



PORTS & HARBORS

Official Journal of the International Association of Ports and Harbors

The crux of the matter
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Automation plans for US and Australia

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Salerno's terminal tribute to architect

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container handling and port equipment



DK086
Linde C4540TL
Year of manufacture: 2013



D3470
Linde C4234TL
Year of manufacture: 2011



D3479
Linde C4531TL
Year of manufacture: 2009



D3458
Linde C4535TL
Year of manufacture: 2008



D3450
SMV SC4542TB5
Year of manufacture: 2011



D3384
SMV 4535TB5
Year of manufacture: 2008



D3452
SMV 108TB6
Year of manufacture: 2012



D3435
Kalmar DRF450-65SSL
Year of manufacture: 2011



D3445
Kalmar DRF450-60S5
Year of manufacture: 2010



D3478
Kalmar DRF450-60CSX
Year of manufacture: 2005



D3475
Kalmar DC4561SR54
Year of manufacture: 1996



D3448
CVS Ferrari F479.5
Year of manufacture: 2008



DK098
CVS Ferrari F269.5
Year of manufacture: 2001



D3469
CVS Ferrari F258.6
Year of manufacture: 2003



D3439
Fantuzzi CS45KS
Year of manufacture: 2005



D3449
Fantuzzi SC45KM
Year of manufacture: 2003



D3462
Svetruck ECS-7H-DS
Year of manufacture: 2011



D3456
Kalmar DCF100-45E7
Year of manufacture: 2008



D3460
Kalmar DCE100-45E7
Year of manufacture: 2008



D3455
Kalmar DCE100-45E7
Year of manufacture: 2008



DK089
SMV 5/6 ECB90
Year of manufacture: 2007



D3436
Valmet TD4212
Year of manufacture: 1994



D3453
Steinbock Boss G4212CH/MKIVA-2
Year of manufacture: 1990



DK038
Herbst - ATAIR HFH ATAIR IX D620
Year of manufacture: 2008



D3480
SMV SL45-1200B
Year of manufacture: 2008



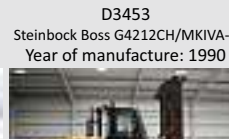
D3454
Kalmar DCF420-1200
Year of manufacture: 2008



D3362
Svetruck 32120-47
Year of manufacture: 1999



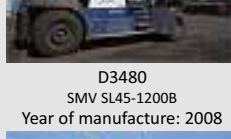
D3389
Kalmar DC32-1200
Year of manufacture: 1991



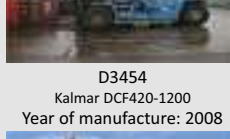
D3464
Hyster H18.00XM-12
Year of manufacture: 2008



G0870
Hyster H16.00XM-6
Year of manufacture: 2008



D3395
Hyster H16.00XM-12
Year of manufacture: 1999



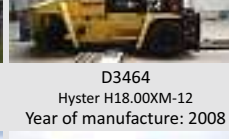
D3328
CVS Ferrari F16
Year of manufacture: 2003



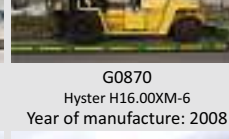
D3397
Svetruck 13.6-120-32
Year of manufacture: 2008



D3255
Svetruck 13.6-60-30
Year of manufacture: 1996



D3442
Svetruck 1260-30
Year of manufacture: 2011



D3313
Manitou MRT1850
Year of manufacture: 2001



D3395
Hyster H16.00XM-12
Year of manufacture: 1999



D3328
CVS Ferrari F16
Year of manufacture: 2003



D3397
Svetruck 13.6-120-32
Year of manufacture: 2008



D3255
Svetruck 13.6-60-30
Year of manufacture: 1996



D3442
Svetruck 1260-30
Year of manufacture: 2011



D3313
Manitou MRT1850
Year of manufacture: 2001

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Billions of dollars are earmarked for port developments in Africa but will it mean more efficient supply chains?

Photo: Shutterstock

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Times of change

Impact of the expanded Panama canal will soon
be realised, and IAPH is to elect three new VPs



Susumu Naruse

Secretary General – The International
Association of Ports and Harbors



The IAPH Mid-term Conference 2016 in Panama City was a great success, with nearly 200 participants. The conference covered many issues including the Panama Canal expansion, the Panamanian port system and opportunities and port development in Latin America. As the new Panama Canal was set to mark its opening day on 26 June, those IAPH members present were keen to learn more about the expansion and the expanded canal's implications for maritime trade. The technical visit to the Gatun Locks, one of the three lock systems, was well-attended by interested participants, keen to view the project in person.

A lot of studies and reports on the impact of the new canal have been published, giving differing views. Some predict a negative impact, saying the expansion will not be significant at first given the state of the global economy. Others put forward a positive view that oversized ships such as LNG carriers will still prefer the expanded canal despite the expensive tolls. Which one of these many views will be proved to be true will be obvious after vessels use the new canal.

The IAPH Board of Directors issued three resolutions on the pressing disputes surrounding the port and maritime industry namely, “the smooth implementation of the SOLAS Convention on the VGM of containers”, “ratification of HNS Protocol” and “fuel oil quality for sea-going ships”.

At the meeting, the two winners of the inaugural IAPH Women's

Forum scholarships – Biennial Training Scholarship and Annual Meeting Scholarship – were named. The winners are due to make presentations at the Bali Conference next year. The nine IAPH technical committees had useful meetings, where the themes and evaluation procedures for the five IAPH awards competitions for Bali were agreed.

Prior to Panama, the new constitution was approved by the membership. The IAPH has been run under the new constitution as of 1 June. Now that the regional classifications are broken down into six regions, rather than three, we have to elect the vice presidents for each region. This process has started and the new vice presidents will be elected by the end of July. These VPs will be the core of the new governing body. Lastly, as the previous Board of Directors and Executive Committee ceased to exist as of the end of May, I would like to express my sincere appreciation to those members for their contributions. PH

“IAPH's classifications
are now broken down
into six regions, as
opposed to three”

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Port updates

► INDIA OFFSHORE

H-Energy expects to award the tender for India's first offshore liquefied natural gas (LNG) terminal in West Bengal by the third quarter of 2016. The floating storage regasification unit (FSRU) is due to be operational by the second quarter of 2019 when, together with a new 715 km pipeline, it will supply gas to customers throughout eastern India.

► DEEPER DEPTH FOR PAYRA

Payra Port Authority (PPA) and Belgian dredging giant Jan De Nul (JDN) have signed a memorandum of understanding (MoU) for capital dredging and ongoing maintenance dredging work to develop Payra deepsea port in Bangladesh in a deal likely to be worth USD2 billion. Payra, which is included in the government's fast-track projects list, will be the country's third major port after Chittagong and Mongla.



► SOMALILAND TIE-UP

Dubai-based global port operator DP World has signed a 'term sheet' agreement with the government of Somaliland to invest USD442 million to develop the Port of Berbera and support trade in the Horn of Africa.

► EOS INVESTS IN CHILE

Energy development company Eos Investment has finalised an agreement with a strategic investor and liquid natural gas (LNG) supplier for its new offshore facility in Chile. The Houston-based firm said its Chilean LNG import terminal company, GNL Talcahuano SpA, had successfully submitted the environmental impact study for the floating regasification terminal (FSRU), which it expects to be operational by 2019.

Bolloré to build Timor-Leste's new port under a PPP



Bolloré's new terminal will sit in Timor-Leste's Tibar Bay at Dili

France's Bolloré Group has signed a 30-year, USD490 million concession contract with the southeast Asian state of Timor-Leste to build the country's primary international seaport. The historic deal is the first public-private partnership (PPP) undertaken in the post-conflict country as well as the largest ever investment with a private partner.

The project will replace the existing capacity-strained and congested Port of Dili with a modern container port at Tibar Bay, about 12 km from the capital, which will have the capacity to handle up to 350,000 teu. The port will take three years to build.

The International Finance Corporation (IFC), a division of the World Bank that advised the government on the PPP transaction, said the total cost of the project could be up to USD650 million. The IFC estimates that total construction costs will be between USD290 and USD390 million, with capital expenditure for operations being between USD190 million and USD260 million.

The port will consist of a 630 m wharf with a 15 m draught and 24 ha container yard. Two ship-to-shore cranes and five rubber-tired gantry cranes will be employed at the start of operations.

"Strong economic growth is [set] to drive continued import demand and cargo growth from around 50,000 teu in 2012 to a forecast 350,000 teu in 2040," said Jakarta-based Laurent Fremy of the IFC.

Dili Port is a small facility originally built for breakbulk operations and has a wharf length of 285 m and an alongside depth of just 7 m. It can handle vessels of up to 500 teu only and there are delays in berthing when several vessels arrive at the same time.

The rate of delays is increasing, cargo volumes are growing, and port capacity is limited on the landside. Dili is expected to experience critical congestion levels by 2018. The concession deal is for a 30-year term on a build-operate-transfer (BOT) basis, during which the government will receive royalties, fees, and taxes from the operation of the port.

In a statement announcing the signing of the deal, Bolloré said, "Timor-Leste's new container terminal will target productivity and performance levels in line with those of the world's biggest ports."

Timor-Leste has USD10 billion in sustainably managed funds from its oil reserves which it is using to rebuild its economy and the country's GDP has been growing steadily in recent years, rising by 6.2% in 2015 and projected by the

Asian Development Bank to grow by 6.6% in 2016. Development of the port is part of a 20-year strategic development plan to build core infrastructure.

Cargo throughput has been growing steadily and economic and population growth are expected to drive steady growth in the demand for containerised cargoes. As per capita income increases, there is also high growth anticipated in non-containerised cargo such as vehicles and construction materials.

According to Fremy, structuring the deal posed some significant challenges, in part because there was no previous experience of PPP transactions in Timor-Leste.

Fremy added that there was a challenge in determining an appropriate financial structure because of many moving parts, such as uncertainties regarding inflation, the determination of appropriate and realistic revenue levels during, for instance, the transition phase, the moving of operations from Dili to Tibar Bay, and further issues.

Bolloré Logistics has operated in Timor-Leste since 1999 and is the largest logistics support services company in the country, providing services including freight forwarding, customs brokerage, and stevedoring.

First automated steel hub opens in the UK

Port of Liverpool owners Peel Ports has opened the UK's first automated steel terminal and has also confirmed plans for a second, similar facility at the Port of Sheerness in southeast England.

Built at the port's Canada dock, which has an depth alongside of 11.5 m, and costing GBP9 million (USD13 million), the terminal is a response to increasing customer demand for shipping via Liverpool and will provide both more capacity and much improved handling. Liverpool is the closest deepsea port to the West Midlands, where about half of the UK's steel is consumed.

Speaking to *P&H*, a port official said, "Liverpool predicts imports of up to 500,000 tonnes of steel annually. We see great growth opportunities based on the advantages offered by the new



Liverpool's new steel terminal. A second facility is planned at Sheerness

facility. It has taken 11 months to build and investment has included a coil turning machine, six MAFI trailers and also four Tug Masters.

"The terminal features a fully automated warehouse and an interactive web portal, which means customers will have round-the-clock instant access to the ordering process, along with real-time stock availability, precision coil selection, and a vehicle booking system. It will minimise

back office paperwork, handling, and haulier turnaround time.

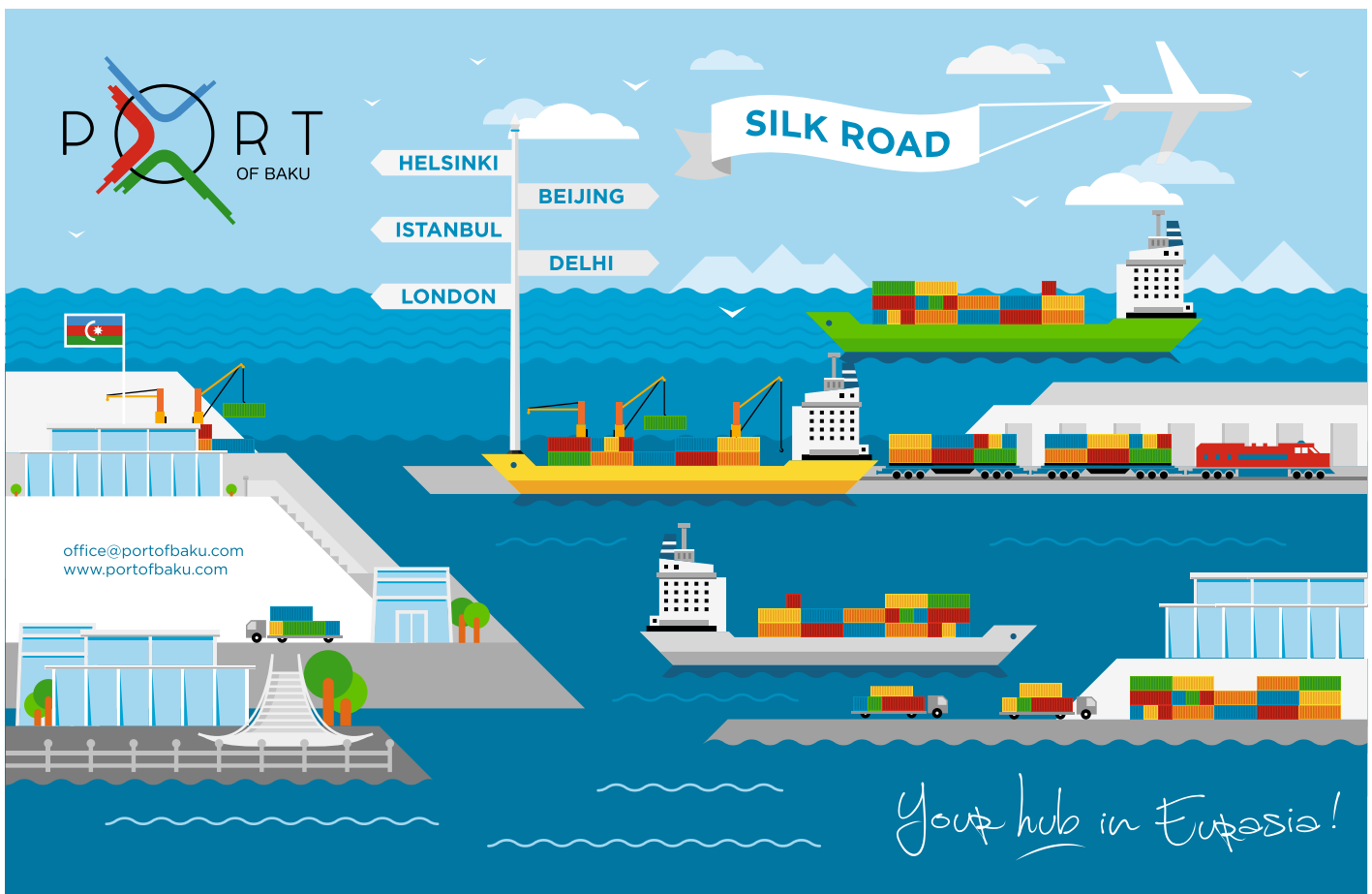
"The terminal also includes an automatic weighing facility, and instant reporting means that customers will be able to track their orders in real time".

The site gives 24,200 m² of internal and 9,300 m² of external storage, with 80,000 tonnes of capacity within the coil facilities. It has an annual throughput capacity of 500,000 tonnes.."

Port updates

► THAILAND SECURES LNG

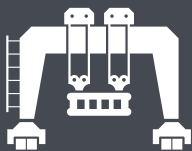
Thailand's largest energy company, PTT Plc has been given approval to construct a new THB36.8 billion (USD1.03 billion) terminal as the country takes measures to secure its future energy needs. The national energy policy commission granted permission to construct the new terminal in eastern Rayong province. It will have an initial capacity of 5 million tonnes/year and be completed during 2022, energy minister Anantaporn Kanjanarat told journalists.



Port updates

► CHENNAI WINS ON DEPTH

India's eastern coast port of Chennai has apparently become the deepest among the 12 state-owned ports by dredging its berths at Ambedkar dock to 15.5 m, a draught capable of docking 8,000 teu container ships. However, the port has deferred a plan to build an outer harbor to handle clean cargo such as liquid, breakbulk, and containers, due to slowing cargo growth. Singapore's PSA International runs a container terminal in Ambedkar dock, one of the three docks at the port.



► TAX DEALS IN GWADAR

Pakistan is introducing extensive, long-term (20-year+) tax concessions for Chinese companies operating at the Port of Gwadar's free zone on the Arabian Sea to attract greater investment under China's One Belt, One Road programme. Gwadar is currently leased out to China Overseas Ports Holding Company Limited (COPHL), which is working on enlarging the port's annual cargo-handling capacity to 1 million tonnes, a project expected to be completed next year.

► COLON DEVELOPMENT

Chinese consortium Panama Colon Container Port (PCCP) has reached agreement on a deal with the Panama Maritime Authority (AMP) to construct the first terminal in Colon, at the Atlantic entrance, able to handle post-Panamax vessels. A container terminal with a capacity of 2.5 million teu per year will be constructed with a quay length of 1,200 m and a draught of 18 m. The project will include additional private lands with multipurpose possibilities, such as LNG facilities or energy projects.



Captain Peter Newton

A feasibility study is being carried out to offer LNG bunkers at Port of Yokohama

LNG bunkering for Yokohama port under consideration

Japan's Ministry of Land, Infrastructure, Transport and Tourism (MLIT) has begun a feasibility study into providing LNG bunkering in the Port of Yokohama, one of Japan's busiest.

The study group includes the ports and maritime bureaus of MLIT, the country's second-largest shipping line Nippon Yusen Kaisha (NYK), the Japan Coast Guard, the Agency for Natural Resources and Energy, Tokyo Gas, the Port and Harbor Bureau of the City of Yokohama, and Yokohama Kawasaki International Port Corporation.

The group held its first meeting on 9 June and aims to roll out LNG bunkering in Yokohama by the end of 2016. The MLIT hopes

that this will bring Yokohama into line with other 'green' ports.

A statement from NYK said, "Offering LNG as ship fuel is based on the business strategy which was formulated in the new medium-term management plan 'More Than Shipping 2018 – Stage 2' to showcase our technical capabilities."

In August 2015, *Sakigake*, an LNG-fuelled tug that NYK ordered, was completed. The vessel is currently supplied with LNG fuel from Tokyo Gas using a truck. NYK said, "We have also started the construction of the world's first LNG-fuelled car carriers and an LNG bunkering vessel. We will continue to contribute to the further spread and development

of LNG as ship fuel, through our participation in this study group."

The study group will explore the development of a supply base for LNG fuel in Yokohama, with the aim of formulating a facility development plan that will put Yokohama on track to become the first Japanese port to provide LNG bunkering.

Shanghai, Singapore, and the South Korean ports of Busan, Incheon, and Ulsan are also looking into providing LNG bunkering. While LNG bunkering infrastructure remains underdeveloped in Asia, MLIT believes Japan is in a good position as it has been the world's largest LNG importer and several ports in the country have LNG storage tanks.

Cuba plans container terminal expansion

Plans are now in place that are set to transform Cuba's Mariel container terminal facility, operated by PSA International and opened in 2014, into a major transshipment hub once the US trade embargo with the island has been lifted, according to TC Mariel general director Charles Baker.

Speaking recently at the Caribbean Shipping Association Executives' Conference held near Port

Canaveral, Florida, Baker described a number of issues that had led to the formation of the plan.

Included among the points raised by Baker were the surging cargo volumes at the TC Mariel terminal, together with the operator's short- and long-term expansion plans, and its longer term strategy to eventually diversify from domestic cargo towards transshipment.

Landbridge invests in Darwin

China's Landbridge Group, which secured a century-long lease for Darwin Port in 2015 amid much controversy, is now actively investigating new investments in northern Australia, with a view to maximising the port's development and throughput.

The company, controlled by Ye Chang, is pursuing what it called 'synergistic opportunities' for the Northern Territory port within its business network in China, according to the port's strategic development plan for 2016.

In late May Landbridge said that it was investing an additional USD25 million in expanding the port, including a 1 km extension of its quay. The expansion is to create capacity for future increases in cargo volumes in dry bulk exports, liquid bulk imports, live cattle, and container and general cargo.

Darwin is a relatively small port; it handled 1.3 million

tonnes of cargo in 2015, but it has a strategic location close to Asia. It is a support hub for several of the area's major oil and gas projects including the ConocoPhillips' Bayu Undan and Greater Sunrise gas fields, around 500 km and 450 km offshore of Darwin, and the Bonaparte liquefied natural gas (LNG) project in the Timor Sea.

It is the world's largest livestock export port, shipping more than 600,000 head in 2015, mostly to destinations in Southeast Asia.

In October, the Northern Territory government signed a USD506 million deal that leased the port to Landbridge for 99 years. It gives Landbridge operational control of the port and 80% ownership of the port land as well as the East Arm Wharf, 17 km from Darwin, and the Darwin Marine Supply Base and Fort Hill Wharf.

"One of the first activities under

Landbridge has been to fast-track construction of a new hardstand area that will be utilised for increased refrigerated container connections," Darwin Port CEO Terry O'Conner told *P&H*. "Demand in Asia for products such as meat, seafood, and other agricultural products will continue to grow."

The port is expanding the capacity of its refrigerated container park from 50 to 200 reefer points. This also includes a doubling of the length of the wharf area towards Darwin, the building of a harbor support vessel facility, and an upgraded cruise facility. The existing container yard will be quadrupled in size.

"In a staged approach, with land reclamation adjacent to existing container park facilities, Darwin Port will be able to achieve a container capacity throughput of up to 500,000 teu per annum," the group said.

Port updates

► FELIXSTOWE WEIGHS UP

The Port of Felixstowe has selected Bromma to supply twistlock based weighing systems to its spreaders. "We want to have a system that weighs the container as part of the normal operating cycle," said Stephen Abraham, COO of Port of Felixstowe in a statement. Lars Meurling, marketing director of Bromma, said. "We know the system performance including the fact that it performs well within the requirements established by the authorities in the UK."

► TRUCK SAFETY AT APMT

APM Terminals has announced a new Truck Safety programme to be put into effect by the end of 2016 throughout the company's terminals. "The basic concept here is to eliminate the risk of accident or injury to the thousands of truck drivers who enter our facilities daily by strictly enforcing a 'stay in the cab' mandate for external truckers, with clearly identified designated safe zones," said Kevin Furniss, the company's VP for health, safety, security and environment.



► CHINA'S IRON STACKS UP

Iron ore inventories at 46 Chinese ports amounted to 100.45 million tonnes as of 20 May, 1.55 million tonnes more than the previous week and a record high since March 2015, according to data from Shanghai Steelhome. These stockpiles, based on current operating levels, will allow Chinese mills to maintain their production for 30.46 days, China Galaxy Securities has forecast. Chinese mills' output was 96.68 million tonnes in April, up 0.5% on April 2015.

Piraeus plan goes to Greek parliament

Shareholders of Greece's Piraeus Port Authority (PPA) have approved a concession agreement with COSCO Shipping Group, paving the way for the acquisition of a 67% stake in the port by the company. The deal to sell the stake to COSCO for EUR368.5 million (USD414.5 million) was signed in April, and will now be voted on in the Greek parliament. The Greek competition watchdog must also give its approval.

PPA shareholders approved the concession contract between the state and PPA so that shares can be sold to COSCO from Greece's privatisation fund, the Hellenic Republic Asset Development Fund (HRADF).

The privatisations of the ports of Piraeus and Thessaloniki are part of government efforts to bolster Greek finances and increase the competitiveness of



COSCO is set to own 67% of Port of Piraeus

key sectors of the economy. The HRADF estimates the privatisation of Piraeus will benefit the economy to the tune of EUR1.5 billion by the time the concession agreement expires in 2052.

Port workers opposing the sale are demanding the government protects their labour rights and have been on 48-hour rolling strikes since the end of May.

COSCO will initially purchase a 51% stake in the port for EUR280.5 million and another 16% within five years for EUR88 million. The company said it would invest a further EUR350 million in the port's infrastructure. Its subsidiary Piraeus Container Terminal (PCT) currently operates Piers II and III at the port under a 35-year concession.

Shutterstock

The International Maritime Organization's long term remit should concern itself with the socio-economic development of maritime nations, promoting the sea and ports as wealth creators, says **Chris Trelawny** special adviser on maritime security and facilitation to its secretary-general

a number of other issues of relevance to port security. It has become clear that one of the major challenges is that maritime security and maritime law enforcement are seen as departmental issues – issues for the navy, or the coast guard, or the police, or the maritime authority, or customs and border control – with those agencies competing for scarce resources, rather than being part of a national, multi-agency response to

developing the port and maritime sector.

In addition to piracy and armed robbery against ships, there are other significant challenges. In 2013, five countries suffered terrorist attacks that resulted in more than 500 deaths. In 2014 this rose to 11 countries. In 2015 an estimated 1,008,000 migrants arrived in European countries by sea, up from 210,000 in 2014.

Destructive and unsustainable levels of illegal, unreported and unregulated fishing continue unabated. Trafficking in weapons, drugs, and people is increasing and threatens the cohesion of societies. The uncontrolled export of illegal wildlife and illegal wildlife products threatens ecosystems and sustainable tourism ashore.

As with piracy and armed robbery against ships, these are symptoms of ineffective governance ashore, problems that are exacerbated by climate change, population increase, youth unemployment, food insecurity, and lack of economic diversification. Efficient and effective port security is becoming increasingly important.

In many countries, security is focused on protecting government institutions, rather than being about creating stable conditions for trade to flourish. Few governments feel threatened from the sea and the port and maritime security sector is resourced accordingly.

This needs to change. A joined-up approach is needed at port, national, and regional level. Without co-operation, co-ordination and communication between all stakeholders in ports, for example, through a port security advisory committee, and at national level through a national maritime



‘It will need the full support of the port sector . . . to treat safety, security and reputation as both desirable and marketable’

Chris Trelawny, special adviser, IMO

security and facilitation committee, security will not be effective.

However, we cannot afford to just focus on the short-term security issues: we need to address the root causes and help find solutions and an efficient port sector can greatly assist in this. Taking Africa as an example, the population of sub-Saharan Africa will more than double by 2050. The gross domestic product of sub-Saharan countries is not growing fast enough to meet the demands of the increasing population.

IMO's long term strategy should therefore be to help member states create conditions for increased employment, prosperity, and stability through promoting trade by sea, enhancing the port and maritime sector as wealth creators, and developing a sustainable blue economy, underpinned by good maritime security. As well as making best use of available resources, this approach complements the sustainable development goals, African Union initiatives, and the United

Nations strategy for preventing violent extremism. The focus should therefore be on helping member states to develop and implement maritime and maritime security strategies that invest in a joined-up, inter-agency approach to address the whole range of issues, including trade facilitation, navigational safety, protection of the marine environment, energy supply security, maritime counter-terrorism, trafficking and other illicit activities at sea, and preventing illegal fishing, as well as countering piracy and armed robbery against ships.

In order for this strategy to succeed, it will need the full support of the port sector. A port sector supported by government, able to streamline procedures and remove excessive barriers to trade, to embrace new technologies, to root out the cancer of corruption and to treat safety, security and reputation as both desirable and marketable, will be a major driver towards stability and sustainable development. **PH**

IMO's security story

A raft of 'new' security measures was introduced to the international maritime industry, including the port sector, on 1 July 2004. These measures, the 'Special measures to enhance maritime security' detailed in chapter XI-2 of the International Convention on the Safety of Life at Sea, 1974, as amended (SOLAS), and in part A of the associated International Ship and Port Facility Security Code (ISPS Code), are mandatory for all SOLAS contracting states. They address the responsibilities of governments, administrations, companies, masters, ships' crew members, and port personnel with regard to the implementation of preventive security measures to help safeguard ships and ports from terrorist attacks and other unlawful acts.

Although these measures were widely seen to be introduced in response to the attacks in the United States on 11 September 2001, they were not actually new and dated back to the *Achille Lauro* cruise ship incident in 1985.

Following adoption of SOLAS chapter XI-2 and the ISPS Code, IMO has developed a range of guidance and tools to assist in the better implementation of security measures in ports and port facilities, including model courses, guidelines on training and certification for port facility security officers (MSC.1/Circ.1188), and guidance on voluntary self-assessment by

SOLAS contracting governments and by port facilities (MSC.1/Circ.1192), both of which were incorporated into the *Guide to Maritime Security* and the *ISPS Code*, published in 2012. IMO has recently developed new security courses including *ISPS Code* refresher training and how to run maritime security drills and exercises.

Recognising that SOLAS addresses issues at sea, IMO co-operated with the International Labour Organization (ILO) to extend the reach of the *ISPS Code* into the wider port area through the *ILO/IMO code of practice on security in ports*. This excellent publication built on the *ISPS Code* and included guidance on port security advisory committees and a model threat risk assessment matrix, a tool to help prioritise security responses. IMO also co-operated with the World Customs Organization (WCO) to develop the SAFE Framework of Standards to secure and facilitate global trade, adopting a risk-based approach to securing the global supply chain.

The *ISPS Code* and the associated measures for ports and port facilities represented a pragmatic, risk-based international framework between governments, agencies, and the port and shipping sectors to detect and deter acts that threaten security.

Joining up investments

The money is flowing but more is needed if Africa's supply chain efficiency levels are to reach those of other regions', reports **Turloch Mooney**

Africa is seeing vast sums of money go into its port infrastructure with multiple players from different regions of the world investing in billion-dollar-plus projects all over the continent.

The key locations for investment in sub-Saharan Africa ports are in South Africa, Kenya and Tanzania in the east at the ports of Mombasa, Dar es Salaam and Bagamoyo, as well as Djibouti. On the west coast Takoradi and Tema in Ghana are also benefitting, along with Nigeria, Togo, and Côte d'Ivoire. Both Kribi in Cameroon and Matadi in the Democratic Republic of Congo (*see page 12*) are also being developed.

Despite this investment in projects and related supply chain infrastructure there remains a very large efficiency gap between port and supply chain operations on the continent and those of other regions, according to Ghana's minister of transport, Franklin Fiavi Fifi Kwetey.

"Africa currently trails [behind] other regions in terms of infrastructure quality and supply chain efficiency and this suppresses growth in our economic activity," the minister told delegates at an

intermodal conference in the country's capital, Accra.

A modernised regulatory regime that supports and facilitates private sector investment is crucial and has been prioritised by the government to help secure the required level of investment, the minister said.

"Our intermodal transport system is inadequate and additional investment is needed in port infrastructure and hinterland link systems including roads, railways and inland waterways."

Close to 90% of goods in Ghana are currently transported by road. The poor condition of roads, widespread corruption in the form of informal payments and expensive risk mitigation efforts make inland transportation costs prohibitively high. Combined with a lack of harmonisation in standards and permits and cross-border customs requirements such as documentation, this severely limits the potential of the country to act as an effective seaborne trade gateway for landlocked neighbouring countries such as Burkina Faso, Niger and Chad.

A study by the Ghana Shippers Authority (GSA) into corruption on routes from Ghana's primary port of Tema to landlocked Burkina Faso, which relies on West African ports for its import and export trades, found shipments were subjected to checks at multiple police and customs checks. A trial truckload of cargo from Tema to Paga on the border of Ghana and Burkina Faso was stopped at 41 police and 12 customs barriers, the study found.

"We are not trading among ourselves. The infrastructure is not there. Customs procedures are too bureaucratic and there is no harmonisation of standards, regulations, and documentary requirements between the countries," said GSA CEO Kofi Mbiah.

Tema, which handles 85% of the country's seaborne trade, is being expanded to three times its current capacity. The USD1.5 billion joint

investment by APM Terminals, French firm Bolloré Africa Logistics and the Ghana Ports and Harbour Authority (GPHA) will add four deepwater berths with an ultimate annual capacity of 3.5 million teu.

A six-lane highway connecting Tema with Accra is also being constructed to help ease the flow of cargoes to and from the port and as a start to the development of efficient transport corridors to support trade growth in Ghana as well as neighbouring countries.

"This will enable Ghana's trade for the coming decades, and support more efficient flows of exports as well as imports", said Nils S Andersen, Maersk Group chief executive officer in a recent visit to the country which was his second in less than two years. Maersk Line and Safmarine between them currently handle about one third of Ghana's export cargo volumes.

"Ghana is important to the Maersk Group. Ghana represents 5% of Maersk Group's business in Africa, which is quite a lot and it's a country where we want to invest more."

A USD400 million expansion project at the western Ghanaian port of Takoradi is also under way. According to Paul van Eulem, a director with Netherlands-based Maritime & Transport Business Solutions, which is assisting with the formation of the structure of the public private partnership arrangement and the development of the tender processes for the project, the size and capacity of the port is to be effectively doubled with the addition of new dry bulk, liquid, container and ro-ro terminals as well as an offshore oil supply base. The initial port expansion works are due for completion in the second half of 2017 and the tender for the first terminal, the dry bulk terminal, will be released within the coming weeks, van Eulem said.

An Eastern Railway Corridor project aimed at relieving congestion at Takoradi and Tema and



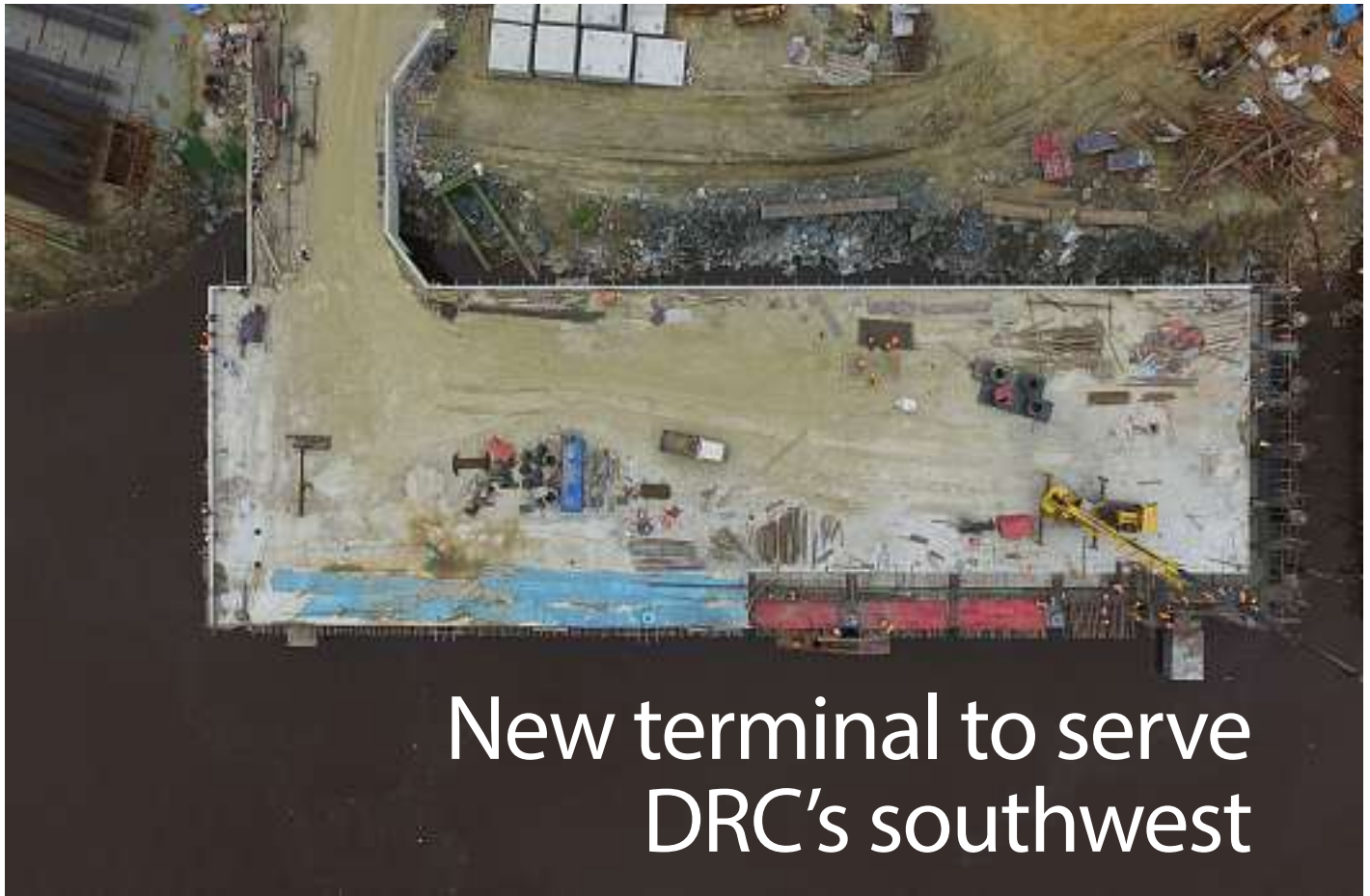
connecting the ports with northern Ghana is due to commence this year, said minister Fifi Kwetey.

With multiple west African countries in broadly similar positions as Ghana in terms of seeking funding to develop port and supply chain infrastructure there is significant competitive pressure to secure funding, said Richard Anamoo, director general of GPHA.

"We used to rely on public sector funding for infrastructure developments. But the requirements are too large and there are so many demands on the public budget that we can no longer do that."

According to Anamoo, as well as challenges quite specific to Ghana and much of sub-Saharan Africa generally, such as poor basic infrastructure, security and corruption problems, the country also faces normal industry challenges seen in other parts of the world, including dealing with the influx of larger vessels and new and changing regulatory requirements such as the SOLAS weight verification requirement that came in at the beginning of July. **R&I**

i MORE INFO: shippers.org.gh



New terminal to serve DRC's southwest

ICTSI has identified the Port of Matadi as having huge market potential. **Shem Oirere** reports

The Democratic Republic of Congo's (DRC) exports and imports have substantially increased in recent years creating demand for efficient transport systems. Analysts say that the DRC's annual exports and imports between 2001 and 2011 grew from 8.6% to 12.3% with the World Bank saying that the country's economic growth has been on a surge following a slump in 2009 that brought the growth rate down to 2.8% "due to the global financial crisis."

Between 2010 and 2014 the DRC reported an annual average economic growth rate of 7.7% and a similar performance in 2015, which the bank said "are well above the average in sub-Saharan Africa." "This performance is driven by robust extractive industries and related investments despite the global economic slowdown and the decline in the demand and price for minerals exported by the DRC," the bank said in April.

Global container terminal operator International Container Terminal Services Inc (ICTSI) is betting on the country's high potential for growth backed by huge mineral and agricultural resources to invest an

estimated USD100 million in a new container terminal at the country's largest port, Matadi, on the banks of the 4,370 km-long Congo River, the world's second-biggest river by discharge after the Amazon.

ICTSI and other private investors have been attracted to the DRC's maritime industry because of the ongoing public investment and the implementation of prudent fiscal and monetary policies which have helped bring down inflation.

The terminal, with an annual capacity of 175,000 teu on six hectares of land, has been developed by ICTSI DR Congo, a joint venture between ICTSI subsidiary ICTSI Cooperatif and La Societe De Gestion Immobiliere Lengo (SIMOBILE). The initial stage of the first phase consists of one berth, due to come online in August of this year. ICTSI DR Congo has developed the terminal under "a build, manage and operate" contract.

According to Tim Vancampen, CEO of ICTSI DR Congo, manager and operator of the Matadi Gateway Terminal, "the captive market for Matadi is the west of the DRC including Kinshasa, which is the largest city in central Africa and the third largest in Africa.

"Our ambition is to become an important port of call for central Africa. ICTSI was attracted by the huge market potential and the need for more infrastructure as existing infrastructure is severely congested," he told *P&H*.

Phase of one of the project, will be fully complete in November when the second berth comes online. The two berths will have a total quay line of 350 m, with a depth alongside of 12 m “at all times” which enables the port to accommodate Panamax, Handymax and Wafmax vessels.

“The new terminal will deliver purpose-designed container handling capacity coupled with modern general cargo handling and storage facilities,” ICTSI said in February. ICTSI DR Congo said it would deploy a Navis N4 operating system at the new terminal and “heavy-duty mobile cranes with reach stackers.”

According to Hans-Ole Madsen, ICTSI senior vice-president for the Europe, Middle East and Africa regions the terminal operator is optimistic that there will be enough demand to warrant a second phase of the Matadi terminal and the company is “confident that we can build on the new efficiencies that phase one will deliver including reduced vessel waiting times and reduced transit times for goods from the point of origin to destination.”

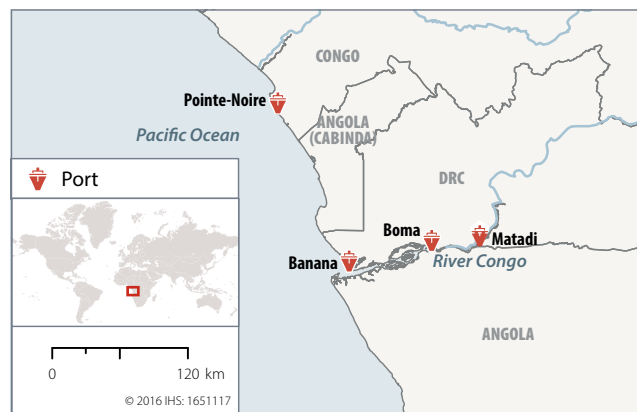
ICTSI added that it is investigating the “impact and opportunities for dredging the river in steps of from 7.3 m to 9.1 m, 11 m and eventually possibly even 12 m.”

“With the material to be dredged mainly sand, there is considered to be real scope to achieve this together with the delivery of wider economic benefits,” it said.

Vancampen added that the section where the Matadi terminal is being developed does not have depth issues and there is no dredging at the terminal “because we are building a jetty out in the river, and will have a depth alongside of 12 m at all times.

“Even between Matadi and Boma there are no depth issues but the bottleneck is the threshold between Boma and Muanda which is currently limited to 7.9 m.” The DRC government has awarded a 10-year maintenance dredging contract to DEME to maintain the 7.9 m depth “although we and several other parties are interested in going beyond the 7.9 m,” said Vancampen.

Despite the investment by ICTSI in DRC’s maritime industry, international consultancy PricewaterhouseCoopers (PwC) said the country’s infrastructure was generally poor, with connection to ports “hampered by



the country’s nature and vast distances”.

DRC has an estimated surface area of 2.3 million m², equivalent to two-thirds of the European Union. “No ports in the DRC can take direct calls from conventional cargo liners and the country has to rely on transshipments from Pointe Noire in the neighbouring Republic of Congo using smaller vessels,” PwC said.

Apart from Matadi, DRC’s other ports are Boma and Banana which PwC said “have low capacity and a low draught and are unable to fulfil the needs of the western part of the country adequately.”

It said in an analysis of the DRC’s transport and logistics, “The Port of Matadi on the Congo River is playing a greater role in serving Kinshasa and the southwest of the country, but also has limited cargo-handling capacity and a low draught, as well as costly and inefficient port services.

“While an improved Port of Matadi will be able to service the southwest DRC for some years to come, in the longer term additional capacity will need to be found,” the consultancy firm claims.

PwC has proposed two options for DRC in order for it to achieve efficiencies in its existing low-capacity ports including a USD2 billion investment in the development and conversion of the Port of Banana into a deepwater port, which it believes will take 10 years to complete.

“The other option involves strengthening land links with the Republic of Congo to facilitate access to the Port of Pointe Noire,” it said. Bolloré Africa Logistics has invested in the Congo Terminal at the port, which is one of Central Africa’s established oil and fishing centres.

Despite these challenges the World Bank believes that the DRC’s economy will in the short and medium term “continue to grow at an estimated rate of around 8%, owing to increased investment and growth in the extractive industries and the contributions of public works and the tertiary sector,” news that maritime industry companies such as ICTSI will be pleased to hear. **PH**

MORE INFO: www.ictsi.com

Matadi Container Terminal under construction

An artist's impression of the Matadi Container Terminal, set to come online in August





Slow start following sanctions lift

Chabahar becomes the focus of attention as Iran seeks investment in its ports. **Peter Shaw-Smith** reports

With twin restrictions continuing to hamper Iran's trade development, its reintegration into the family of nations is not happening as fast as the Islamic Republic hoped after the lifting of international sanctions in January.

Draught restrictions at Iran's existing main ports of Bandar Abbas and Bandar Imam Khomeini, which prevent the handling of vessels of more than around 9,000teu, and the continued fear among global banks that trade with Iran could still be hit with legacy US sanctions, are obstructing progress.

Iran's strategic response is clear: development of the Port of Chabahar, outside the Strait of Hormuz.

It has several reasons for developing Chabahar: it will be its first and, to date, only, deepwater port, it is an open-ocean port surveying the Arabian Sea, and Iran is obtaining Indian assistance to expand the facility, whilst at the same time bolstering its long-term trade prospects.

Chabahar is located 430 km outside the Strait, while a further 170 km-stretch lies between it and Pakistan's

Gwadar, a rival port which throws into relief the extent of the geo-politics now at work.

India's intention to invest USD500 million at Chabahar, announced in April, offers a convenient logistics pathway to Central Asia, the CIS (Commonwealth of Independent States) and ultimately Europe. India's regional rivalry with Pakistan and global trade struggle with China are the context for port development in the Arabian Sea.

As Iran opens up, says Shailesh Garg, a consultant at UK-based Drewry Maritime Research, it is rewarding India, one of the few trading partners to stand by it in its hour of need.

"During the sanctions, India was one of the countries with which Iran continued to trade. Because of sanctions, banking transactions were difficult, so India and Iran agreed on a rupee payment mechanism and a barter-trade arrangement," he said.

"India continues to import Iran's oil, and several Indian companies are looking for investment opportunities in Iran. Iran is quite an important trading partner for India."

Indian reports also say that in addition to a USD500 million port investment, it plans to invest a further USD16 billion in Chabahar's Free Trade Zone.

Garg plays down any challenge to the United Arab Emirates (UAE) mega-port of Jebel Ali, where capacity will hit 22.5 million teu in 2018, from Iran's development plans. "I see little threat to Jebel Ali's position in the Middle East. Jebel Ali has the advantage of a well-developed free zone, which is too strong to be challenged over the short and medium term."

However, today, cargo is moving from Jebel Ali to CIS countries, so to that extent, Chabahar could compete with Jebel Ali or any other port in the region.

Iran's regional Arab rivals are also adopting a similar

strategy. Given the evolution of GCC (Gulf Cooperation Council) trade with the Far East, deepwater ports like Sohar, Salalah, Duqm, all in Oman, and the UAE's Fujairah are seen as necessary, even though the recent oil-price decline has pushed out the timeline of these ports reaching full intended capacity, meaning it's unlikely they will all be complete before 2025.

"Despite the volume of commercial shipping occurring inside the Gulf, there is a move to have high-volume shipping occurring outside the Strait of Hormuz," Theodore Karasik, senior adviser at Gulf State Analytics, told *P&H*.

"For the natural evolution of Iran, because of its opening up to the global economy, as slowly as that's gone, it benefits it greatly to develop infrastructure outside the Strait so no one can interrupt this."

Not only Iran, but the Gulf littoral states are looking to build deepwater ports outside the Strait of Hormuz in order to bypass the narrow waterway. Inside the Gulf itself, the situation is sensitive and could become 'militarised' very quickly. "One accident could precipitate major trouble," he said.

India sees it has a big role to play in the future of Gulf littoral shipping, and Beijing is making its moves now, as part of regional competition. "There is a battle for shipping influence and geographical reach," he said.

"Future security of shipping in and around the Gulf of Oman is going to be critical for the economies of Indian Ocean states, especially in the Far East. The Indian and Chinese navies are increasingly blue-water in order to protect shipping. We will see this phenomenon grow in the near term," Karasik said.

Scope for the driving of a potential wedge between Dubai and the capital of the UAE also exists.

"Dubai says it has great relations with Iran and wants Iran in its core economic sphere. Abu Dhabi is throwing all of its support behind [Prince] Mohammed bin Salman and Saudi Arabia's Vision 2030, which it views as the last hope for the kingdom."

The GCC states now recognise that denying Iran help in port development is a useful tool. DP World chairman Sultan bin Sulayem visited several Caspian and Gulf ports in Iran last year, prompting a flurry of speculation that Iran was the port operator's next target.

“Dubai says it has great relations with Iran and wants Iran in its core economic sphere”

Theodore Karasik, Senior adviser, Gulf State Analytics

"Although DP World signed an agreement on port development with Iran last year, the rise of security problems in the Levant, combined with the GCC perception of Iran [being untrustworthy], [meant] the deal was apparently scuttled," said Karasik.

"I don't think the GCC is willing to pressure China. Iran may ask China and other East Asian countries to help refurbish ports simply because of the relations it has with such countries. The GCC may be looking at it differently: if Iran wants to develop itself, it's going to have to look east," to India and the Far East.

Top of Iran's agenda outside Chabahar and its rapprochement with India is improvement in trade and logistics ties with Oman, South Korea and various European countries, and this can only happen through its existing port arrangements.

"There are constraints on Bandar Abbas, but Iran has plans to dredge and extend the port. They would like Bandar Abbas and other ports to grow," said Garg.

Reports in May said President Hassan Rouhani expects growth to hit 5% for the Iranian year ending March 2017, even though European banks continue to remain fearful of doing business with the Iran due to US sanctions.

"The US is very tough on monitoring all US sanctions. After a Joint Comprehensive Plan of Action (JCPOA), American businesses or foreign-owned companies with American products found themselves in a worse situation because of US interest groups that were against the nuclear agreement with Iran," Karasik said.

"These interest groups threatened to damage the reputation of US companies."

Official Iranian news agency IRNA reported that a 60-strong Iranian trade delegation led by the foreign minister, Mohammad Javad Zarif, set off on visits to Poland, Finland, Sweden and Latvia on 29 May. It said trade with Poland stood at about USD400 million last year, but, that capacity for co-operation was much higher.

According to UNCTAD's *Review of Maritime Transport 2015*, Iran ranked 21st by ownership of the world fleet on 1 January 2015, with 18.08 million dwt, or 1.04% of the total. The Islamic Republic undoubtedly has its eye on leveraging growth in trade through this and other sectors. **PH**

Iran's President Hassan Rouhani says he expects growth to reach 5% in the Iranian year ending in March 2017, despite reluctance from European banks to do business with the country due to US sanctions





European ports wait for the arrival of Silk Road

First announced in 2013, China's 'One Belt One Road' project is slow to take shape, leaving European ports guessing as to its likely significance for them. **Andrew Spurrier** reports

China's 'One Belt One Road' (OBOR) project was clearly intended to catch the imagination, but there is little to suggest that it has yet set afire the imaginations of decision-makers in European ports.

The project is still at a preliminary stage but, at this point, nearly three years after it was officially unveiled by the Chinese authorities, it cannot be said that it has generated a wave of enthusiasm among European port leaders.

Inspired by the ancient Silk Road, the OBOR project has two principal components, both of interest to the ports sector. The Silk Road Economic Belt is the overland part of it, linking China through central Asia to Europe, while the Maritime Silk Road takes the seaways path to Europe via southeast and south Asia and Africa.

The project was announced in late 2013 and has been underpinned since by the creation of a USD40 billion Silk Road Fund and the Asian Infrastructure Investment Bank (AIIB), a multilateral development bank with an authorised capital of USD100 billion.

For European ports, the project opens up the prospect of large-scale Chinese investment in their development projects, whether in port operations proper or in the wider logistics sector.

Among the leading European ports, Antwerp has been a particularly vocal supporter of OBOR. The port announced in July last year that it was setting up an OBOR task force with the aim of establishing itself as a key maritime and overland transport hub on the western extremity of the OBOR routes.



The main country links, major ports, and extent of both the land- and sea-based transport routes that form part of the 'One Belt One Road' project

Since then, it has applied for membership of the AIIIB and set up agreements with several Chinese banks with the aim of attracting Chinese investment into its industrial and logistics sectors.

These agreements have yet to produce notable results, but chief commercial officer Luc Arnouts said recently that talks were in progress on several fronts and that the port hoped at least one new project would be announced before the end of the year.

The French port of Le Havre, part of the Haropa port grouping with Rouen and the inland port of Paris, is another OBOR enthusiast. "Our slogan is that 'One Belt One Road' goes through the port of Le Havre," said port commercial director Hervé Cornède, making the point that China represents about 40% of the port's total throughput, with two departures and arrivals from China daily.

He argues, too, that the OBOR project is largely dependent on the Chinese ports of Shanghai and Ningbo, which are currently the French port's leading trading partners. Trade with Ningbo, in particular, has been growing particularly rapidly over the last five years. "The starting point for 'One Belt One Road' is the port of Ningbo, which is our main port," he said.

For the moment, however, the port has no major investment projects directly linked with OBOR, but is rather engaged in a general effort to improve the quality of its connections with China as its leading trading partner.

The fact is that European port leaders are still in the process of trying to understand what OBOR is likely to mean for them beyond serving as a new marketing slogan for Chinese exports.

At the leading European port of Rotterdam, corporate strategist Michiel Nijdam says that the port is in close contact with Chinese companies regarding possible OBOR developments and has signed a memorandum of understanding with the Bank of China regarding investments related to the OBOR strategy.

For the rest, however, he says it is too soon to know what impact OBOR might have on the port and that, as a result, it is in "wait and see" mode with regard to the project. "We don't make a big deal of it because it really doesn't have substance yet," he told *P&H*.

The port had received Chinese business and political delegations that were looking for potential OBOR opportunities at the port, he said, but, to date, they had not been clear about what they were looking for beyond as yet undefined investment opportunities in the logistics sphere.

It was clear, he said, that OBOR was essentially about encouraging Chinese investment abroad and, therefore, it was important as a tool to enable China to make use of investment capacity surplus to domestic demand.

As such, it worked well in central and southern Asian countries where there were real infrastructural needs.

"In Europe, it's a different game, especially in western Europe, because it [is] so much more organised here," he

said. "There are no easy investments here. Infrastructure is never finished, of course, but it is of such a level that we really don't need extra Chinese investment."

This was less the case, he said, in the rest of Europe, where there had already been some limited investment, notably in the railway sector in Hungary and in the Port of Piraeus in Greece, which had been clearly linked to the OBOR strategy.

With regard to the Port of Rotterdam, he made the point that it had been working to strengthen its position as a terminal and redistribution hub for Chinese goods for the last 15 years. OBOR links to the port's strategy in that respect, he said. Its approach to OBOR, therefore, was to market the port as an ideal location for major logistical projects.

"We keep on looking for concrete investment plans in logistics but we are not seeing them yet. I think that is the step we are really waiting for."

Naturally, the OBOR project interests the European Union, which sees parallels between it and its own TEN-T infrastructure programme. "Co-ordination is essential when developing transport connections between countries and continents," a European Commission representative told *P&H*, noting that the European Union and China had signed a memorandum of understanding last year to set up a "connectivity platform" to exchange information on connectivity projects.

The platform, which is scheduled to meet two or three times a year at "technical level" and at longer intervals at ministerial level, is now functioning and, according to the Commission, will ensure that both parties benefit from opportunities created by OBOR.

Last year, the European Commission and the European Investment Bank also agreed with their counterparts from the Silk Road Fund to set up a working group to further co-operation over investment in infrastructure.

As regards port infrastructure proper, the representative said that Chinese investment was welcome but would need to comply with EU rules on public procurement and concessions, as well as in such areas as financial transparency, free market access, and state aid. Clearly, there is much talking still to be done at institutional and corporate level before OBOR can become a recognised reality in European ports.

Its relatively slow take-off could lead some to wonder, moreover, if this will ever happen. There are some grounds for thinking that its impact will remain essentially intra-Asian and that, for European ports, it could turn out to be just one of those grand plans that never fulfilled its promise and then was replaced by another.

However, Nijdam does not believe that this will be the case. He believes that OBOR has yet to reveal its full potential for the European port sector. "I do think this is something that we will hear about for some years to come," he said. **PH**



Migration to automation

After a slow start the US port automation story is unfolding as ports aim to stay competitive, **Scott Berman** report

Long Beach Container Terminal control room where they are running Navis' N4 Terminal Operating System

When United States labour secretary Thomas Perez and secretary of commerce Penny Pritzker inspected the Port of Hamburg, including its automated operations at Container Terminal Altenwerder and Logistik, in two separate tours early in 2016, there were some telling comments afterwards. At least from Perez, who reportedly stressed the importance of American ports leveraging technology to keep pace with intensifying competition. Automation is a key part of that equation.

It was also telling that Gene Seroka, executive director at the Port of Los Angeles, was with Perez during the Hamburg tour. Seroka heads a port where TraPac Container Terminal has implemented an advanced automated system. Nearby, the Long Beach Container Terminal has opened the automated first phase of a reported USD1.3 billion project designed to boost capacity and efficiency.

Europe and Asia, many have noted, are making greater inroads than the United States. Each region of the globe has its own dynamics relative to automation, such as associated land and labour costs and concerns, and Perez has recommended that ports and labour work together to envision and implement automation.

Some experts recently shared insights with *P&H* about port automation technology in the United States today – and potentially tomorrow.

In the United States, as noted by Andy Barrons, senior vice-president and spokesman for key automation supplier Navis, there are, in addition to those aforementioned southern California ports, just two other American port facilities, at Bayonne, New Jersey, and the Port of Virginia's Virginia International Gateway (VIG), with automation and, in these cases, semi-automation. At VIG, for example, 30 remote-controlled container-stacking gantry cranes, among many other features, have been going about their business for years.

"It has been a game changer." That's how Shawn Tibbets, chief operations officer at the Port of Virginia, characterised the effect of that port's semi-automation systems almost a decade after the facility opened. The technologies and practices in place there have helped provide business continuity, Tibbets said, and "it will allow us to keep growing within our existing footprint."

The experience in Virginia illustrates some key points. Tibbets mentioned the facility's automated stacking cranes (ASC), for example, which he believes "have revolutionised the efficiency of real estate use for

container storage and handling while creating a more environmentally friendly and safe environment.”

The Port of Virginia’s Rich Ceci, senior vice-president of technology and projects, points out other significant elements, namely “terminal operating system [TOS] enhancements that allow us to further leverage the ASC capabilities. Our gate packages have also contributed to significant efficiency as a result of the ability to process multiple trucks across lanes in a work-queue-type environment/setting. The technology has allowed us to make more efficient use of time and resources.”

Automation, from the quayside out, can marshal a diverse variety of advanced equipment, such as automated gate entry systems, automated guided vehicles (AGVs), straddle carriers, and more, to boost efficiency and capacity. Key supplier Cavotec describes, for example, mooring technology, moveable cold ironing systems and fast, safe crane systems. And Kalmar automated horizontal transport systems (straddle carriers) are at work at TraPac.

Looking ahead, Barron, Tibbets and Ceci see various potential developments. “I think you will see automatic stacking cranes as the predominant automation technology for the terminals,” said Barron. “This enables terminals to improve yard capacity within their existing footprint. You will continue to see ASCs and manned horizontal transport on the east coast as current sites migrate to automation.

“In Los Angeles, I think the trend to full automation will continue because of the labour costs. There has been some interest in the past in automated rubber-tyred gantry cranes (RTGs) and this could be an option to reduce manning at some sites. However, I think it will be at least three years before you see something like this becoming available.”

Tibbets, meanwhile, said that, looking forward, “We see additional rail mounted gantry (RMG) facilities” where there are pressing cost, competitiveness and real estate issues. “The evolution will continue as this industry refines this model and creates agility within the current setup while looking for opportunity to service the markets of the future. Although we have a good baseline, we must remember that one size does not fit all terminals or customers.”

One size certainly does not fit all, and the potential of automation and related technologies to have an impact does not stop at a port’s gates. Indeed, automated equipment can be seen as part of a greater, integrated whole that extends far beyond a port through improvements and additional technologies that strengthen and streamline the entire logistics chain.

As Kieran Ring, CEO of the Global Institute of Logistics, sees it, “Good port management in the 21st century does everything it can to leverage technology,” and that includes port decision-makers and other stakeholders implementing and guiding automation and related technologies in strategic, market-savvy ways.

On a related point, Navis has described its N4 terminal

operating system in part as a technology platform, with applications and tools that integrate existing systems to automate crane scheduling and monitoring, and optimise vessel planning, container handling and yard utilisation.

More broadly, the supplier has described automation as a part of a potential multi-pronged co-operative logistics system. Such a system encompasses ‘berthing management tools’, ‘digitalised container flows’, and integrated processes in port logistics, terminal assets and vessel services. Ports and carrier alliances would have the systems to share information and “manage operations as part of a synergistic league of players”. In Navis’ view, these technologies will recast ports as efficient ‘pit stops’, and vessels as “connected assets, interacting with cloud applications for collaborative planning, routeing and decision-making”.

As Barrons explained about holistic technological approaches generally, “The ultimate goal is to improve the end-to-end supply chain ... and to make this happen port authorities are working on opportunities for improving transparency, visibility, and collaboration within port hinterland and with other ports. Instead of thinking of the port system in isolation, ports are thinking about the port as part of a wider connected network, including waterside and landside parts of the supply chain.”

According to Ring, “While automation of the port is key, it has to be seen as part of innovation port-wide.” Even if there are challenges in implementing automated and IT systems targeting more efficiency, “that doesn’t stop a port from undertaking a review of how smart the port is”, he added.

Based on the experience at the Port of Virginia, Ceci saw a number of things ahead. “There is a lot of room to improve the impact automated terminals can have on the entire logistics chain,” he said. “For example, linking truck appointments to an automated container facility where containers are staged in anticipation of the arrival of trucks could eliminate congestion and reduce truck turn-times to the 30-minute range.” The result: “Inventories for beneficial cargo owner stakeholders that are reduced by days because of the ability to rely on better intermodal logistics.” Ceci added that in turn, “these reduced inventories would translate into reduced carrying costs. This same concept could be applied to rail intermodal operations. The result would be better use of rail cars, tracks, marshalling yards and ultimately a more predictable flow of goods.”

Broad, integrated processes, including automation, continue to advance around the world and the recent visits of the American commerce and labour secretaries to the automated Port of Hamburg signal the potential implications of that movement.

Whatever their locale and form, automation and integrated technologies operate amid complex dynamics, but the bottom line, at least in Barrons’ view, is clear. “If you don’t fully automate, then you won’t be able to compete on a labour cost per box basis.” **PH**

Go west – automation on the move



Zoe Reynolds

At Patrick's Sydney and Brisbane terminals on Australia's east coast the machines do the thinking

AutoStrads, Australia's unique army of port robots, have begun the march inland. Having been pioneered in the Patrick Brisbane terminal more than a decade ago and brought south to occupy Sydney's Port Botany a year back, they are now heading west.

The AutoStrad is the brainchild of the former Patrick CEO and Qube Holdings chair Chris Corrigan, who is also set to employ them at Qube's joint public private AUD1.9 billion (USD1.37 billion) fully automated inland intermodal Moorebank terminal west of Sydney, linking automation into the supply chain from warehouse to wharves and taking it that much further.

These giant robots, which roam free on the wharves between the quay cranes, the stacks and the truck pickup, are essentially a conventional straddle carrier armed with a rudimentary brain or sensors. "When we opened in Brisbane we were only the third automated terminal in the world and the first to use AutoStrad," Matt Hollamby, Patrick's Brisbane Port manager told *P&H*.

"We weren't sure what we were going to get. But ultimately we cracked it," he said. "Having embarked on the auto journey, we now know things we never dreamt of. It's changed the way we run a terminal. The machines are doing the thinking."

Kalmar acquired Patrick's AutoStrad technology from parent company Asciano in 2012. The automation

technology used in Kalmar AutoStrads was developed in close co-operation between Kalmar and Patrick. The technology is based on a radar-based navigation system, maximising operating efficiency from gate to quayside.

Now the Kalmar AutoStrad does a bit of thinking for itself, but it does not have a mind of its own. It gets instructions on where to go and what to do from a central computer system.

Patrick first pioneered the AutoStrad with the Australian Centre of Field Robotics at the University of Sydney and Finland's Kalmar, at the turn of the century. Rather than go with existing automation, already well-established in Rotterdam and elsewhere, the company decided to stick with the straddle.

"We already had strads," said Hollamby, "so it was the logical choice for us. We simply wanted to automate the equipment we already had. The straddle has inherent advantages. It's horizontal transport, but it's not coupled with anything. One is not waiting on the other."

Another factor behind the decision was a series of work injuries, court cases, and labour disputes. "The old days were ergonomically challenging with ongoing cases of back and neck injuries for workers twisted while driving sideways," said Hollamby. "Now, of course, that's completely eliminated. The terminal is one of the safest on the face of the planet. We used to have 40 lost-time injuries a year, but we've only had one to date this year. We've been known to go over a year with none."

Quayside labour is halved. Each ship-to-shore crane has four automated straddle carriers, reducing the eight-person crane gang to four. A gang comprises a team leader positioned on the deck of the ship, the first crane

One ship departs as another loads at Sydney AutoStrad Terminal Port Botany and AutoStrads dart the between the stacks and ship-to-shore crane. To the left across the bay is DP World's terminal

AutoStrads line up for containers beside the ship-to-shore cranes, while others shift containers to and from the stack

operator, who rotates with the second crane operator every two hours and both do pin work underneath the crane when not operating it, and a general duties stevedore who also does pin work.

"That's the lowest crane manning scale in the world," said Hollamby, adding that it was considerably less than US manning levels.

Patrick AutoStrads do not run on tracks or magnets. They do not have operators to remotely drive them. They are programmed with a basic intelligence to link up with the terminal system and do the job themselves.

"Automation is a different way of thinking," according to Brendan McDonnell, general manager, technology and engineering, at Patrick, Port Brisbane. "The system is self-managed. It's very hard for a person to outthink it. As the AutoStrad is travelling to the stack, the system decides on the best position to put it. This decision is not made upfront, the computer decides along the way. The AutoStrad is only part of the terminal automation."

At Patrick's Sydney Automated Terminal, there is not a worker in sight. "There is nobody inside the fence or below the crane. We are continually monitoring that," said Trevor Stolz, manager for strategic assets and infrastructure planning, Sydney. "We like to separate machines and people. It's all about safety."

Straddles dart among the stacks of containers between the quay crane and the truck bays. High up in a tower above the office block, one man is perched at computer displays overseeing all 45 straddles and 31 truck grids. "There's no need to micro manage," Stolz explained. "The system does all the work. The guy here is more like a supervisor."

Simon Hester, technology manager, pointed to the reflectors on the light poles. AutoStrads work like bats. "They don't see; they use radar and sonar," he said. "So every straddle knows where it is within the compound. Everything is done automatically except for putting a container on a trailer. That's done with a remote control device."

The straddle carriers also use laser sensors to detect obstacles. Driving along they can detect containers,

other straddles, a fence, then use this to verify their position. They have sensors to detect the corners of the containers too.

"The central computer manages the overall straddle fleet," Hester said. "Every three seconds it works out the preferred path for each straddle. It's continually optimising and replanning."

Ten years after its inception and one year after opening in Sydney, Patrick management judged their AutoStrad a success. "We've shown that it's not too hard to change existing terminals," said Hollamby. "It's really opened everyone's eyes to the AutoStrad's potential."

I wouldn't ever go back to a manual terminal. Auto terminals are proven to work efficiently

Matt Hollamby,
Manager, Patrick's Brisbane Port

When it comes to a greenfield site AutoStrads are not a big cost factor either. "The biggest cost in any terminal is the pavement," Hollamby explained. "Even cranes are cheap compared with pavement."

In total the Brisbane auto terminal cost AUD300 million (USA217.66 million). Sydney is a carbon copy, but bigger, costing AUD450 million (USD326.48 million), according to Hollamby. Next stop is the Moorebank inland terminal. If Corrigan's Qube/Brookfield takeover of Patrick jumps through all the regulatory hurdles in the coming months, both arms of the AutoStrad Sydney operation, east and west, will lock into place.

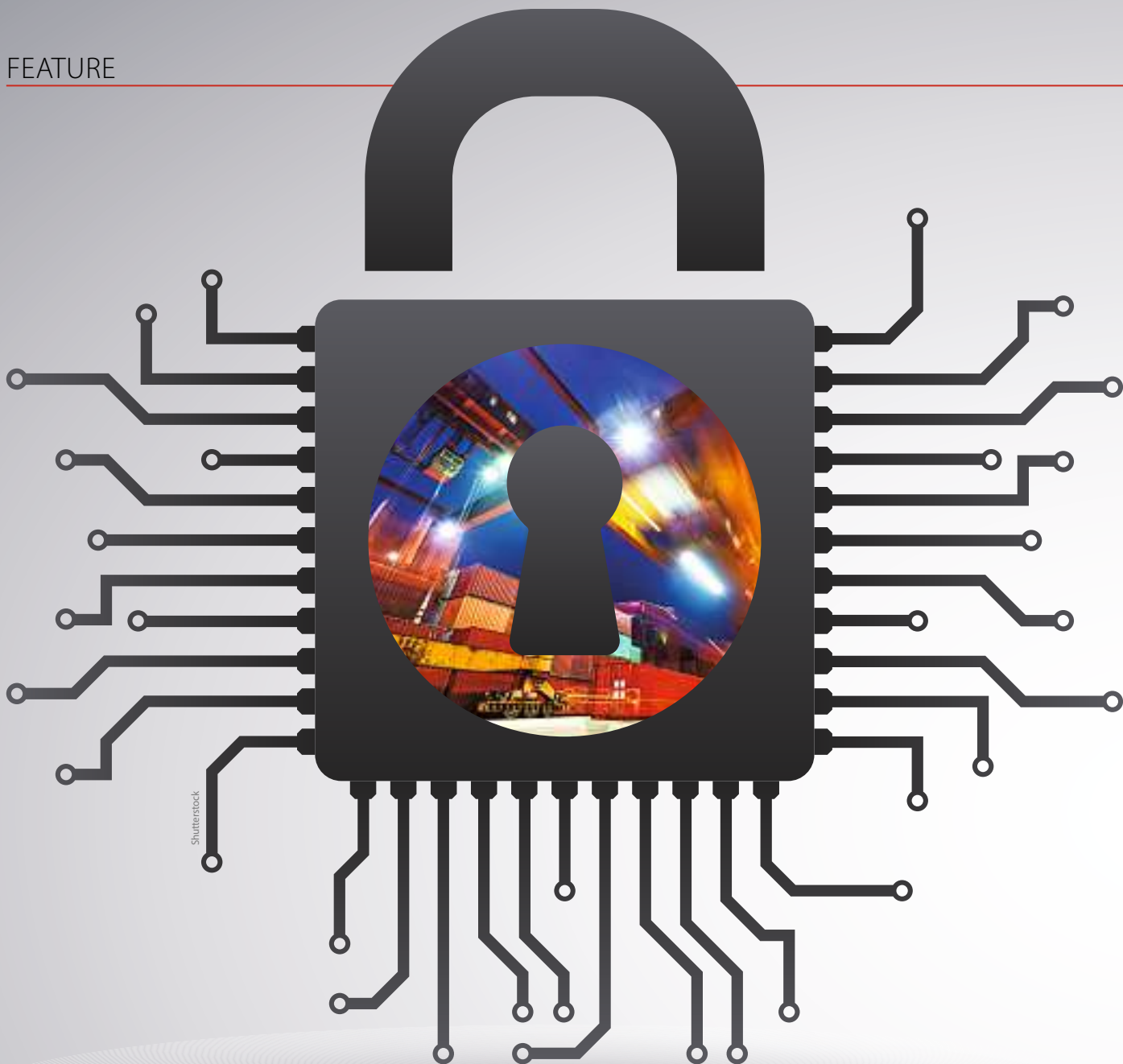
Patrick was the first to introduce automation to the Australia waterfront, but it is by no means the last. DP World's AUD250 million (USD181.30 million) Brisbane terminal features automated stacking cranes and operating systems. Hutchison Ports employs automatic stacking cranes at both Sydney and Brisbane terminals, while the Victoria International Container Terminal AUD550 million (USD399 million) development at Webb Dock, Melbourne will be Australia's first fully automated terminal, with remote controlled cranes when it opens in December.

"The stevedoring industry reinvents itself every decade," said Patrick's Matt Hollamby. "I've been the terminal manager here for many years. I wouldn't ever go back to a manual terminal. Auto terminals are proven to work efficiently. There's going to be a proliferation around the world as companies come to renew their equipment over the next decade. The genie is out of the bottle." PH

MORE INFO: www.asciano.com.au/patrick/terminal



Zoe Reynolds



US ports seek new approach to reducing cyber risk

Sharing information within port complexes will be necessary, but not easy, says IHS Maritime & Trade senior reporter **John Gallagher**

The sharing of sensitive cyber risk information is proving difficult to instigate

When Apple went up against the US government earlier this year over the unlocking of an iPhone that was seized during the San Bernardino, California terrorist attack, it raised the question about how much power the federal government should be allowed to wield against private business in order to protect the public.

A variation on that question is being contemplated within the US maritime sector: can terminal operators trust the government with sensitive cyber-incident information that harms their businesses and at the same time help reduce the risk of shutting down a port?

HR 3878, 'Strengthening Cybersecurity Information Sharing and Co-ordination in Our Ports Act of 2015',

which cleared the US House of Representatives on 16 December, would create a scheme whereby the National Maritime Security Advisory Committee (NMSAC) would recommend to the Department of Homeland Security (DHS) ways to help share cyber-incident reporting at port terminals among federal, state, and local agencies.

While that sounds like a fair request – and a logical way to defend against the growing number of cyber breaches that occur at every port, every day – it's difficult to convince private terminals that it makes sense from a business standpoint.

"We've agreed to disagree" on how to share cyber-risk information, said Joseph Lawless, chairman of the security committee at the American Association of Port Authorities (AAPA).

Speaking at AAPA's spring conference in Washington, DC, on 6 April, Lawless, who is also director of maritime security at the Massachusetts Port Authority in Boston and a member of NMSAC, said the feasibility of establishing a cyber-sharing scheme between government and commercial operations does not yet seem likely.

"There's a great reluctance to share cyber breaches and cyber-security information across the board," Lawless said. "So we reported back to the commandant of the US Coast Guard (USCG) that we don't think [the cyber-sharing scheme] at this point in time will work out."

The reluctance stems from a fear by commercial terminal operators within a port district that sharing cyber-breach incidents could make a terminal seem vulnerable – leading to business potentially being lost to a competitor.

The dilemma of sharing cyber-security information as a way to protect against cyber-attacks exists even within individual port authorities. Los Angeles-Long Beach, the nation's largest container port complex, and Port Fourchon, Louisiana, the country's largest provider of maritime services to the offshore energy industry, are struggling to break down the barrier separating the security side, which protects physical infrastructure, and the business side, which oversees the IT department.

The USCG, which recently expanded its mission to include cyber-security, will be playing a significant role in increasing the awareness of cyber-threats against the US port sector, even while the agency itself faces "a mounting array of emerging cyber-threats that could severely compromise and limit our ability to perform our essential missions," the USCG stated in a Cyber Strategy mission statement released last year.

The US Congress is looking to bolster that strategy with hard data supplied by DHS. Legislation known as "the spy bill", which is used to authorise funding for the CIA, includes a provision requiring the DHS to report on cyber-security threats to US seaports and maritime shipping.

The legislation, which, as of 20 May awaited approval

by the House of Representatives, requires the DHS to meet a list of objectives, including descriptions of any "recent and significant cyberattacks or cybersecurity threats" against software, communications networks, and computer networks.

It also requires a status update on efforts by the US Coast Guard to include cyber-security concerns in the national response framework, emergency support functions, or both, as it relates to shipping and US ports.

Paul Zukunft, the USCG's commandant, has pointed out that the trend towards automation by ports at their terminals adds to the challenge of keeping ports safe from cyber hacking.

"I worry about supervisory control and data acquisition systems, ship control systems, cranes and the automated technology upon which our entire economic system is now based," Zukunft told a meeting of port and waterway officials last year.

"Bad actors don't need to blow up a ship," Zukunft said. "In fact, if they can seize control of its operating system, they don't ever need to step foot on it. I am not trying to cast undue fear but, if we are not thinking about this, we can be certain that someone else is," he warned.

The International Maritime Organization agrees. In recently released draft guidelines on cyber risk management, it stated that greater reliance on automation and network-based systems "has created an increasing need for cyber-risk management" in the maritime sector.

Regardless of whether HR 3878 makes it into law – it still must be approved by the US Senate before it can be signed by the president – the Coast Guard plans to begin providing policy statements and training to reduce cyber-risks in the maritime sector. The agency announced that the US maritime sector should expect to see guidance on the voluntary reporting of cyber-incidents this year.

The word "voluntary" is key: one influential port official maintains that the best way for ports to ensure against intrusive regulation is to run their own voluntary cyber assessments and to create their own cyber-security plans. "We want to be in a position to say we've done these voluntary things so that we can avoid mandates," says Randy Parsons, who directs the physical security side of the Port of Long Beach. The reason, Parsons said, is "because lawmakers can't all be subject matter experts in every area, they're listening to other people about what our ports need."

For technology company Apple the question of how much the government should be able to force information disclosure was avoided after the FBI figured out how to break into a phone recovered in San Bernardino. That resulted in the US dropping a widely publicised lawsuit against the company.

For American ports, the problem of how much information should be shared – and how big a role the government should take in the endeavour as a means of combatting cyber threats – won't be resolved as quickly. **PH**



South Korean ports seek tighter security

Seoul intensifies security measures after breaches in Busan and Incheon, reports **Xiaolin Zeng**

The South Korean government is reforming the country's Safe Port Act to strengthen port security and border controls after several incidents of security breaches and illegal entry at the ports of Busan and Incheon.

The growing incidence of international terrorism has also been taken into consideration by the government.

In October 2015, eight Vietnamese seafarers went AWOL (absent without leave) after their vessel arrived at Busan's Gamcheon terminal.

The seafarers arrived on 27 October 2015, in a fishing boat carrying mackerel. They allegedly jumped into the water while the fishing vessel was moored, and swam nearly 1 km to land.

However, security guards from nearby shipyards spotted three of the seafarers and detained them as their conduct appeared to be suspicious. The trio were then handed over to the police that same morning. Two other runaway seafarers were found and arrested after the police searched Gamcheon Port. All of the five arrested seafarers were transferred to Busan Immigration Office, while the other three remain at large.

On 6 January, a Chinese crew member was caught as he attempted to jump over a barbed-wire fence separating the docks from the main port in Incheon.

Just hours later, a Vietnamese crewman from a general cargo ship is believed to have fled after his vessel arrived at the Hyundai Steel docks in Incheon's North Port just after midnight on 6 January 2016. The Vietnamese crew member allegedly cut through a barbed-wire fence and fled while the vessel was unloading cargo.

In a subsequent incident at the Port of Incheon, a Chinese crew member, who was also from a general cargo ship, fled soon after his vessel arrived at Dongkuk Steel docks at about 4 am. He is believed to have jumped over the 2.7 m-high barbed wire fence as the tide was low at the time. Although security guards saw the crew member on the CCTV cameras, they were unable to track him down once he disappeared from the cameras' view. His and the Vietnamese crewman's whereabouts remain unknown.

Only 17 closed circuit cameras were monitoring the Hyundai Steel docks, and there were just 12 such cameras watching over the Dongkuk Steel docks.

The Vietnamese crew member in the Incheon incident is believed to have determined the cameras' blind spots and cut the wire fence in order to flee. The barbed-wire fence was also not equipped with a movement sensor.

The incidents prompted the Ministry of Oceans and Fisheries (MOF) and other government agencies to take action, especially when the three crewmen in the Incheon incidents have previous records of illegal stays in South Korea. These crewmen committed the previous offences after they failed to obtain approval for shore-leave.

Under the revised Safe Port Act, ship operators and owners, as well as port operators and companies supplying security personnel to the ports, will now all be required to deploy more manpower to improve port security.

In cases where foreign seafarers have gone missing

after disembarking in South Korean waters, the vessels concerned would face varying levels of entry restrictions for future arrivals in the country.

The first time a vessel is found to have foreign seafarers that go AWOL in South Korea, it could be barred from entering the country for six months. The restriction will be raised to a year if a second such incident happens to the same ship.

Security screening will be improved at ports where in the past there have been security breaches or incidents of AWOL foreign seafarers, while security loopholes will be checked and plugged.

A spokesman for Incheon Port Authority (IPA) told *P&H*, "We will cut off all sources of illegal entry through deploying guards to monitor vessels in ports."

After the incidents, IPA deployed more than 15 guards a day to the inner part of the North Port, while security personnel and screening equipment have been beefed up in the outer part.

To prevent a recurrence of similar incidents, efforts will be concentrated on addressing security vulnerabilities. For instance, vessels that have been singled out for incidences of AWOL crew, will be directed to a special area for inspections before they will be allowed to dock.

Areas that frequently have security breaches can expect to have more security personnel deployed there. For such areas, the MOF also plans to set up more security equipment, including closed-circuit televisions to check blind spots, security fences and better lighting systems, and will also expand on-site security capabilities.

The IPA spokesman said that the height of the security fences will be extended from 2.7 m to 4 m, while new security lights will be installed in dimly-lit areas. Sensors will also be fixed on security fences, with added broadcasting functions should trespassers be detected.

In addition, about 150 old CCTVs will be replaced, and 15 rotating cameras will be installed to monitor the berths and vessels.

The IPA spokesman said, "Incheon Port security

will control all the situations systematically through intelligent algorithms for monitoring movement."

In order to strengthen security in ports, the ministry plans to improve working conditions and raise professional standards of security personnel. To prevent a decline in the professional standards of security personnel as a result of frequent staff turnover, proper manpower standards will be included in the recruitment criteria of the ports' special security forces.

The MOF plans to raise the professional standards of security personnel through the upgrading of skills and establishing rules with regard to security staff's duties. Security personnel should also have a certain level of education.

In order to step up the competitiveness of security in the country's important and established ports, the MOF plans to raise the prerequisites required for privately owned security personnel providers before they can be assigned to handle port security.

Under the amended regulations, private-sector security personnel agencies must have a staff strength of at least 20 people, compared with 17 people under existing rules.

The South Korean government will also maintain the existing system of close co-operation between relevant agencies with regard to joint inspections and the sharing of information about blacklisted ships and shipping companies.

The agencies involved are the MOF, the Ministry of Justice, the Korea Customs Service, the National Police Agency, and the Ministry of Public Safety and Security, which was set up in late 2014 to improve national safety standards following the capsizing of the ferry *Sewol*.

In particular, the authorities have been conducting extensive crackdowns on agents involved in the smuggling of foreign seafarers, and plan to impose more deterrent punishments on offenders.

The MOF's announcement of beefed-up security measures came a day before the minister of oceans and fisheries, Kim Young-suk, visited the newly-completed all-source situation room of Busan's cruise terminal. The room is located on the second floor of a two-storey building in the terminal and is equipped with cameras to enable security personnel to monitor the terminal and its surroundings.

A representative of Busan Port Authority said, "Once we link the real-time monitoring in the room to the CCTVs in Gamcheon port, we expect [that] the overall security [will] be strengthened."

During his visit, Kim alluded to the incidents of runaway seafarers. He said, "There were recent incidents of seafarers running away and staying illegally in South Korea. To prevent a recurrence of such incidents, we must strive to enhance port security. In times of emergency, the relevant bodies, such as the Ministry of Justice and the police, must ensure smooth inter-agency co-operation". **PH**

Incheon Port: there have been attempted and successful stowaway incidents at the port this year

A North Korean vessel at the Port of Incheon





TNPA

South Africa's security in focus

Transnet boosts its port security system with more than 2,000 cameras, reports **Shem Oirere**

The newly-renovated control room at the Port of Durban

Nearly nine years ago, a US Assessment Report on the port of Durban recommended that security at South Africa's seaports be organised so that it covered all areas of operations such as landside operations, cargo areas, anchorage and waterways.

The report recommended the elimination of the "easy public access to create a semi-sterile inspection area and so increase the ability of port authorities to recognise illegal activities."

The recommendations aimed to reduce cargo theft and to stop illegal or undocumented immigrants and stowaways from entering South Africa, as well as vehicle theft, drug smuggling, trade fraud (such as undervaluations and sale of counterfeit goods); and firearms smuggling.

South Africa's state-run ports operator Transnet National Ports Authority (TNPA) finally complied with the report's recommendations when on 12 February this year it installed the latest port security systems, supplied by South Africa-based telecoms firm Neotel.

Transnet said the high-tech closed-circuit television (CCTV) system "will be integrated between all port sites

“The system is but one aspect of our broader integrated security system which encompasses technology, skills, systems and procedures”

and head office to give a bird's eye view of port security”

TNPA's head of security Phumuzi Sigasa said that the new USD53 million security system has put South African ports in the same league as their regional competitors eyeing international trade as six of its ports can now "detect security threats and take preventive measures against security incidents that may affect ships or port facilities."

The project is part of TNPA's security strategy plan to align South Africa's security to the International Ship and Port Facility Security (ISPS) Code of 2004 and also to the country's National Ports Act 12 of 2005.

Sigasa said the security system comprised 2,100 high-definition cameras located across various port sites, up from the previous 864 cameras, "as well as long range cameras to monitor all port channel entrances and outer anchorages."

Since the introduction of the security system in February Sigasa told *P&H*, "We have not experienced any major teething problems."

"The pilot site of Durban is benefitting from CCTV coverage of areas of the port that were not covered previously, since there are now more cameras serving the area and they also offer an increased quality of monitoring," he said.

The TNPA security chief added that, "the CCTV system has assisted in the management of incidents including three stowaways attempting to disembark from a vessel, various trespassing incidents, as well as the removal of the body of a deceased person which was found in a neighbouring canal."

He emphasised that Transnet took safety and security very seriously and that it strived to comply with the various security standards "expected of globally competitive ports". He added that "the system is one aspect of our broader integrated security system which encompasses technology, skills, systems and procedures."

"Technology systems, such as the one we have introduced, are there to prevent problems from occurring and for our port security to remain relevant, we consistently study trends and assess our readiness to thwart any security threats, in partnership with other South African security agencies," he said. **PH**



Zaha's swan song in Salerno

The distinctive oyster-shaped profile of Salerno Maritime Terminal is a powerful presence on the Amalfi coast, made all the more significant because it is the first public building completed after the passing of its famous architect, Dame Zaha Hadid.

Stephen Cousins meets one of the architects involved in its completion

The Salerno Maritime Terminal, Italy, designed by Zaha Hadid Architects, was inaugurated in April this year, following the death of the architect the month before

When visionary architect Dame Zaha Hadid passed away suddenly, at the age of 65, earlier this year, it sent out shockwaves. Not only was the Iraqi-born British architect one of the most prominent and successful female designers in the world, winning countless awards and accolades, her uncompromising architectural style, characterised by sinuous shapes and irregular angular forms, has transformed the built environment, inspiring fellow architects and the general public alike.

Her legacy lives on and the first building to be completed following her passing, Salerno Maritime Terminal, located on the Amalfi coast southwest of Naples, in Italy, exhibits much of the elegance and flamboyance unique to her design approach.

The terminal is situated on the public quay that extends into Salerno's working harbor and marina. Its form resembles a giant oyster washed up on the beach. The hard, asymmetric concrete shell is designed to protect 'softer' elements within, including all the key functions of an operational terminal, and shelter passengers from the intense Mediterranean sun during the popular tourist season.

The facility will greatly improve accessibility for visitors to the region's cultural attractions, coastline and countryside, increasing the capacity for ferry and cruise ship arrivals by about 500,000 passengers a year, and creating up to 2,000 new jobs in the city's hospitality, services and retail sectors.

The exposed location, at the centre of the port, opens up spectacular views of the Amalfi coast and the Gulf of Salerno, and easy access to the nearby destinations of Capri, Paestum, and Pompeii.

The terminal is overlooked by the surrounding hills, providing an ideal opportunity to 'express' the roof, Paola Cattarin, project architect at Zaha Hadid Architects (ZHA), explained to *P&H*, "The terminal has an incredible position, visible from many locations in [the] city, making it a key focal point. We realised the roof would effectively function as an extra facade for the building and spent a great deal of time investigating its appearance in terms of its shape, materials and cladding."

The undulating roof is covered in an intricate pattern of coloured ceramic tiles, a varied mix of greys and blues, laid out to appear more intense in colour over steeper areas, and in deep depressions, and lighter where the roof is flatter.

The tiles are a locally produced industrial ceramic, designed to mimic traditional artisan tiles installed on the roofs of major historic buildings in the area, such as churches and public buildings. The tiles simultaneously reinforce the oyster aesthetic and function as a resilient and highly insulating layer, protecting passengers from the extreme heat of the Mediterranean.

Salerno Maritime Terminal is integral to an urban plan for the city, conceived in 1993 to bring about social, economic and environmental regeneration. The project began under Mayor Vincenzo De Luca, now governor of the Campania region, and continued under the current mayor, Vincenzo Napoli.

ZHA won the international competition to design the terminal back in 2000 and took responsibility for site supervision and contract administration, but practical and economic challenges meant the building took more than 15 years to reach completion.

Cattarin commented, "The main contractor started

Zaha Hadid Architects



Images showing a range of aspects of the Salerno Maritime Terminal, which emphasise Zaha Hadid's architectural style

work in 2005 but was unable to complete, so we had to go to a second tender and, being a public work, the process was quite complex and meant putting the project on hold for at least two years. The subsequent sporadic availability of funding meant we went through a process of stops and starts before achieving completion."

Fortunately for the architect, the client, the town council of Salerno, was so keen on Hadid's ideas that no significant compromises to the architectural design were required. "Zaha was always closely involved in project," added Cattarin. "She created the first sketch and the initial design for the competition. She visited Salerno when the competition was won. It was always very close to her heart. Back then, our practice was much smaller and most of the time we were all sat together in one open space, with Zaha sitting in the middle so she could follow every single step very closely."

The terminal is laid out over two levels that accommodate three primary interlocking components: a terminal for international ferries and cruise ships; a terminal for the local and regional ferries; and administration offices for national border controls and shipping lines.

The quayside gently rises as passengers approach the terminal from the city, morphing into a gradually sloping path of ramps within the building that guide passengers up through passport, baggage and security areas to the main embarkation level for ships and ferries.

Local and regional ferry commuters move through the terminal quickly, arriving on ground level and ascending on ramps to reach the upper level and vessel entrance. Passengers travelling on international voyages are guided through check-in, passport, security, and customs controls to their ship.

Cattarin said, "A maritime terminal operates a lot like an airport, with mostly continuous trajectories and people moving from one side of the building to the other to reach the ships. We wanted the architecture to

provide the main orientation, using the softer effect of ramps inside the oyster structure to guide passengers."

Many interior spaces flow into each other and are organised around focal points such as the restaurant and the waiting lounge.

According to Cattarin, designing maritime terminals forces architects to take into account extreme restraints and requirements, both as a result of increasing security controls, introduced over the past 15 years as a result of initiatives including the ISPS Code, and the increasing number and size of cruise vessels that have boosted passenger volumes.

"When designing a terminal, the challenge is to conceal these efforts and integrate functionality with the structure and the overall architectural intent," said Cattarin. Although the design did not have to adapt to the increasing vessel sizes – dredging took care of that – a number of revisions related to increasing security levels and controls had to be integrated. Transparent glass elements were introduced to provide the seclusion and separation required by law, and simultaneously maintained levels of transparency and visibility through the length of the building.

The bulk of the building's structure, including the upper and lower shells of the 'oyster', is reinforced fair-faced concrete, a technology developed in the 1960s that is still very common in Italy.

The curve of the roof element generates a self-supporting structural dome effect, which meant the thickness of the concrete slab could be reduced and the number of points of support underneath it reduced to free space inside the terminal.

Concrete is very energy-intensive to produce, but its environmental impact was reduced thanks to local sourcing and the fact that it functions as both structure and final finish for the walls, eliminating the need to add an extra cladding layer.

Other sustainable architectural features include a natural ventilation system, designed to exploit the facility's exposed windy location, in the centre of the harbor, to aerate spaces and minimise impact on energy consumption.

In addition, the external glass facades are relatively

An original sketch by Hadid of the Salerno passenger terminal





small and sheltered from the sun using a combination of roof cantilevers and simple louvres to reduce solar gain inside the terminal.

Poised on its own land formation that mediates between the solidity of land and the liquidity of the sea, the oyster-like form of Salerno Maritime Terminal will be a familiar and iconic sight for visitors to the city for many years to come.

It's a building that the architect, though sadly departed, would be proud of, said Cattarin: "Although

Zaha could not attend the opening, she was with us every step of the way through the long history of construction. I hope from the bottom of my heart that she would be happy with the finished building, but as we all know, she was notoriously difficult to please and would have probably found lots of faults. That was the thing with Zaha, she was always pushing us to be the very best we could be." PH

i MORE INFO: www.zaha-hadid.com

An icon for Antwerp

Zaha Hadid Architects (ZHA) is the creative force behind an ambitious new headquarters building being built for Antwerp Port Authority in Belgium.

The 12,800 m² development, located on Quay 63, will feature a dramatic glazed extension block, resembling the hull of a cruise liner, that soars over the top of an existing listed former firestation building, using just three asymmetrical concrete pillars for support.

The 46 m-high, five-storey extension will house an auditorium and restaurant, as well as additional offices and meeting rooms. The existing building is being fully refurbished and will house public counters, offices and meeting rooms.

The scheme will accommodate a total of 500 staff as part of a plan to centralise the port authority's administrative and technical services, currently divided between Port House and

Quay 63, and address a pressing shortage of workspace.

Antwerp Port Authority's brief for the design required that the new building symbolise the port's importance on the world stage and as an economic driver of Flanders and the Antwerp area. It also had to be built to principles of sustainability.

Hadid's iconic design aims to strike up a dialogue between the Oosterweel road link and the Lange Wapper bridge, which form a backdrop to the scheme. The glass and aluminium-clad extension is oriented north-south, parallel to the Kattendijk dock, its head end looking out towards the city and clearly marking the start of the port area.

The outside walls are covered in glass triangles, some transparent and some reflecting, that are all rotated slightly in relation to one another, creating a pattern of reflected light designed to reference Antwerp's diamond industry.

Its three sculpted concrete pillars house stairs and lifts. Two are founded on the inner courtyard of the firehouse; the third is located beside an external support point.

The firehouse will remain an independent and largely preserved structure, apart from over the inner courtyard, where a roof will be installed at second-storey height to create an enclosed interior space. This semi-public space will be used as a central entrance hall housing various enquiry desks for the personnel department, harbor master's office, planning permission and environment permit office, and port dues payment desk. The extension is positioned asymmetrically over the central courtyard to allow light to enter the heart of the building. Construction of the new Port House is well under way and due for completion at the end of September this year.



The extension to Antwerp's Port House is due to be completed in September



Port of Pittsburgh Commission



USACE

The port extends
along more than
300 km of waterway

Pitching for Pittsburgh

The Port of Pittsburgh's infrastructure needs investment if it is to continue to serve industry and attract new companies, **Scott Berman** reports

Essentiality, greater efficiencies, environmental advantages, a promising future, and formidable challenges: they are all part of the complex mix along the United States' inland navigation system. Take the Port of Pittsburgh, for example. The situation there is telling.

About 31 million tonnes of river-borne cargo moves through the region, according to the Port of Pittsburgh Commission, along 322 km of the Allegheny, Monongahela, and Ohio rivers. Here terminals, barge operators and other facilities are linked to rail and interstate highways. Among the many facilities are: Allegheny River Terminals, a barge, rail and truck facility; Colona Transfer, which transloads, stores and transports dry bulk on the Ohio River; and Riverlift Industries, a Monongahela River aggregate, breakbulk and coal terminal.

Maintaining or reconstructing the 17 locks and dams along the system, a task of the US Army Corps of Engineers (USACE), has been an uneasy situation for years, largely due to federal funding issues – a challenging, contentious funding climate that affects navigation projects nationwide.

There have been maintenance projects in the Pittsburgh district in recent years – one for instance at Montgomery locks and dam – as well as large, incremental new construction initiatives such as the Lower Monongahela project, which continues at Charleroi locks and dam. More projects are needed, and the USACE recently undertook a study of infrastructure needs along the upper Ohio River, where the ageing, outmoded Emsworth, Dashields, and the aforementioned Montgomery locks and dams are in need of replacement.

The Montgomery structure, for example, according to a recent local report, has leaks, deep cracks, and deteriorating concrete, one of the factors putting the river navigation system at increasing risk.

The USACE's Lenna Hawkins, deputy district engineer, told *P&H* the construction of new locks at each site identified in the study would be sequential – it is reportedly a USD2.3 billion project and budgeting limitations preclude simultaneous construction – and that the entire initiative could take 18 years to complete.

Officials have pointed out that a major failure of a lock could shut down river navigation with dire consequences

Montgomery locks and dam repairs in 2013

economically. Indeed, crumbling infrastructure is “a crucial concern” that affects consumers, residents, and businesses, according to Mary Ann Bucci, executive director of the port commission.

River supporters are undaunted by the infrastructure situation, pointing out that the system is the safest, most cost effective, fuel efficient, and environmentally sound way to transport commodities, such as coal to regional power plants.

Regional industry players are watching some recent developments along the Ohio River, including petrochemical plants by Royal Dutch Shell, where there has been significant preliminary construction on and near its site but reportedly no final decision on proceeding with the complete build-out. Another development is the PTT Global Chemical site. Lower prices for various gas products recently have slowed the initiatives, which reportedly have cost many millions of dollars so far.

As area barge owner Peter Stephaich, chairman and CEO of Campbell Transportation, observed, “Would you sink that kind of capital into where you don’t have a reliable infrastructure? Or will you go somewhere with that reliable infrastructure?” Stephaich, a member of the port commission’s board, is enthusiastic about the region’s potential, including developments related to the region’s Marcellus and Utica shale gas reserves, but knows that infrastructure issues loom.

Businesses that use the river system need reliable infrastructure and that means reliable locks and dams. “Scheduled and unscheduled closures of any of the locks and dams are costly to the shipper and to the consumer,” Bucci said.

The Pittsburgh region is not alone by any means. Nationwide, river traffic passes through about 200 locks and dams that average about 50 years in age, with maintenance, renovation and new construction needs totalling a reported USD8 billion.

In 2015, changes in federal funding mechanisms for river projects were welcomed by many in the industry, and this year river system advocates were encouraged when the US Senate approved a bill that would increase funding for the USACE civil works programme. According to a news release by policy group Waterways Council Inc (WCI), the approved funding includes USD375.6 million being made available from the Inland Waterways Trust Fund – amassed through fuel taxes paid by waterway users – for priority projects.

The priority projects include Olmsted lock/dam, a massive project on the Ohio River between Illinois and Kentucky. Another is the Pittsburgh region’s aforementioned Lower Monongahela project, including the lock and dam system at Charleroi, which *P&H* visited in 2015. At Charleroi, incremental work on a new lock wall, an emptying basin, a river wall and other components have been under way for some time.

Speaking about projects nationwide, Amy Larson, of advocacy group the National Waterways Council

(NWC), told *P&H*, “We are very encouraged that the [US] Congress recognises the importance of these investments in new construction and operations and maintenance in the inland infrastructure system.”

Yet another development speaks to a contentious federal funding climate: industry advocates were disappointed in late May when America’s other federal legislative body, the House of Representatives, voted down an appropriations bill that, as described in a news release by WCI, “recommended strong funding levels for the corps’ [USACE’s] important work to ensure reliability on the inland waterway transportation system.” And with “so many lock and dam infrastructure needs”, robust funding levels are particularly welcome.

However, the course ahead will not be easy. Larson, considering the entire network of American waterways, said, “We will continue to face challenges as the system degrades and we don’t have sufficient funding to keep up with maintenance needs.”

For now, Bucci, back in Pittsburgh, is encouraged by the level of awareness by public officials of the economic benefits and challenging needs of the river system.

Regional river commerce and the Upper Ohio River projects, Hawkins said, “are important for various reasons, including navigation, which is cheaper and more cost effective, they are environmentally friendly, there’s recreation and water supply, and they take the strain off rail and roads”. So Bucci and her colleagues continue to beat the drum for their region’s river commerce and the infrastructure needed to keep it moving and growing. In fact, the commission “looks for opportunities to educate the general public on the importance of commerce on our rivers and how it benefits all of the people in the region”. She said, “We’ll go anywhere people will listen.”

“Pittsburgh is here because of our rivers and it’s part of an entire system that encompasses more than 17,700 km through the heartland of the United States. “It all boils down to a safest, most cost-effective mode of transportation.” **PH**

MORE INFO: www.port.pittsburgh.pa.us



Expanded Panama Canal joins ESI



Coinciding with the official opening of the expanded Panama Canal on 26 June, the Panama Canal Authority (ACP) has announced that it has joined a growing list of incentive providers for the Environmental Ship Index (ESI) scheme that encourages owners to operate greener commercial ships.

"Providing incentives for customers meeting carbon emissions standards is just one of the ways the canal will remain environmentally sustainable," the ACP told *P&H*.

"Given the shorter travelling distance and larger teu capacity the canal offers its customers, the canal reduces fuel consumption and therefore emissions, having a greater impact on cutting global carbon emissions compared to alternative routes. We estimate that the Panama Canal Green Route will cut CO₂ emissions by more than 160 million tonnes during the first 10 years of expanded canal operations," a spokesman said.



The Miraflores 1st lock on the Panama Canal. The canal authority wants to help its customers meet emissions standards

ESI is one of the major pillars of the World Ports Climate Initiative, identifying seagoing ships that perform better in cutting emissions by a greater degree than that required by the current IMO emission standards by evaluating the amount of nitrogen oxide (NO_x) and sulphur oxide (SO_x) released by a ship. The scheme includes a reporting mechanism on a ship's greenhouse gas emissions. Reports are made to www.environmentalshipindex.org.

The ESI is used by an increasing number of ports to reward ships that participate in this voluntary scheme, for example, by adjusting port fees. According to the website, there are currently over 4,600 vessels with a positive ESI score. The ESI scheme now has over 40 incentive providers including the Panama Canal Authority and the class society DNV-GL.

The French port of Le Havre, one of the six port authorities that launched ESI six years ago,

has recorded a first by bunkering the first cruise ship running on liquefied natural gas (LNG).

On 10 May, *AIDAprima*, AIDA Cruises' new flagship powered by a dual-fuel generator, was supplied with LNG while moored at the port. It is also the first time that LNG has been bunkered at a French port during a commercial call.

The *AIDAprima's* systems run on LNG while berthed, making an important contribution to emissions reduction since an average cruise ship spends 40% of its operating time in port.

Preparations and initial permit procedures for operating with LNG at other European calls on *AIDAprima's* route are already well under way, including the ports of Hamburg, Southampton, Rotterdam and Zeebrugge.

MORE INFO: www.environmentalshipindex.org

Hybrid result for Scandlines

The first of two ro-pax ferries featuring a hybrid diesel-electric/battery propulsion system has entered service with Scandlines between Denmark and Germany, nearly six years after being ordered. Despite the protracted nature of the project, which was beset by technical construction

problems and the bankruptcy of the original shipbuilding contractor, the rectified and reconfigured *Berlin* represents a major milestone in the operator's bold environmental strategy.

Due to be followed in a few months by the second-of-class *Copenhagen*, *Berlin* started on the

Gedser/Rostock route in May, providing capacity for 1,300 passengers and 460 cars or 96 trucks. The two vessels represent a combined investment of more than EUR280 million (USD315 million), complemented by the expansion of port facilities on both sides of the southern Baltic crossing to strengthen the central transport corridor between Scandinavia, Germany, and central Europe.

Berlin and *Copenhagen* are replacements for the 1980-81-built *Prins Joachim* and *Kronprins Frederik*. The new tonnage represents a substantial upscaling in route capacity, more than doubling each ro-ro payload and boosting passenger intake by about a third.

Scandlines' road map for its shortsea fleet envisages a zero-emission ferry equipped with 100% battery propulsion after 2018.

Notable numbers



17

Number of locks and dams that form part of the Port of Pittsburgh network

\$40 bn

Amount in one fund for Silk Road projects



The IMO Maritime Safety Committee meeting in May

IMO takes steps towards construction rules

International standards on how oil tanker and bulkers are built entered a new realm on 13 May when the International Maritime Organization (IMO) signed off on construction guidelines submitted by 12 classification societies.

The development, announced during the 96th session of the IMO's Maritime Safety Committee (MSC) held between 11–20 May, marks the first time the agency has been given a role in auditing and verifying structural rules developed by class societies for tanker and bulk newbuildings.

It is also the culmination of a change in policy that began 14 years ago, when governments and international organisations believed that the IMO should start to play a larger role in determining the structural standards to which new ships are built.

"The completion of this process

of developing goal-based standards for oil tankers and bulk carriers, followed by the detailed verification audit process, means that we now have a much closer alignment between the classification societies' rules and the IMO regulatory process," said IMO secretary-general Ki-tack Lim. "This marks a very significant development in the IMO rule making process."

The philosophy behind goal-based standards, the IMO noted, is

that ships "should be designed and constructed for a specified design life and that, if properly operated and maintained, they should remain safe and environmentally friendly throughout their service life."

Regulation II-1/3-10 of the International Convention for the Safety of Life at Sea (SOLAS) applies the philosophy to new oil tankers and bulkers over 150 m (492 ft) long.

The regulation stipulates that

such ships "must have adequate strength, integrity, and stability to minimise the risk of the loss of the ship or pollution to the marine environment due to structural failure, including collapse, resulting in flooding or loss of watertight integrity", according to the IMO.

The standards were adopted in 2010 and entered into force in 2012. They apply to oil tanker and bulk vessel building contracts placed on or after 1 July 2016.

The subject of goal-based vessel construction first arose at the November 2002 IMO Council meeting in a joint submission by Greece and the Bahamas.

Class societies at the time were hostile to the idea, which was raised just a week after the oil tanker *Prestige* had sunk off Spain and three years after the *Erika* tanker disaster. Class had been implicated in both spills, so at the time the societies were already feeling under attack, according to reports. However, as the MSC became more involved, it relied on the International Association of Classification Societies (IACS) for input into the methodologies, and hostility to the scheme faded.

The IACS eventually developed its own guidelines to address construction safety, the Harmonised Common Structural Rules (CSR). They were devised to ensure a consistent rule set for the construction of bulkers and tankers, and went into effect for vessels ordered after 1 July 2015.

CSR is intended to complement the IMO's goal-based standards. They require, among other things, the use of wider and thicker timber in the construction of cargo holds.

Peru agrees to BWM Convention

Peru became party to the IMO Ballast Water Management Convention (BWM Convention) on 10 June. This brings the number of states that have signed up to the convention to 51, representing 34.87% of the world's merchant fleet tonnage.

IMO secretary-general Ki-tack Lim reiterated his request to countries that have not already done so, to ratify the BWM Convention as soon as possible in order to establish a certain date for entry to force, said the IMO in a statement.

\$326.48m

Cost of Sydney's automated terminal



2

Number of winners of the first IAPH Women's Forum awards

IMO urges leniency on VGM regulation

The International Maritime Organization's (IMO's) call in May for leniency in the enforcement of the verified gross mass (VGM) rule following the 1 July contradicts the carrier and terminal message of "no VGM, no load", but it brings much-needed relief to parties struggling to prepare for the regulation's implementation.

A lack of consistency in the interpretation by authorities around the world and conflicting positions surrounding the VGM rule have led to mounting concerns over delays in shipments expected as carriers, terminals, shippers, and their forwarders deal with teething problems in documenting, communicating, and sharing VGM information.

This appears to have prompted the IMO to urge a policy of "practical and pragmatic" enforcement by agencies for three months after the regulation is imposed.

"On one hand these IMO remarks are not helpful to us in our enforcement approach towards customers where we put forward a strict 'no accurate VGM no load' policy," said Joerg Hoppe, DB Schenker director and head of ocean freight, for North and Central China.

"However, they may lend a helping hand in allowing certain stakeholders involved in the SOLAS enforcement process to be lenient towards customers for a while. It is in nobody's interest to interrupt supply chains more than necessary."

Hoppe said the IMO's remarks



Peel Ports' weighbridges in Liverpool. It is one of a number of port operators to announce plans to help shippers comply with the VGM regulation

did not come as much of a surprise. "It has faced relentless pressure from the shipping industry about the many ambiguities in the SOLAS regulations causing significant implementation hurdles."

Inna Kuznetsova, president of Intra, emphasised that the law and a carrier's decision not to load a container without the VGM had not changed. All export

containers will still need to be accompanied by a VGM that is submitted to a carrier in time to plan the stowage.

"What the IMO suggests is for the countries applying penalties to consider a three-month grace period to offer shippers a small relief during the peak season while they fine tune their processes," she told *P&H*.

"Let us remember that even

with an honest effort to fully comply with the VGM, shippers face a need to update processes executed by thousands of their employees and contractors across many countries, so an error or omission may happen. De-risking this time by waived fines helps shippers to ensure its smooth execution."

TT Club's risk management director, Peregrine Storrs-Fox said the statement from the IMO was welcome. "Like many others in the industry, we have been disturbed by the apparent confusion over how shippers will comply with the amendment to SOLAS," he said.

"There are no doubt still a number of grey areas. In order to give time for these to be resolved, the IMO's intent is that any party who has done its level best to comply, even if it has not technically fulfilled the letter of the law, may expect to be treated with understanding. Those, however who have done little or nothing can expect to be penalised."

Carriers to charge if non-compliant box is not loaded

If a container is not loaded on a ship because of non-compliance with the new verified gross mass (VGM) regulations which kicked in this month, United Arab Shipping Company (UASC) will charge the shipper responsible for that box 75% of the combined freight rate and bunker and currency adjustment factors.

Called the dead freight charge, it will be levied "if, as a result of compliance issues related to VGM certification, containers on

the final load list submitted to the terminal are not loaded," the UASC advisory noted. At the current Shanghai Containerised Freight Index reading, which gives the all-in rate, a 75% dead freight charge on Asia-North Europe would be USD570 per container.

Other charges by UASC are a USD100 per container VGM non-compliance fee and a USD25 per container VGM processing fee if a shipper submits the data by means other than via electronic data interchange (EDI) or

online. The carrier will levy a VGM standard charge applicable to all loaded containers but has yet to announce the amount.

Orient Overseas Container Line (OOCL) has offered to weigh containers for shippers at a cost of almost USD300 per container. OOCL included in the note that "if a certified scaling requires the driver to alter his route in order to provide the service, an additional per mile cost for the diversion will be applied based on the trucker's tariff."

9,000 teu

Maximum size that can currently be handled at two of Iran's main ports

12m

Alongside depth of developed Matadi terminal

Speaking before the 1 July deadline, Hoppe said that even with jurisdictions showing leniency in enforcement, the true test of the new rule and the systems in place would come when the first weight discrepancies occurred.

"Then carriers, terminals and authorities will hopefully deal with it in a pragmatic and fair manner until all the theoretical processes have been strengthened enough during the inevitable reality check on and after 1 July," he said.

The Asia Pacific head of another German forwarder said he expected that in the beginning, a few "unfortunate" boxes would be held back from loading and that it would take some time to work through the VGM issues.

"I think it will take longer than three months of such flexibility, particularly as we all know the legal framework is still largely uncompleted and weighting facilities are also still not available everywhere," he said. "I expect that the commercial flexibility will last quite a while as lines cannot afford to leave containers behind and lose customers because of rigid implementation."

Also gaining momentum are terminals offering container weighing services. Global terminal operators HPH, DP World, and APM Terminals have announced that they will weigh boxes across their global portfolios, although in China, only Hutchison Port Holdings' Yantian International Container Terminals, and now Modern Terminals' Dachan Bay and Taicang facilities, have announced that they will offer a weighing service..

i MORE INFO: www.imo.org

European Union sets out Arctic priorities

The European Union has launched an environmental policy initiative for the Arctic region to balance the demand for economic development and increased transport with protecting the region's fragile ecosystem.

In April, the European Commission adopted a policy proposal to guide the EU's actions in the Arctic region, focusing on climate change, environmental protection, sustainable development and international co-operation. The proposal is now being discussed by EU member states and the European Parliament.

The Arctic's role in climate change has become much more prominent in recent years with far-reaching consequences since the region acts as a regulator of the Earth's climate, including Europe's weather patterns. In past decades, the Arctic has been warming at almost twice the global average rate and scientists have suggested that the Arctic also contributes to climate change by the gradual release of methane gases as the region warms up.

In turn, rising temperatures in the Arctic are driving increasing economic activity in the region; thawing sea ice and rapid advances in offshore technology have increased such activities as mining and hydrocarbon extraction. The changes have also opened up the possibility of more reliable commercial shipping routes in the waters of the Arctic Circle.

As part of its strategic



Commercial shipping is opening new routes in Arctic waters

commitment to the Arctic, the EU is proposing to engage with the region in three priority areas: climate change and safeguarding the Arctic environment; promoting sustainable development in the region, and supporting international co-operation on Arctic issues.

The sustainable management of the Arctic high seas beyond national jurisdictions is a global responsibility, hence also for the European Union. Three EU members - Finland, Sweden and Denmark - are Arctic states.

European shipowners welcomed the EU's policy proposal as addressing the key issues facing the Arctic region. Patrick Verhoeven, the secretary-general of the European Community Shipowners'

Associations (ECSA), praised the development of a more coherent framework for EU action and funding programmes in the region.

"Shipowners encounter challenges in polar shipping such as poor charts, lack of infrastructure and navigation control systems and low search-and-rescue capability. The ECSA is pleased that these topics among others are addressed in the [European] Commission's communication and that the EU supports the efforts to implement the International Polar Code," the ECSA said in a statement. It also called for an expansion of the resources of the European Maritime Safety Agency on maritime surveillance and vessel traffic monitoring in Arctic waters.



\$1.3 bn

Cost of Long Beach Container Terminal's first automation phase

2018



Deadline by which Scandlines wants 100% battery propulsion across shortsea fleet

Ghana paperless ports scheme begins

Ghana is targeting the complete elimination of paper in trade transactions at its ports by the end of 2017 as part of the third phase of the development of its National Single Window (NSW) project.

A new five-year strategy and roadmap for the NSW project aims to dramatically reduce the number of physical shipment inspections at ports and further increase the simplification of clearance processes through the use of additional automation and the removal of paper from transactions.

According to the Customs Division of the Ghana Revenue Authority (GRA), the goal is to reduce the cost of trade processes by 50% and to reduce the amount of time it takes to process international shipments by 25%.

However, there are huge inefficiencies and corruption problems with trade and supply chain processes (see page 10) and the government and port community are looking to NSW to help solve them.

Ghana is currently ranked 171 out of 189 countries in the Trading Across Borders category of the World Bank's 2016 *Ease of Doing Business* survey, a below-average ranking among countries in sub-Saharan Africa.

Border compliance processes for exports currently take an average of 108 hours per shipment and cost an average of USD490, and processes for imports take 282 hours and cost USD725, the survey said. This compares with an average of 15



“We will support the officers and end-users in the process through a strong change-management programme and capacity building”

George Blankson, *commissioner-general of the GRA*

hours and USD160 for exports, and just nine hours and USD123 for imports in countries that are part of the Organisation for Economic Cooperation and Development (OECD).

A key goal of the next phase of the NSW project is to improve Ghana's ranking from 171 in the survey to 121 by 2021.

The NSW allows importers and exporters to electronically file documents such as customs declarations, certificates of origin, and invoices at a central location

accessible to all regulatory trade agencies. Customs and other regulatory bodies such as the Food and Drug Authority and Ghana Standards Authority also use the system to make standardised information and documentation available electronically to importers and exporters.

The NSW has already reduced the amount of time required to process shipment documents significantly. The system facilitates the processing by customs of more than double the number of

shipment classification and valuation reports on a daily basis than could be processed before it was implemented.

“The Pre-arrival Assessment Reporting System (PAARS) has significantly reduced the time and cost of doing cross-border trade in Ghana,” Albert Akurugu, senior revenue officer of Ghana Customs Division, told journalists at a briefing on the system in the country's capital, Accra. “Previously, it took an average of two weeks for trade documents to be processed; the implementation of PAARS has cut processing time for complaint cases to two days and in some cases two hours.”

The five-year strategic plan and roadmap include the introduction of an integrated risk management component to reduce the need for intrusive and costly physical inspections of shipments. Goods clearance processes will be further simplified with more automated services for clearance processes, followed by the eventual complete elimination of paper transactions.

The plan envisages a deeper engagement between the implementers of the system, related government agencies, and the port and shipping community.

“The GRA is committed to staying the course of this programme; we will support the officers and end-users in the process through a strong change-management programme and capacity building,” said George Blankson, commissioner-general of the GRA, at the plan's launch.

3.5 m

Annual teu capacity to be developed at Port of Tema



3

Number of additional VPs under new IAPH constitution



The new constitution was discussed at the board meeting held at the Panama conference in May

All change at IAPH

Three new VP positions, a new governance structure and a yearly AGM are the result of the IAPH's new constitution.

Positions for three additional IAPH vice presidents became available under the new Constitution of the IAPH, taking the number of VPs from three to six. The draft constitution was agreed following a meeting by correspondence of IAPH regular members on 15 April and went into effect on 1 June.

At the IAPH Board Meeting in Panama in May, a follow-up discussion took place to review what had been achieved and needed to be done in order to implement the constitution from 1 June. It was agreed that the positions of the additional vice presidents should be held by

regional regular members and honorary members whilst the election process takes place.

The VP positions currently vacant are America (North), America (south and central), Asia (south/west, east and Middle East) and Europe. They will join the current VPs of Africa and Asia

(south/east and Oceania).

Elections for the new VPs are now underway and IAPH and *P&H* will keep you informed when the process is complete.

Other major changes under the new constitution include a restructuring of the executive committee and board of directors. Under the new structure there will be a Board of Executive Directors (the Board) consisting of the president and the six regional VPs. There will also be a council made up of the following Non-Executive Directors: the immediate past president; conference VP; secretary general; managing director-Policy and Strategy; internal committee chairs; technical committee chairs; chairs of project leaders of the forums; subsidiary bodies and significant initiatives up to a maximum of three appointments, including one associate member representative.

There will also be an annual general meeting (AGM) each year, replacing the plenary session held every two years.

Please contact the IAPH Secretariat (info@iaphworldports.org) if you have any questions about the new IAPH Constitution.

MORE INFO:
www.iaphworldports.org/news/2092



IAPH members met up in Panama in May



Photos: ACP



We value your opinions

Do you have strong views about any of the articles in *Ports & Harbors*?

Are there other industry issues you feel strongly about?

Email your views to ph@iaphworldports.org and we'll be happy to include them

Winners of awards announced in Panama

► Women's forum

Two women were awarded scholarships created by the IAPH Women's Forum

Luana España, community affairs representative and assistant management analyst at the Port of Oakland, USA and Fiona Syovata Mbandi, human resources officer in charge of change management at the Port of Mombasa, Kenya became the inaugural winners of the Women's Forum awards.

Their names were announced at the IAPH Panama conference in May.

España won the Biennial Training Scholarship of USD15,000 for her to study for two years to further her career within the ports industry. She was chosen from 12 applicants. España said, "I am greatly honoured to receive the first IAPH Women's Forum Biennial Training Scholarship to pursue a video production certificate and present a paper at the 30th IAPH World Ports Conference in Bali, Indonesia in May 2017. The video production certificate will provide me with the knowledge and skills to effectively share the Port of Oakland's community affairs work with a broader audience and engage the community through video on social media platforms."

She continued, "Further, participation



Fiona Syovata Mbandi, human resources officer for change management, Port of Mombasa



Luana España, community affairs representative / assistant management analyst, Port of Oakland

in the IAPH World Ports Conference will enable me to present an original paper internationally and meet the dynamic and successful women in leadership roles at ports and harbors worldwide. Thank you IAPH Women's Forum for this wonderful opportunity!"

Mbandi was selected from 11 applicants to win the Annual Meeting Scholarship for her to receive up to USD5000 to travel to the Bali conference and present an original paper at the Women's Forum session. She said was excited and and honoured to be the first recipient of the Annual Meeting Scholarship. "I look forward to this new experience, and meeting with other delegates with whom I believe I will share different experiences and add knowledge for my personal growth and to benefit my organisation and country."

"Through the conference output and networking, I hope to instil more interest [in] maritime [issues] especially in the girl child who in future will organise such a forum. Thank you and see you in Bali, Indonesia in May 2017."

IAPH launches new website

The IAPH's website (www.iaphworldports.org) has been revamped for the first time in five years. The last update was in March 2011. Its design and format has been completely renewed with a view to making the site less text-heavy and more visually rich and attractive. Members can log-in to all the sections and pages within the site with your log-in codes.

The IAPH Committee on Communication & Community Relations Committee, chaired by Arley Baker of the Port of Los Angeles, USA and vice chaired Martin Byrne of Port Nelson, New Zealand, greatly assisted in the



An image of your port can be uploaded to the new IAPH website

development of this new site.

Baker said, "In addition to its vital role providing valuable resources for IAPH members, the more attractive and user-friendly site has been designed to be more

appealing to non-IAPH visitors who want to learn more about the many activities that ports are engaged in through the IAPH."

Among the new features, Google Maps has been introduced

to show the geographical locations of IAPH members. It was powered up to display the cargo tonnage and teu figures of IAPH member ports. In addition, it can also display images of these ports.

Please help us display your port through our website by sending us an aerial photo. The easiest option is to simply send us a link to the best image you have of your port on your website, and we can take it from there.

If you forget your username and password or have any questions about new IAPH website, please contact the IAPH Secretariat at info@iaphworldports.org

MORE INFO:
www.iaphworldports.org

2016

2017

2018

Dates for your diary

A selection of forthcoming maritime courses and conferences



August

- 1-12:** Port Efficiency Management, London, UK
www.ttpminternational.co.uk
- 15-26:** 'Port and City' Community Relationship Management
London, UK
www.ttpminternational.co.uk

September

- 4-16:** 'Dry Port' Planning, Operations & Management
London, UK
www.ttpminternational.co.uk
- Commences from 5:** Diploma in Terminal Management
Distance learning (discount for IAPH Members)
www.lloydsmaritimeacademy.com/FLR2685AA
- Commences from 13:** Certificate in KPIs for Ports and Terminals
Distance learning (15% discount for IAPH Members)
www.lloydsmaritimeacademy.com/FLR2683AA
- 14-15:** Energy and Environment Seminar, Vancouver, Canada
www.aapa-ports.org
- 14-16:** Shipping Derivatives and Risk Management
Executive Course, Singapore
www.wmu.se/events/shipping-derivatives-and-risk-management
- 21-22:** Egypt Ports and Waterways Summit, Cairo, Egypt
www.egyptportsandwaterways.com
- 21-23:** 11th Southern Asia Ports, Logistics & Shipping 2016
Colombo, Sri Lanka
www.transporevents.com

- Commences from 28:** Certificate in Maritime Law and Shipping Contracts,
Distance learning (15% discount for IAPH Members)
www.lloydsmaritimeacademy.com/FLR2655AA111

October

- 3-14:** APEC Seminar on Port Environmental Policy & Technology
Antwerp, Belgium
www.portofantwerp.com/apec
- 4-6:** TRANSTEC 2016, St. Petersburg, Russia
dolphin-uk.cergis.com/home/transtec/
- 4-7:** 19th SIBCON 2016, Singapore
www.sibconsingapore.com
- 5-7:** 15th World Conference Cities and Ports
Rotterdam, Netherlands
www.citiesandports2016.com



New vice-chair for Women's Forum

Viv Bull, Culture and Capability manager at the Port of Napier, New Zealand was appointed as vice chair for the Asia and Oceania region of the Women's Forum on 3 June. IAPH President Santiago Milà made the appointment. The post had

been vacant since former vice chair, Siti Noraishah Binti Azizan, was promoted to chair the forum in January.

If you are interested in the IAPH Women's Forum and its activities, please contact Siti Azizan via the IAPH secretariat.

Naruse to judge awards

The IAPH's Secretary General Susumu Naruse has agreed to be the eighth judge on the panel for the IHS DPC Innovation Awards 2016.

The awards programme will consist of 14 categories looking at the most innovative and forward-thinking projects, and people, that the industry has to offer and will bring together the best of the dredging and port construction sectors.

MORE INFO: www.ihsdpcawards.com

Membership notes

The IAPH Secretariat is pleased to announce that the following have joined the association

Regular members

Port Authority of New York and New Jersey

- Address:** 4 World Trade Center, 150 Greenwich Street 17th Floor,
New York, NY 10007, USA
- Telephone:** +1-212-435-4202
- Fax:** +1-212-435-4201
- E-mail:** mccampbell@panynj.gov
- Website:** www.panynj.gov
- Representative:** Ms. Molly Campbell, Director of Port Commerce



Port of San Diego

Heavy industry, with no heavy green toll

Port of San Diego shows that environmental stewardship and cuts in emissions can co-exist with smart business practices, says **Randa Coniglio**, president/CEO of Port of San Diego

“ San Diego is among the first ports in the nation to voluntarily adopt a sustainability guide ”

Ports around the world are demonstrating that heavy industry and job creation can coexist with a healthy ecosystem and greenhouse gas reductions to combat climate change. The State of California is recognised as an environmental leader, and at its southern boundary operates the Port of San Diego, which is developing clean energy sources for ocean-going vessels and supporting the health of coastal habitats.

At our port, industrial and maritime industry produces nearly 13,000 jobs, making our agency an indispensable economic engine for the region. The Port of San Diego oversees maritime cargo and cruise terminals, hundreds of waterfront business agreements and public amenities including 22 public parks. Achieving a balance of industrial activity and public access to the waterfront requires a sophisticated approach to planning that considers economic benefit along with environmental impact.

In 2013, the Port of San Diego adopted a Climate Action Plan with strategies for reducing greenhouse gas emissions, making it among the first ports in the nation to voluntarily adopt such a sustainability guide. Of course, the Port of San Diego is not unique in undertaking projects to reduce environmental impacts. The Port of Rotterdam Authority, for example, is breaking new ground in the way it operates

by harnessing the power of wind energy. The Port of Hamburg has been providing incentives for eco-friendly operators and technologies since 2011, which synchronises economic and environmental goals. And the Port of Singapore has been experimenting with the use of alternative fuels, such as liquefied natural gas, for ocean going vessels.

What is unique at the Port of San Diego is that its sustainability measures exist in a single comprehensive plan, which is already giving results. To date, the Port of San Diego has already achieved over 50% of its 2020 goal for greenhouse gas emissions reductions. How have we achieved this improvement? We provide cleaner shore power for cruise and cargo ships, facilitate sustainable business practices for our tenants, and are developing a Sustainable Leasing Policy to advance environmentally friendly operations. At the same time, we are part of a massive clean-up effort to remove chemicals from legacy shipyard sites in our bay. These are just a few of the ways our port demonstrates its commitment to the environment. Ports around the world are recognised as economic drivers, and we have an opportunity to educate the public that our heavy industry doesn't have to take a heavy toll on the environment. By taking a comprehensive approach to planning for environmental impact, we can enhance public support for seaports as good citizens. **R&H**

Randa J. Coniglio



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