heart of discussions, the IMO prepared a series of profiles in which seafarers express their views on their work. The outlook is rather bleak. "It's catastrophic now. We are almost a year into this, and to see it still happening is beyond words at times. As seafarers, we look around and ask ourselves: Who is genuinely helping to make a positive change?" said Matt Forster, chief engineer, based mainly on an oil tanker in the Middle East and Asia. He managed to return home only after six instead of two and a half months - an additional time he has classed as "unwanted prison sentence". ■

Pictured: Crew members wearing face masks.

Photo: Robin Utrecht/SOPA Images/LightRocket via Getty Images

It is five to twelve for maritime digitalization



The digital revolution of the past decade has emerged as one of the main drivers of change in the port and maritime sector, requiring a high level of integration between devices, agents, and global activities. With so many players involved, teamwork is essential. To facilitate efficient movement, shipping lines, port services, cargo handling operations, clearance agencies, and connective road, rail, and inland water networks, all have to work together to facilitate the necessary exchange of data to move a consignment across and between jurisdictions.

To enable this teamwork, the World Bank, in close collaboration with members of the IAPH and its World Ports Sustainability Program, has produced a technical report titled, *Accelerating Digitalization; Critical Actions to Strengthen the Resilience of the Maritime Supply Chain*.

The report has been prepared to stimulate a much needed dialogue among those mentioned key stakeholders and move this essential agenda forward. A number of international organizations such as the United Nation Conference on Trade and Development, the United Nations Economic Commission for Europe, the World Customs Organization, the World Trade Organization, and the IMO have been calling for the accelerated digitalization of cross-border processes and documentation to protect business continuity, improve resilience, and reduce costs.

More effort needed

Despite these calls, the response has been disappointing. The recommended first steps were outlined as mandatory requirements in the IMO's Facilitation Convention, which seeks to support the transmission, receipt, and response of information required between ships and ports via electronic data exchange, as part of the transition to a full-fledged maritime single window.

This has been a mandatory requirement for all ports since April 2019, although implementation remains partial at best.

In terms of the next step in the development of an efficient digital ecosystem for a port, the establishment of a functioning port community system is required.

Despite its importance, as of November 2020, only 49 of the 174 IMO member states possess such systems – with higher-income countries comprising the majority that have systems installed.

However, the report underlines digitalization as not solely a technological issue, but also as an institutional one, as well as involving human capital. Any move toward increased digitization will require a high level of political commitment, while the establishment must have an appropriate legal, regulatory, and policy framework at national level.

This must span across the different disciplines of the maritime, port, clearance agencies, and the transport and logistics sectors. The move toward digitalization will also require improvements in workforce skills to commission, absorb, and implement the associated demands on stakeholders. The report therefore showcases specifically tailored short- and medium-term measures based on real case examples.

It is especially vital with maritime transport carrying 90% of the global merchandise trade, and thus, any impediments in these logistical chains serving the maritime ports will have tangible repercussions for their host countries, hinterlands, and respective constituent populations.

In the short term, impediments can lead to shortages of essential goods and higher prices, as illustrated at the start of the COVID-19 pandemic. In the medium to longer term, they can lead to higher trade costs at lower competitiveness, economic growth, and employment at the same time.

Digitization of the maritime ports and this complex logistical chain is therefore vital to improving the competitiveness of port and country to facilitate economic growth.

Equally, the number of ports that have a port management system (PMS) – the next stage in the evolution of the digital ecosystem – is even smaller.

A PMS enables the port authority to control all port traffic through a single digital interface, and manage port infrastructure such as port calls, dues, journal, incidents, waste, dangerous goods, planner, cargo, inspections, permits, services, security, and assets. A PMS is intended to prepare the transition toward a smart port. The latter is defined as an automated port that uses emerging and disruptive technologies such as artificial intelligence, advanced analytics, internet of things, 5G, autonomous systems, digital twinning, and distributed ledger solutions as well as other on smart technology-based methods to improve the performance, economic competitiveness, and environmental sustainability. While this delay reduces the resilience of the maritime logistical chains and poses a risk to business continuity, the greater risk for many countries is the development of a two-tier system between the digital and non-digital countries and ports.

The latter could be left behind and face the risks of greater inefficiencies, higher transaction costs, hence higher trade costs, lower competitiveness and economic growth, as well as employment.

Such a development would further increase the economic gap between the developed and developing world. Additionally, it would exacerbate the challenges that many low-income countries or small island states are facing already. Finally, growing digital integration is not without risk: cyber security is now one of the major challenges facing the maritime industry. Between February and May 2020, cyber attacks

increased 400% in the maritime industry, according to cyber-security consulting firm Naval Dome.

Readers will remember, when in 2017, global container shipping company Maersk and its international port operation wing overcame an aggressive cyber attack, which should have served as a serious wake-up call. Other attacks have followed and more will come. The IAPH and World Bank report discusses these risks and how a port should approach and mitigate them. ■

Download the report here:
bit.ly/WBIAPHReport



ABOUT THE AUTHOR

MARTIN HUMPHREYS is a lead transport economist in the Transport Global Practice of the World Bank. He has been working in the transport sector for nearly 30 years, including in Asia, Africa, Europe, and the UK. His experience covers trade and transport facilitation in fragile, and low- and middle-income countries.

“Such a development would increase the economic gap between the developed and developing world”

MARTIN HUMPHREYS
Economist, World Bank



ABOUT THE AUTHOR

RICHARD MORTON is the secretary-general of the International Port Community Systems Association. In his role, he supports international organizations, including the United Nations, on trade facilitation.

How to

...set up and maintain a port community system

Even prior to the COVID-19 pandemic and the “call for action” for ports to fast forward their role as digital nodes in the supply chain, small- and medium-sized ports were considering, developing, implementing, and, in some cases, already operating port community systems (PCS).

Although the principles of PCSs are the same for all ports, small- and medium-sized ports may have different drivers and varying levels of financial resources available to operate a PCS – so, while the larger ports enable operations through digitalization, other ports often question where they should start and whether it is appropriate for them to implement a PCS.

In response to this uncertainty, the International Port Community Systems Association has created a simple set of guidelines to help small- and medium-sized ports to consider PCS implementation and how to go about it. “We’ve chosen not to categorize what a small- or medium-sized port is, as this is something better understood by the port operators themselves,” Morton explained.

N°1



What is a port community system

Ports need to create a common understanding of what a port community system is. For this, find examples of systems in ports of similar size and share and exchange how things are done and how they did it. The IPCSA can support. Ask yourself – what problems do we have in our port? Look at physical infrastructure, traffic queues, paper/documents, and processes.

N°2



Digital review

First, undertake a high-level digital review – countrywide – to establish the existence and involvement of a single maritime window, port and airport community systems, authorities involved in cargo, including customs, and phytosanitary.

Check, if as a port authority, the port has a system in place regarding port operations or services related to the community and other relevant technology such as electronic transactions regulation (payments, ID, signature/certificates, etc.).

Second, do a digital port review for all systems within the port authority and the key stakeholders and what status and maturity they are at.

Ask yourself, does the port have sufficient IT skills and support? Include in the review which, if any, data standards are being used by authorities such as the WCO, IMO’s Convention on Facilitation of International Maritime Traffic, the UN Centre for Trade Facilitation and Electronic Business (UN/CEFACT), etc. Review which standards are being used by port users; examples are Electronic Data Interchange for Administration, Commerce, and Transport, XMLports, APIs, etc.

N°3



Stakeholder engagement and feedback

Ports should involve stakeholders through discussions and workshops about key challenges and what can be resolved – encourage feedback, even if critical on collaboration, data sharing, confidentiality, and cyber security. Ports should also create a stakeholder group of those wishing to embrace digital technology and agree with stakeholders a process or several processes that could be improved through digitalization.

N°4



Business and operating models

Identify a suitable business, operating, and financial model (see IPCSA guide) as well as infrastructure, software, and platform as a service.

N°5		
IT infrastructure options		
Create and manage your own IT infrastructure through a local PCS hub by using cloud services or a technical provider.		

N°6		Data security and confidentiality
Undertake an assessment of current cyber security within port and associated stakeholders. This is subject to IT infrastructure; ask yourself how secure the data is.		

N°7		
No big bang		
Start small – one process at a time; prioritize with stakeholder agreement. Remember that trying to do everything tends to be more costly and has a higher risk of problems.		

N°8		Plan, review, share, implement, and launch
Plan the PCS and prioritize processes that need to be covered. Review the processes and check and establish whether the digitalization of these processes will make a difference. Share your plan and review it with all stakeholders. Do not be afraid to admit if something is wrong and you need to look at it again. Create an implementation plan and communicate with stakeholders.		

N°9		Communication
Create a mechanism of constant communication with all stakeholders – be honest about status, challenges, and problems. Ask for help in sharing this with the whole community and acknowledge all those that have supported you – and communicate this to all stakeholders.		

N°10		
International standards		
Use international data standards and map these across to other standards being used by stakeholders in your port.		

N°11		Technology – Do not follow the herd
Technology initiatives should be driven by business processes. Do not follow the herd by using the latest technology or innovation unless it suits your needs and it is secure, mature, and stable. Choose technology-neutral solutions that allow you to adapt to new technologies and innovations.		

Concluding considerations		
When considering setting up a PCS or even digitalizing the supply chain, make sure that the business drives processes, allow those processes to drive technology, and thus ensuring technology to enable business. ■		

N°12		In order to stay the same, you must change
Constantly review the business and operating model and do not be afraid to change it. Plan for the unexpected – pandemics, trade disputes, etc. Review services and processes and adapt them to fit current needs and technology. Redefine the PCS and its model as it evolves.		



ABOUT THE AUTHOR

MASAMICHI MOROOKA served as the CEO of Yokohama-Kawasaki International Port Corporation until 2021. Prior, he was a director for NYK Line and served as the chairperson of the International Chamber of Shipping.

8:30



9:15



9:50



10:30



Nine to five

At the end of January, Masamichi Morooka retired as president and CEO of Yokohama-Kawasaki International Port Corporation. He takes *P&H* through one of his final typical days at the office



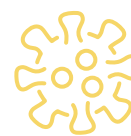
A beautiful day was about to start with a distant view of white-topped Mount Fuji, nicely contrasted by the pure blue sky. Taking a sip of my coffee, I began to go over industrial news and articles.



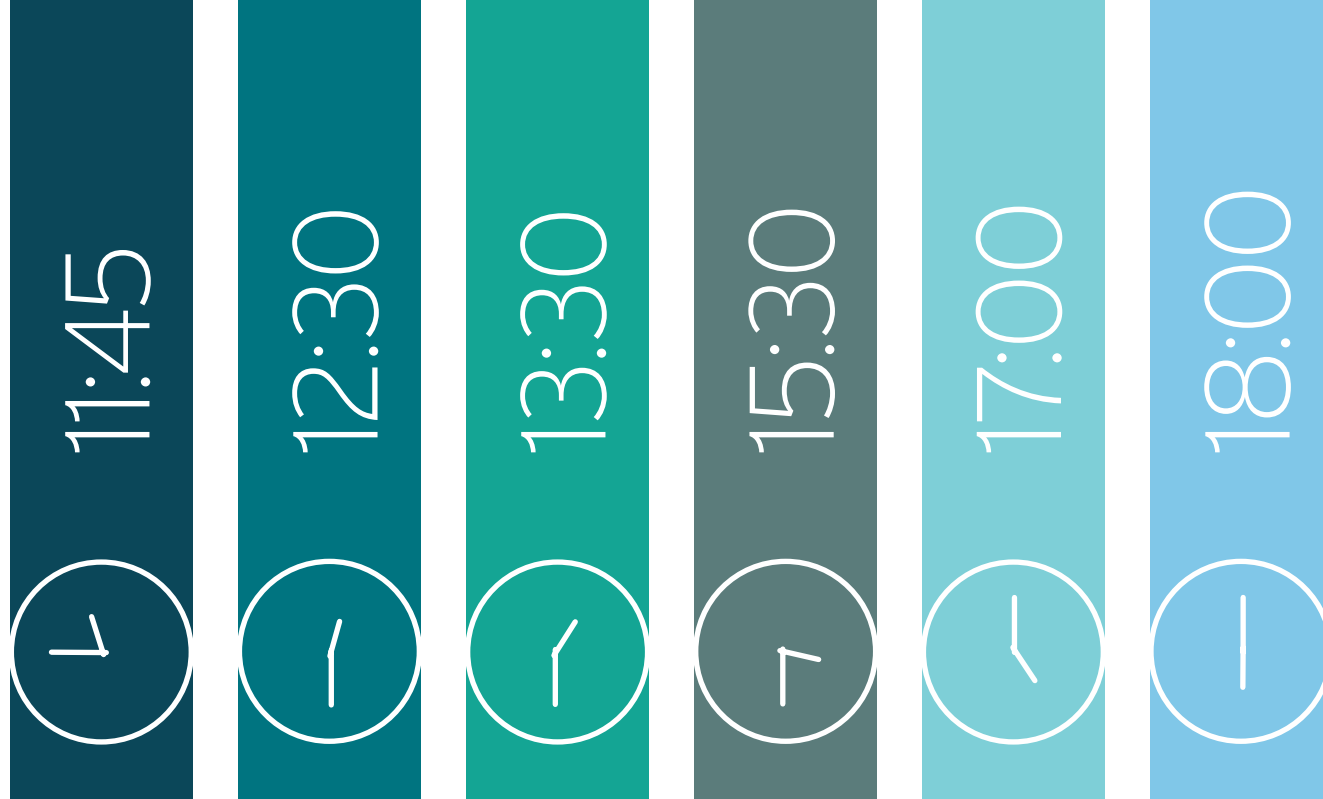
I attended a Teams meeting with a stakeholder in Florida, who is also an old friend of mine. I thanked him for sacrificing his dinner time, and we discussed some directional issues regarding ports' contribution and effort toward the ultimate goal of zero-carbon emissions.



Wearing a mask, I went to the floor where most of my staff work. It has become my routine since the pandemic to have as many conversations as I can with our people, as we have a limited number of employees coming to the office since November 2020 when we restarted remote working. I thank God for keeping our employees safe; we have no reported COVID-19 cases so far. We need to keep it that way as they are the company's most valuable asset, the present and the future.



I sat for an interview with a Japanese industrial outlet; topics of discussion included updates on the effect of the pandemic on our business, as well as our strategy post-COVID-19.



I took a telephone call with a domestic stakeholder. We discussed LNG bunkering-related issues. The delivery of our first LNG bunkering vessel was rescheduled with a significant delay owing to COVID-19. During this call, we made sure that everything is now on the right track.



Lunch – sandwiches at my desk. I miss the good old days when lunch was a method of socialization and information sharing. Wearing a mask, I went out for a walk. This is an exercise for me – physically and mentally. It helps me to clear and ease my mind.



I attended a high-level management meeting via Teams. Back when we could have meetings face-to-face, they were full of laughter and anecdotes. Meetings were longer but worthy, in my opinion. Call me old-fashioned, I am okay with that. During the meeting, I got an update on the progress of projects and we agreed on follow up steps. We also spoke about the current situation and our operations. The general operations meeting reported a record high number of volume. It is a relief, at least.



I joined a cross-industrial webinar as speaker, talking about how ports can revert the crisis into opportunities and how the industry should cooperate and collaborate in the COVID-19 era.



The vice-president stepped into my office, and we had a nice chat with funny jokes as always. However, the topics were quite essential for the company.



I attended a teleconference with a stakeholder in London, another old friend of mine, just to catch up and exchange information. It was a delightful chat as well. After all work is done, I go home.

Making the switch

Shipping is weaning itself off heavy fuel oil to a cleaner and more sustainable bunker mix. However, as the industry's evolution from sail to steam shows us, it has been at the crossroads of propulsion options before

PENNY THOMAS

F

uel transitions are not new to shipping, but the industry has not been called upon to make any significant changes for about 90 years since it adopted oil and the motorship gained traction in the 1930s.

However, past events were almost solely driven by the industry's desire to do things cheaper, faster, and better, and there was no hurry to adopt a technology when the current inventory was at the top of its game. While owners today still want cheap, fast, and good, shipping's fuel agenda is led by regulation, with deadlines imminent and as yet no defined strategy on how to meet the IMO regulations and fulfill its obligations to the Paris Agreement.

Making headways

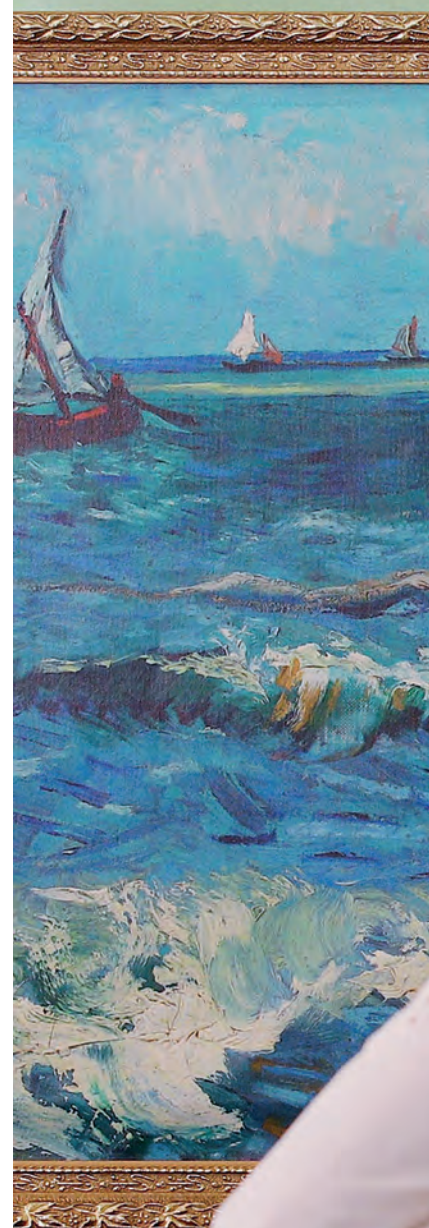
Charles Haskell, program manager of Lloyd's Register's newly created Maritime Decarbonization Hub, acknowledged this lack of clarity in a recent Lloyd's List webinar. He said an energy transition is required to meet regulations and agreements. "Unlike the previous energy transitions, where fuel was available and cheap, and shipping slowly adapted this, we need the mechanisms in place to make that fuel available and to make it economically viable for shipowners to take," and for the energy transition to occur.

Companies are making headway. AP Moller-Maersk announced on Twitter in early January that it had set up a dedicated team to accelerate its decarbonization efforts. The Swedish shipping giant is already hailed as a pioneer in maritime circles for its 2018 announced aims to be carbon neutral by 2050.

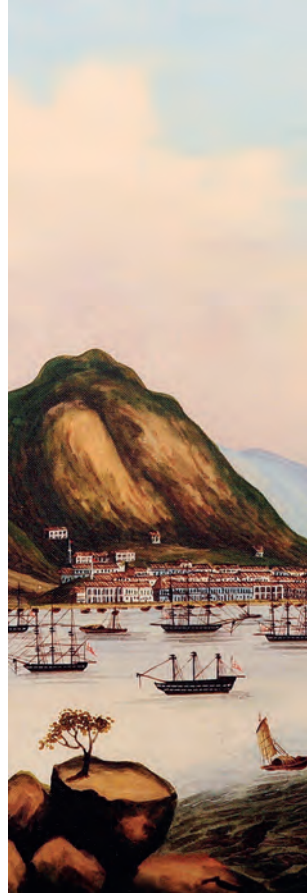
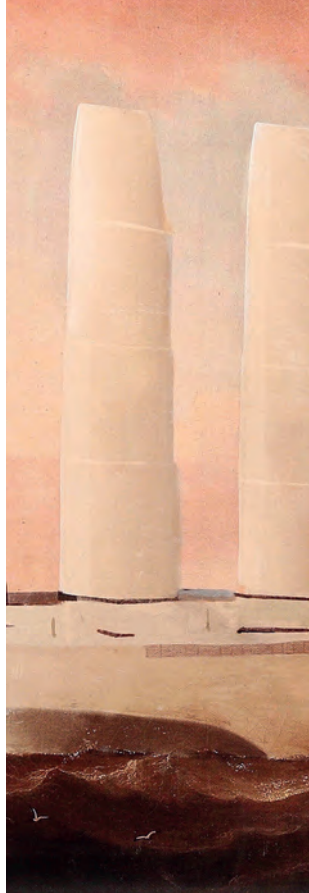
In a Gliese Foundation report published in December 2020, AP Moller-Maersk's CEO Soren Skou said that "the vast majority" of its

Pictured: Reuben Dangoor has recreated Van Gogh's *Seascape near Les Saintes-Maries-de-la-Mer*, 1888, for Lloyd's Register.

Photo: Lloyds Register







investments into cleaner bunker fuels will go into three fuel types based on alcohols — methanol and ethanol, bio-methane, and ammonia.

Meanwhile, other shipping companies are treading their own paths towards a low- or zero-carbon future. To name only a few, shipping magnet John Fredriksen is courting biofuels through a joint venture with Trafigura; MSC has already started to burn 30% biofuels in its bunkers, as well as keeping an eye on the hydrogen landscape; while Mitsui OSK Lines has ordered a hard sail wind-powered bulk carrier. Carnival Group, Scorpio Group, and Grimaldi Group have all made serious commitments to the controversial option of exhaust scrubbers in a bid to take advantage of low heavy fuel oil prices.

The potential options and technologies available to shipowners are plentiful, but few shipowners have the appetite to be a first mover on a specific technology.

Going back in time

Rewind the clock back 250 years and the ships were still powered by wind. However, the shift from sail to steam spanned over 100 years during which time steam engine and ship engineering had time to develop and mature. Today's race to decouple from carbon does not allow for such timescales.

And in the 1800s, only one fuel source was sought after — coal. Compare this with the myriad options facing today's shipowners, with multiple possible fuel options and new technologies. Lloyd's Register Foundation's publication — *Maritime Science and Technology: Changing Our World* — gives a comprehensive insight into how steam, and then oil, revolutionized the industry into its recognizable form of today.

The author, Nigel Watson, explained that the first glimpse of a steam vessel was in 1788 when engineer William Symington's steam-driven catamaran carried five passengers across Dalwhinston Loch. Significant landmarks that followed include the launch of the seagoing steamship *Aaron Manby* in 1821. Although largely ignored at the time, in 1839 *Archimedes*, a steam-powered schooner, was launched — the world's first screw-propulsion steamship.

It was a piece of engineering that went on to be utilized by the legendary engineer, Isambard Kingdom Brunel on his iron-hulled and steam-powered *Great Eastern*, launched in 1858. Screw propulsion was experimental at the time, and so *Great Eastern's* design also featured the tried-and-tested technology of steam-powered paddle wheels, which dominated steamship design for the first 50 years.

At 692-feet long, and with a gross registered tonnage of 18,915, *Great Eastern* was capable of 14kt and could carry up to 4,000 passengers, with a crew of more than 400. *Great Eastern* was Brunel's third ship and built in collaboration with another pioneering engineer of the day, John Scott Russell. Designed to operate between London and Sydney without refueling, the vessel would hold "the record for the world's largest passenger ship for almost 50 years", wrote Watson.

The age of steam had begun.

Decade's worth of collaboration had got steam propulsion to this point with great engineers such as Brunel, Scott Russell, and engineer and inventor Robert Fulton who is "widely regarded as the father of maritime steam research" to name only a few innovating new technologies, and seeking funding for their projects.



Future Seascapes

To celebrate Lloyd's Register's newly created Maritime Decarbonization Hub, a series of paintings were commissioned to reimagine great maritime paintings featuring zero-carbon technology. Artist Reuben Dangoor has recreated paintings by Turner, Van Gogh, Monet, Ting Qua, Whitcombe, and Seago, which can be viewed in a virtual tour at:

🌐 bit.ly/FutureSeascapes

Pictured left to right: Thomas Whitcombe, *A Trinity House Yacht and a Revenue Cutter Off Ramsgate*, 1810; Ting Qua, *View of Hong Kong*, painted during 1845–55; and Joseph Mallord William Turner, *The Fighting Temeraire*, 1838, alongside their modern interpretations by Reuben Dangoor.

Artwork: Thomas Whitcombe | Reuben Dangoor | Ting Qua | | Reuben Dangoor | Joseph Mallord William Turner | Reuben Dangoor

Among those, of course, James Watt who developed the steam engine. Steam was not a viable option for ship navigation until Scottish engineer Watt's patent for his improved rotary steam engine expired in 1800.

Watson writes in *Maritime Science and Technology: Changing Our World*, that Watt's caution to adopting the engine for wider uses, including shipping, delayed "the wider diffusion of steam power on both land and sea".

Bankruptcies, misplaced research, overlooked innovations, wars, as well as logistical and practical factors all played their part in slowing down the adoption of new technologies. For example, in the advent of steamships many ports struggled to accommodate the increasingly larger vessels.

Same same, but different

Today's owners and operators are also grappling with the uncertainties of a new bunker landscape and are collaborating with fuel experts and ports to identify new technologies, and share the risks that are attached to being a first mover.

Yesteryears owners also were hampered with uncertainties of obtaining coal along trade routes to power steam engines. Steamships first found success on rivers and lakes, then short sea voyages, wrote Watson, but "entrepreneurs dazzled by its potential and enticed by the possible profits sought to extend its sphere of operation even further".

Atlantic crossings were made, first by wooden paddle steamer *Sirius* in 1838, then *British Queen*, *Liverpool*, and Brunel's *Great Western* followed closely after. It was during the long voyages where the new technologies' faults were exposed as steamships were "limited to voyages of no

more than 20 days before fuel stocks had to be renewed". Watson's research revealed that in 1855 "coal and machinery together could account for as much as 44 % of a ship's total capacity".

As such, in the 1850s sail continued to operate alongside steam, Watson wrote, "operating along the coasts as well as the oceans", with fast sailing ships dominating the oceans. On long voyages the availability of coaling stations supported operations, and by the mid-1850s, companies such as the Bibby Line had set up stations at Genoa, Messina, Lisbon, and Oporto, on the Mediterranean. But these lines still resorted to sailing ships for voyages to India and South America, writes Watson. Coaling stations were generally situated along major shipping routes, owned and fueled by the British and supplied by sailing ships.

"By the 1870s, P&O chartered a fleet of 170 sailing colliers to maintain its steamship service to India. By 1914, there were 181 coaling stations along the world's main trading routes," wrote Watson.

By using sailing ships to support steam, an effective trade-off was created and gave steam technology time to develop. As an effective stop gap, it is reminiscent of today's industry's use of low-sulfur LNG as a stepping stone to low-carbon fuel, which is taking time to develop.

Shipping has lived through similar transitions and came out more efficient, more knowledgeable, and better able to serve its customers.

It is ironic that the sailing ships of 200 years were emissions-free and that to move forward today the industry must find new ways of emulating these centuries-old credentials. Or maybe it is already in hand in the form of MOL's hard-sail wind-powered bulker. ■

Membership notes

We are pleased to welcome a new regular and one associate member of the association:

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- @ johnny.breivik@bergenhavn.no
- 🌐 www.bergenhavn.no
- 👤 Johnny Breivik, port director

Awake.AI

- 📍 Datacity, Lemmink isenkatu 14-18C, 20520 Turku, Finland
- ☎ +358 40 579 9552
- @ karno@awake.ai
- 👤 Karna Tenovu, CEO

Sustainability Awards 2021

We call upon all IAPH member ports to submit their projects for the 2021 edition of the World Ports Sustainability Awards. The competition aims to reward best practices and encourage ports to share their projects through the online portfolio of the WPSP. ■

Projects can be submitted by filling out the template form on the WPSP website:
🌐 bit.ly/WPSPAwards2021

Scholarships open to women

The IAPH Women's Forum welcomes your application for two scholarships.

The scholarships are intended to advance the status of women in the port industry by providing assistance for continued education and training. Two types of scholarships are available: the biennial training scholarship and the annual meeting scholarship. The Women's Forum biennial training scholarship is a supplement tuition for a port- or maritime-related course at a college, university, or other port-related training institutions. The applicant must be a female employee of any regular port members of IAPH. Eligible applicants will receive a scholarship worth up to \$15,000 for two years.

The Women's Forum annual meeting scholarship is for a presentation at the Women's Forum panel during the IAPH World Ports Conference in 2022. The applicant must be a female employee below the senior management level of any regular members of IAPH. Eligible applicants will receive a scholarship worth up to \$5,000.

Please send your application no later than 25 March 2021. The winner will be awarded during the 2021 IAPH World Ports Conference in June. ■

If you have any questions about the scholarships or would like to apply, please follow this link:

🌐 bit.ly/IAPHScholarship

IAPH announces theme and first speakers for World Ports Conference

We are pleased to announce that the IAPH World Ports Conference will take place from 21 to 25 June. The theme for this year's conference is 'Changing of the Guard'. The port landscape is transforming; ports can no longer afford to deal only with their land users and attract shipowners. They are finally bidding to offer long-term value to cargo owners as well.

In partnership with IHS Markit and the port of Antwerp, IAPH offers you a world-class experience of virtual and potential live, face-to-face interaction with the people who run and influence the world's ports. Organized along five thematic streams – climate and energy, risk and resilience, data collaboration, business innovation,

and The century of Africa – the conference will explore how the port landscape is transforming, featuring the influential players who are shaping the new, complex environment in which ports operate.

We are very proud to announce that the following top speakers have confirmed their participation: Sabrina Chao, BIMCO president-designate; Tan Chong Meng, PSA International Group CEO; Kelly Craighead, Cruise Lines International Association president and CEO; Kitack Lim, IMO secretary general; and Kunio Mikuriya, World Customs Organization secretary general. ■

Registration for the conference is now open
🌐 bit.ly/IAPH2021

EVENTS TIMELINE 2021

18

MARCH
(time tbc)

Discussion about ports leveraging diversity to propel innovation.

🌐 ihsmarkit.it/2LuN50DeI18

25

MARCH
(time tbc)

IAPH regional webinar for ports in West and Central Africa.

15

APRIL
4 PM CET

IAPH Climate and Energy Committee meeting via Teams.



IAPH VP for Central and South America, Tessa Major, tells *P&H* about local initiatives, a regional webinar, and planned future cooperation

Q&A

TESSA MAJOR
Director, business and innovation, Port of Açu, Brazil

Q: What was discussed in the webinar?

A: We gathered the main port stakeholders from the Latin America and Caribbean to debate future trends for ports in the region. We had a virtual debate on the challenges of various focus areas, such as digitalization, port-city relation, and collaboration for risk and resilience. Through case-study presentation, decision-makers of the port community shared their success practices to respond to these port challenges and offered an integrated approach for port development.

It was a unique opportunity to exchange different experiences within our region, such as the port community system adopted by Port of Kingston, Jamaica, and the port-city program that the National Water Authority of Peru has with its community.

I also shared the collaborative approach that we have at Port of Açu, Brazil, toward risk and resilience on a local and international level. Regarding local level, I highlighted the integrated approach we had in response to the worst oil spill in Brazilian history, which happened in 2019 in northeast Brazil. Port of Açu set up our Emergency Preparedness Project to define strategy, priorities, and lines of action to deal with the incident if the oil would come close to the 62km of coast near our port area.

We were the only port in Brazil to lead a daily monitoring with ports, companies, local fishermen, and public entities. The project won the WPSP Award 2020 in the category Safety and Protection.

Q: What are the challenges the Central and South American ports have to tackle that you hope IAPH can help with?

A: In 2020, IAPH has identified and set up three strategic focus areas and technical committees for the upcoming years: climate and energy, data collaboration, and risk and resilience. The committees are the backbone of IAPH's work and seek to increase the added value for their members.

This collaborative work allows us to gather and share the best know-how and experience from ports all around the world. All IAPH members and associates are welcome to nominate experts to participate in the new committee.

The main benefits of engaging with IAPH's extensive work are the acceleration through collaboration and co-creation, the dynamic knowledge sharing, and robustness of thinking through understanding different views and approaches, as well as connecting to the larger network of IAPH.

Q: What is next for IAPH in Central and South America?

A: The association is strengthening its relationship with ports from Central and South America as we have a very fertile environment to promote the ports regional interests through strong relationships, collaboration, and shared strategic information. This will help the regional port sector to solve common problems, promote sustainable port practices, and continuously improve how ports respond to demands of the maritime community.

We plan to continue working on the exposure of IAPH as an association within Central and South America, growing the membership and ensuring through regional communication that the voices of Central and South America are heard in the global perspective of IAPH and the port sector. It is our hope that the region continues to take the lead in initiatives such as the COVID-19 task force.

The interest within the region can be seen in the COVID-19 Barometer, in which the Central and South American region ranked the second highest in participating in the survey.

Q: Are you looking for a specific cooperation?

A: Particularly, I am chairing the Risk & Resilience Committee of IAPH. This is a reshape of the COVID-19 task force to take advantage of the structure that had been working in a very effective way.

The new committee aims to promote discussions related to the medium- and long-term needs and business continuity of the port industry. The main short-term deliverables are the creation of a guidance document (led by Port of Antwerp) and a global survey (led by Port of Açu) on risk and resilience in ports.

I look forward to welcome as many experts from member ports as possible to our committee. When we put more brains to work together, we achieve better and faster results for our port development. ■

IAPH INFO

Photo: Porto of Açu, Brazil

22

APRIL

4 PM CET

IAPH Risk and Resilience Committee meeting via Teams.

28

APRIL

4 PM CET

IAPH Data Collaboration Committee meeting via Teams.

21

21-25 JUNE

IAPH World Ports Conference will explore the transformation of port landscape.

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BOOK AUTHOR

JOHN DARWIN was until his retirement professor of Imperial and Global History at the University of Oxford. He is also the author of *After Tamerlane*, *Unfinished Empire*, and *The Empire Project*.

THE REVIEW

Unlocking the World: Port Cities and Globalization in the Age of Steam, 1830-1930

PATRICK VERHOEVEN



Steam globalization is the term that John Darwin used in his latest book *Unlocking the World* to define the period between 1830 and 1930.

He analyzed how the innovation of steam unleashed an unseen kind of globalization, powered by the steamship, the railway locomotive, the steam printing press, and the telegraph, binding together two great systems of the 19th century: free trade and empire.

Darwin, who until his retirement in 2020, was a professor of imperial and global history at the University of Oxford, UK, studied his subject from the angle of port cities, treating his reader to time-warp visits of iconic places such as New York, Singapore, Shanghai, London, Antwerp, and others. The basics of port competitiveness were founded in the age of steam and the first port authorities also saw the light of day in this era, such as the Port of London Authority, created in 1909 to coordinate all

the various elements of the port economy at a time when the volume and size of shipping were increasing rapidly.

One of the most significant findings of the book is that, culturally speaking, port cities were often not in tune with the rest of the country. Most of US opinion for instance remained resolutely continental rather than global in outlook, not least from mistrust in New York's cosmopolitan interests and liberal values, something which still seems valid today. Ports that could not count on the backing of a great inland power were often at peril, as the fate of Smyrna shows, a great port city that fell into decay once it lost the backing of Turkey.

Steam globalization developed under specific conditions, which makes it very different from today's globalization. It brought welfare to European powers and their settlers in North America and Australia, but it also thrived on colonization and slavery and it certainly did not bring

peace: between 1830 and 1914 nearly three hundred wars, on a huge range of scales, were waged across the globe. However, there was a *pax maritima* guaranteed by the hegemony of the British Navy.

Reading Darwin's book makes you invariably draw parallels with our age of globalization and the roles of ports and port cities. Maybe it is not COVID-19 that will bring a new global order, but there are certainly indications that a change of the guard may be upon us. As Darwin asked in his conclusion, "In 1913, the crash of a world so recently made would have been inconceivable. But at what stage are we in our own global cycle?" ■

John Darwin will be discussing his book, published by Allen Lane (Penguin), at the World Ports Conference, held 21-25 June, under the theme Changing of the Guard. Find out all details about the program on www.worldportsconference.com



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