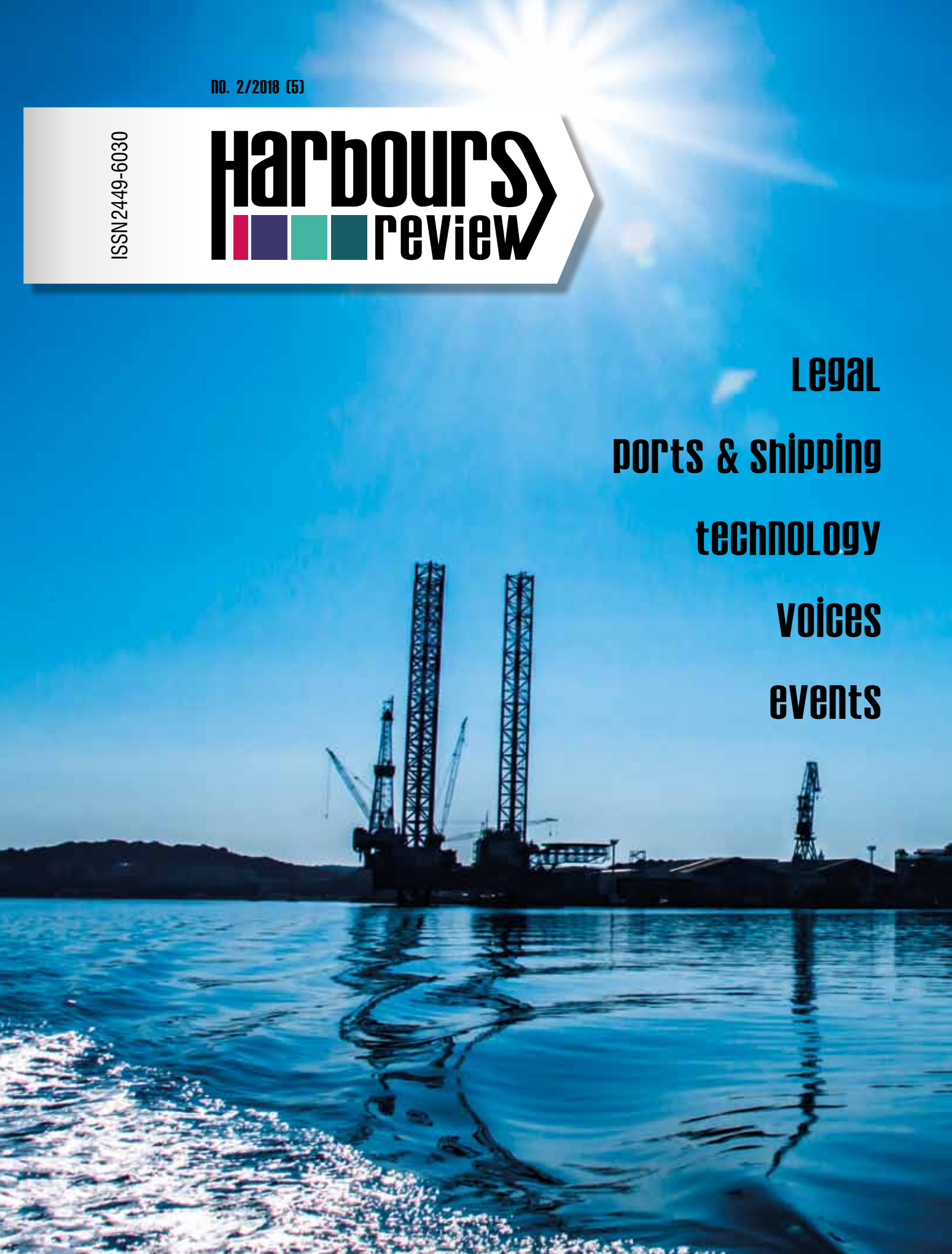


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Harbours
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dear readers,

year 2018 nears its conclusion. These were indeed article-rich 12 months and as such we're proud to present the second printed edition of the Harbours Review, a round-up of some of the finest reads we published this year, several of them from our other publication, the Baltic Transport Journal, to draw your attention to this piece of our work, too.

As for the publication in front of your eyes, it serves a full course dinner, including starters like news items and Market SMSes, through filling bowls containing of a real multitude of ingredients – legal, ports & shipping, and technology. For dessert, several coverage on events that we either attended or even helped to set up, plus voices we gathered that sum up the observations made by the fairs' and conferences' participants.

Bon appetite! That is, we wish you a pleasant reading!

the harbours review team



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red-hot port matters

Photo: Pexels

ICO expands in Zeebrugge

International Car Operators (ICO) has signed a concession agreement with the Port of Zeebrugge for a 54 ha big expansion of the Bastenaken vehicle terminal. In total, ICO will cover 300 ha of land in the Belgian port. The expansion will also allow to connect the Hanze and Bastenaken terminals. As a result, handling up to 16 vessels simultaneously will be possible.

Koper buys Konecranes' RTGs

The Slovenian port has placed an order for five electric cable reel auto plug-in rubber tyred gantry (RTG) cranes from the Finnish manufacturer. The new 40t of lifting capacity machinery, scheduled for delivery in summer 2019, will feature a number of eco-friendly and driver-assistance solutions, including regenerative power feedback to the local grid, LED lights, auto-steering, auto-terminal operating system reporting, auto-positioning, and stack collision prevention. "Starting in 2004, Luka Koper acquired over 20 Konecranes RTGs over 15 years of strong collaboration that allowed us to build a trusting relationship. It was a good decision to choose Konecranes as our crane supplier. With each new RTG crane delivery, we received new crane functionality and the sales support is excellent," Edvin Boskin, Technical Manager, the Port of Koper, said. Antti Halonen, Sales Manager, Konecranes Port Solutions, added, "Luka Koper has been our customer for over fourteen years. I'm happy that our relationship with them continues to be strong. Koper has granted Konecranes its Investment Supplier of the Year award, for the second year in a row. It's an honour to receive this vote of confidence in our container handling equipment and how we support Luka Koper in its business."

A shipyard-academia co-op

Meyer Werft, a Papenburg-based group of shipyards, and the Dutch University of Groningen have teamed up to expand the interaction between the business and science worlds. The two will launch the Innovation Lab Papenburg – Groningen 2018-2050, which will focus on issues related to IT, sustainability, and energy efficiency. Among other things, the Lab's first projects will be focused on building an intelligent value chain in the cruise industry, establishing a globally recognised and standardised reporting method in relation to cruise ship sustainability standards, as well as researching the fields of innovative fuels, efficient drive systems, and renewable energy generation. The so-called "future spaces" will be set up in both Papenburg and Groningen from where all the project activities will be coordinated.

Kongsberg to take over Rolls-Royce Commercial Marine

The deal will include the acquisition of the marine products, systems, and aftermarket service businesses, but will not cover Bergen Engines and Rolls-Royce's Naval Business. The parties have agreed on a value for Rolls-Royce Commercial Marine of £500m (on a cash and debt free basis and with working capital at an agreed level). The final purchase price, however, will be determined based on the Rolls-Royce Commercial Marine's cash, debt, and working capital at the time of completion of the transaction, which is subject to clearance by regulatory authorities in several jurisdictions. Rolls-Royce Commercial Marine, represented in 34 countries, has approx. 3.6k employees. Combined, the two companies have the equipment and deliveries associated with around 30k vessels worldwide. "The maritime industry has over the last years experienced demanding market conditions, and even though there is still uncertainty, we expect the market to be facing growth with technology and innovation being key drivers. For more than 200 years Kongsberg has been a pioneer for high technology industrial development with a long-term perspective. The acquisition of Rolls-Royce Commercial Marine is in line with our growth ambitions," Eivind Reiten, Kongsberg's Chair of the Board, commented. Geir Håøy, CEO and President, Kongsberg, added, "The acquisition of Rolls-Royce Commercial Marine makes us a more complete supplier to the maritime industry. The maritime industry is becoming increasingly globalized and is undergoing considerable technological and market-driven changes." He furthered, "Kongsberg is a world leader within automation, navigation and control systems, whilst Rolls-Royce Commercial Marine is complementary with its deliveries of propellers, propulsion systems, handling systems and ship design. Both companies hold leading positions within digitalization, ship intelligence and concepts for autonomy. By bringing together this, we are positioning us as a significant strategic supplier of complete solutions for the future maritime industry." Mikael Makinen, President, Rolls-Royce Commercial Marine, summed up by saying, "This deal is good news for Rolls-Royce and Kongsberg and comes at a time when the maritime industry is at the dawn of a new and exciting era where digital and electrical technologies will transform shipping. Rolls-Royce has been responsible for leading many of those technological advancements, and with combination of great people, market leading technology and a desire by Kongsberg to take this business to the next level, I'm sure that this business will prosper in the years to come."

Marlink-Transmetrics co-op to digitalise end-to-end maritime logistics

The two have signed a partnership agreement aimed at optimising logistics operations for maritime customers with the use of Artificial Intelligence (AI) and big data. The Sofia-based Transmetrics has developed Asset Metrics, a predictive asset management tool; based on applying AI algorithms for data cleansing and demand forecasting, the AssetMetrics software suggests the optimal storage, repositioning, and maintenance strategy for empty containers as well as the optimal levels of 'safety stock' at each location. It is estimated that with the AssetMetrics software, shipping companies can expect about 10-15% cost reduction of empty assets logistics. On Marlink's part, as part of its Smart Connectivity strategy, the Lysaker-headquartered company seeks to support new partners and applications to work together to enable its customers' digitalisation and business efficiency. "Transmetrics will help us to address our cargo & container ship customers' top priority which is to digitalise end-to-end the logistics chain and fix the inefficiency of cargo transport and logistics. Partnering with the best start-ups, we are positioning Marlink as a leading digital company in the industry, creating tangible economic value for customers from their digital enablement strategies through our smart connectivity solutions," Gennaro Faella, Head of Strategic Business Development, Marlink, said. Tore-Morten Olsen, President Maritime, Marlink, added to this, "The maritime transportation industry is experiencing phenomenal changes thanks to new technologies such as big data and predictive analytics. Our agreement will leverage Marlink's satcoms connectivity combined with Transmetrics intelligent software solution to streamline shipping companies' container flows, prevent empty capacities on vessels and ultimately make our cargo customers more efficient." Asparuh Koev, CEO, Transmetrics, also commented, "Marlink's global multi-band network and extensive insight into maritime digital transformation will augment our predictive optimisation software AssetMetrics, ensuring that together, we are positioned to deliver tangible operational and financial efficiencies to end-users."

Bernhard Schulte entrusts Ulstein with a new contract

The German shipowner has contracted the Norwegian shipbuilding company for the delivery of a service operation vessel (SOV). The 93.4 m-long and 18 m-wide SOV, to be delivered in early 2020, will support the maintenance of the 66 turbines-big 396 MW Merkur offshore wind farm that's located in the German part of the North Sea. The ship of the ULSTEIN SX195 type was developed by Ulstein Design & Solutions in cooperation with WINDEA Offshore, Bernhard Schulte's affiliate for offshore wind projects. Among other things, the SOV will have a large, centrally positioned walk, a motion compensated gangway, and an elevator tower for personnel and cargo transfers, all enabling step-less approach to offshore installations. The vessel will also have a 3D compensated 2.0t of max lifting capacity crane. The SOV's drive system will include battery-solutions for improving the efficiency of fuel consumption. The new ship will be able to accommodate up to 120 people. In 2016-2017, Ulstein provided Bernhard Schulte with two other newbuilds for its offshore business.

VARD to build the world's first autonomous and zero-emission container ship

Yara, a Oslo-based chemical company, has entrusted the Norwegian shipbuilder with the construction of the *Yara Birkeland*. The NOK250m-worth contract (approx. €26.1m) will see the delivery of the 120 TEU of capacity container vessel in Q1 2020. *Yara Birkeland* will be constructed by VARD's facility in Brevik, whereas the hull will be supplied by the company's Braila plant in Romania. Afterwards, Yara together with its technological partner Kongsberg will run the newbuild step-by-step from manned to remote to autonomous operations, the last of which is to become a reality by 2022. *Yara Birkeland* will serve the 32 nautical miles-long route between Yara's plant in Porsgrunn and the Norwegian seaports in Larvik and Brevik. Today, around 100 TEUs loaded with fertilizers are transported with the use of trucks, which make 40k truck trips through urban areas annually. According to Yara, thanks to the all-electric zero-emission *Yara Birkeland*, emitting some 700t of CO₂/year will be avoided. "A vessel like *Yara Birkeland* has never been built before, and we rely on teaming up with partners with an entrepreneurial mindset and cutting edge expertise. VARD combines experience in customized shipbuilding with leading innovation and will deliver a game-changing vessel which will help us lower our emissions and contribute to feeding the world while protecting the planet," Svein Tore Holsether, President and CEO, Yara, commented. Roy Reite, CEO and Executive Director, VARD, added, "We are honoured to be chosen as Yara's partner in this innovative and exciting project. With a longstanding experience in building state-of-the-art and tailor-made specialized vessels, we are excited to be given the opportunity to build the world's first autonomous and electric-driven container vessel. It is a pleasure to welcome Yara and Kongsberg to VARD, and we look forward to working closely with all parties involved." Geir Håøy, CEO and President, Kongsberg, also said, "*Yara Birkeland* represents an important next step for the entire maritime industry, representing a major technological and sustainable advancement. The Norwegian maritime cluster has taken a leading position within technology, design, legislation, testing and all other aspects of the development." Erna Solberg, Prime Minister of Norway, summed up, "This is a good example of how Norwegian industry can collaborate to create new solutions and green jobs. Yara, Kongsberg and VARD have built on their knowledge about technology, logistics and ship building with an ambition to create sustainable innovation together. The result is exciting pioneer projects like this one. I am proud that the Government has supported the development of *Yara Birkeland* through ENOVA and send my best wishes for the construction." The Norwegian government enterprise ENOVA is supporting the project with NOK 133.6m (€14m).

DP World to take over Unifeeder

Once the Dubai-based terminal operator gets the regulatory green light, it'll have a clear path to add the world's second biggest independent feeder company to its logistics portfolio in a deal worth €660m. The transaction will be financed from DP World's existing balance sheet resources and is expected to close in Q4 2018. The Aarhus-headquartered Unifeeder currently disposes of a 50+ chartered vessel-big fleet, offering a carrying capacity of approx. 3.2m TEU. DP World operates across 78 sea and inland terminals worldwide. "We are delighted to add the Unifeeder brand under the DP World umbrella, which supports our strategy to grow in complementary sectors, strengthen our product offering and play a wider role in the global supply chain as a trade enabler," Sultan Ahmed Bin Sulayem, Group Chairman and CEO, DP World, commented. He furthered, "The ever-growing deployment of ultra-large container vessels has made high-quality connectivity from hub terminals crucial for our customers and Unifeeder is a best-in-class logistics provider in this space with a strong reputation in Europe. Our aim is to leverage on the in-house expertise of Unifeeder and to accelerate growth in this scalable platform to deliver value for all stakeholders. Unifeeder operates on the same common-user principle as DP World and adds to the Group's strong value proposition to international shipping lines and end cargo owners in making the global supply chain more efficient and cost effective." Jesper Kristensen, CEO, Unifeeder, also commented, "We are excited to join the DP World Group. Not only is there commonality with our business models but we also share the vision of serving our customers through removing inefficiencies and delivering sustainable shareholder value. We have enjoyed great success over the last five years under Nordic Capital's ownership, and we believe that the Unifeeder brand within the DP World Group has the opportunity to accelerate growth, expand further and take the business to the next level."

Ghent's first roofed sea terminal-warehouse

ArcelorMittal Gent, manufacturer of steel products, PMV, a Flemish investment company, Euroports, a terminal operator, and North Sea Port, a Belgian-Dutch port authority, have teamed up to erect, at the expense of €50m, the first roofed loading bay and warehouse in the Port of Ghent. The 27 m above the sea level All Weather Terminal (AWT) will be 240 m-long and 60 m-wide, of which the roofed quay will be 200 m-long and 25 m-wide. The facility will have a storage capacity of up to 60kt, with the warehouse part equipped with three and the pre-sorting zone with two fully automated travelling cranes. Two cranes will handle ships up to 10k dwt-big. There will be two loading and unloading tracks at the quay. Construction of the AWT – to be carried out by Stadsbader under a design, build, and maintain contract, while the North Sea Port will commission dredging of the mooring basin – will most probably kick off by end-2018. The facility is scheduled to start operating by mid-2020. The new terminal is being built next to the existing multipurpose cargo bay of ArcelorMittal Gent and will be used in the first place to store and ship finished steel coils. It will be possible to use a portion of the storage capacity, up to one-fifth, for the handling of other goods, e.g. paper. The AWT GENT AV, a special-purpose entity, has been established to own the AWT. On behalf of the entity, Euroports will operate the terminal. "Previously, high-grade steel could only be unloaded with dry weather while this can now happen 24/7, irrespective of weather conditions. The AWT allows a more distributed supply of coils from the dispatching warehouse of ArcelorMittal Gent to the quay and thus optimises the internal logistics," Manfred Van Vlierberghe, CEO, ArcelorMittal Belgium, commented. He also said, "In addition, the use of the AWT, in combination with the existing 'open' mixed goods quay, is necessary to realize the growth of the Ghent-based steel company. The AWT is also an investment in sustainability because the higher shipping capacity per ship results in considerable savings in the number of transport truck movements (up to 25,000 trucks per year)."

An autonomous sounding boat in Antwerp

The Port of Antwerp is currently testing *Echodrone* for carrying out unmanned measurements of water depths and inspecting underwater infrastructure, like dock beds. The autonomous sounding boat has been developed by dotOcean, a maritime technology company based in Brugge. Apart from being fully autonomous, *Echodrone* is smaller than its manned counterpart *Echo* which makes it possible to operate in heavy traffic. "This technology is based on assembling detailed information in the cloud. Data from all sorts of devices throughout the port is made available over the internet and then selectively compiled and translated into useful information by algorithms in the cloud. The *Echodrone* is designed to navigate fully independently using this verified data, unlike the previous generation of automatic vessels that had to rely on their own onboard sensors. This makes the *Echodrone* one of the first of a completely new generation of robots," Koen Geirnaert, Co-founder, dotOcean, explained. Wim Defeverre, Senior Technical Manager Nautical Access, the Antwerp Port Authority (APA), added, "The *Echodrone* is currently undergoing extensive trials. Once these have been completed it will be based in the Deurganck dock where it will be fully operational alongside the *Echo* to measure the water depth of the available berths at the busiest of the tidal quays for handling containers." Piet Opstaele, Innovation Enablement Manager, APA, also said, "With the help of the *Echodrone* it will be possible in future to carry out other types of measurements, such as environmental surveys, inspecting quay walls and so on. This technology is a real breakthrough for us in our quest for smart solutions for the port of the future. It is also a good example of our role as an initiator and facilitator of innovative initiatives." Opstaele summed up, "As a world-class player we as a port aim to be a leader in developing innovative concepts. In this way we are laying the foundations for the 'smart port' of the future in which digital technologies are used to make the land-based and water-based operations more flexible, responsive and efficient."

Barcelona unveils PierNext

The Catalan port has launched its digital knowledge hub aimed at providing information on the technological and digital transformation of the port sector. With **PierNext**, part of the port's Digital Port project, Barcelona also wants to stimulate a global debate on the future of international trade and the role logistics and ports will play in shaping it, i.e., with the use of disruptive products and services. "Innovation & the digital revolution that is transforming our sector will be one of the axes defining the strategy of the Port of Barcelona in the years to come. Through PierNext, the Port of Barcelona aims to enrich Barcelona's innovation cluster with its specialised view of the port and logistics sector, which we consider to be full of opportunities and potentialities, mainly for start-ups and SMEs," **Mercè Conesa**, President, and **Carles Rúa**, Strategic Projects and Innovation Chief, the **Port of Barcelona**, said. The platform will be updated on a weekly basis with reports, videos, infographics, and other materials. "PierNext contains seven sections, which correspond to the six main elements of the smart port model (logistics, mobility, economy, environment, people and governance) and one more (technology), which we have added because of its cross-cutting nature and to highlight innovations with a significant technological or digital component," Rúa, explained. According to the port authority, Barcelona is the fourth European city in terms of capital investment in start-ups (58% of all money invested in Spain) and ranks third among entrepreneurs looking to found a start-up. "From the Port of Barcelona we want to add and to contribute to this. We aim to explain how the great digital revolution in our sector is happening, but we also want to show all the possibilities that this transformation can offer, both in terms of attracting investment and talent," Conesa added to this. "At the Port of Barcelona we have always defended an open and collaborative innovation model. This is shown by the initiatives we have undertaken to boost entrepreneurship and find innovative solutions to the challenges facing the sector; initiatives such as **Port Innova – Barcelona Port Hackathon** or the **Port Challenge Barcelona**. In the same vein, we want to make PierNext an open platform for all people and organisations interested in contributing and sharing ideas," Rúa summed up.

DFDS to upgrade its BE-ENG-NO service

The shipping company has announced already today that it will tweak one of its routes next year in February. As part of the upgrade, the 160 TEU-big Lysbris Seaways will be replaced by the 1,891 lane metres of cargo capacity *Finlandia Seaways*. Second, the Norwegian **Port of Brevik** will be added to the schedule. The service will load on Friday and Saturday in **Zeebrugge** and **Immingham**, respectively. Unloading is scheduled on Sunday in Brevik. After having called at **Frederikstad** (Monday) and **Halden** (Tuesday), a second export call is scheduled on Tuesday in Brevik before setting sail to Zeebrugge again.



CARGO IS KING

Your cargo is as valuable to us as it is to you. That's why our customers can feel secure with our transport solutions. Our routes connect the Nordic countries with the world and we are continuously developing new products and services. Everything so that your cargo is in good hands. No matter where it is going, or if the cargo is large or small, hard or soft.



SWEDISH ORIENT LINE

ABP goes through blockchain with fine-tooth comb

Associated British Ports (ABP) has signed a memorandum of understanding with **Marine Transport International** (MTI) to explore the possibilities of using blockchain in improving port connectivity. "Currently, each party in a supply chain, from shipper to haulier and from port operator to carrier, uses different systems, which do not all talk to each other efficiently," ABP's press release reads. As such, ABP will participate in MTI's blockchain solution in pilot shipments to see whether this technology could offer a way to securely link these disparate ways of working and by bridging the silos to reduce time spent on manually re-entering data, hence ensuring a single version of the truth. "We handle almost 100 million tonnes of cargo across all sectors every year so we are a significant gateway for our customers' supply chains," **Jens Skibsted Nielsen**, Commercial Director, ABP, underlined. "This MOU with MTI is a demonstration of our commitment to technical innovation and finding new ways to improve the UK's supply chains," he also said. To this **Ron Crean**, Group Head of Marketing, ABP, and leader of the project in question, added, "Our aim is to support our customers in achieving frictionless trade. Based on the results from our previous proof of concept project, we are now looking at ways to deploy enterprise-level solutions that can deliver trust, security and speed." **Jody Cleworth**, Founder and CEO, MTI, also commented, "Blockchain is the buzzword of the logistics industry at the moment. Yet some of the projects making a big splash are blockchain in name only." He then furthered, "Blockchain-enabled technology has the potential to provide a transparent, secure and accurate way of capturing and sharing data with key parties, but for MTI the critical part is interoperability – it has to be able to openly connect with existing systems. The logistics industry is awash with proprietary technology that forces users to work in a certain way – with blockchain, we can connect all those systems to ensure data is accurately and quickly shared, helping speed-up and simplify the flow of trade in and out of the UK."

Grangemouth's new STS arrives

The heavy load carrier *Eemslift Ellen* has transported all the sections of a brand-new **Liebherr** ship-to-shore (STS) gantry to **Forth Ports'** Grangemouth. The STS, designed and built in Liebherr's facility in Killarney, South West Ireland, will be now assembled by the expert build team from Liebherr on site at the port. The 45 m-high and 524t-heavy gantry is to be ready to lift its first cargo by late October. Once online, it will be able to take care of container ships up to 14 box rows-wide. "This is an exciting time for the port as we welcome our new ship-to-shore crane. We handle some of Scotland's most valuable exports, such as fine foods and drinks, so it is important that we deliver fast turnaround times to maintain the vessel schedules and ensure their reliability to service the Scottish export market. The new crane adds to our fleet of Liebherr ship-to-shore cranes and will provide consistency for the operations and engineering team. The Liebherr team will build the crane like a giant Meccano set over the coming weeks and we look forward to its introduction to our operations for the benefit of our customers in the autumn," **Derek Knox**, Port Manager, the **Port of Grangemouth**, commented. **Gerry Bunyan**, Sales and Marketing Manager, **Liebherr Container Cranes**, added, "In 2006 the Port of Grangemouth received its first Liebherr ship-to-shore container crane, a second followed the year after. Since that time, the cranes have been key components in the port's success. We are thrilled to be able to continue our partnership and supply a third container crane to the port. It is particularly satisfying when a customer recognises the value that a Liebherr container crane can bring to their operation. We look forward to watching this crane help to increase further the business at Scotland's leading container port." Earlier this year, the Port of Grangemouth installed a new terminal operating system as well as put in place additional storage capacity. By end-December, a new 100k sq ft-big warehouse is to be completed as well.

A sulphur sniffer over the Sund

After successful trials carried out together with the **Chalmers University of Technology**, the **Swedish Transport Agency** has installed a sulphur sensing device on the Øresund/Öresund Bridge. The sniffer is used to measure the level of sulphur in ships' exhaust gasses. If the measurement points out to there being a possibility that a vessel is running on a bunker with a sulphur content exceeding the permitted level of 0.1%, a patrol can be dispatched to board the ship in order to take fuel samples for further examination. "The method makes it possible for us to undertake countermeasures against those who break the rules in an easier and faster manner. It means that the checks can be more efficient," **Simon Posluk**, Head of Unit for Sustainable Development, the Swedish Transport Agency, said. He added, "Even though the rules on ship emissions have been sharpened, inspections made by the Swedish Transport Agency, coupled with the measurements from Chalmers, show that 5-10% of ships cheat. It will be harder to do that now." On 3 September, Sweden introduced new penalties against those who violate the sulphur rules. Shipowners and operators will have to pay an environmental sanction fee even if they go over the limit unintentionally or due to negligence. The fee can amount to SEK1.0m (almost €100k) and will depend on the amount of sulphur released and a ship's total engine power.

CLdN new BE-ENG-ES service

The Luxembourg-based ro-ro shipping company is sailing as of mid-September between the ports of **Zeebrugge**, **Santander**, and **Purfleet**. The new service includes two weekly calls at Zeebrugge and Santander, whereas the English Purfleet is included in a loop with Zeebrugge (Zeebrugge-Santander-Zeebrugge-Purfleet-Zeebrugge).

Cargotec joins Rainmaking's Trade & Transport programme

The Finnish company has become part of an initiative that's aimed at bringing start-ups and corporations together to address the biggest challenges maritime cargo transport and logistics is facing. The London-headquartered **Rainmaking** plans to run its Trade & Transport programme for three years with its main venue located in Hamburg. "The world is changing fast, and the digital disruption is affecting even maritime and logistics industries. In order to keep up with the pace, we want to work together with those who are innovative, nimble, and can act fast. Startups are excellent cooperation partners when tackling inefficiencies and white spots along the value network with modern solutions, technologies and business models," **Tero Hottinen**, Director Emerging Digital Business, **Cargotec**, commented on joining the initiative. He also said, "We have previous experience from activities and ecosystems with different startups. With this programme, we aim to take our efforts to the next level. Together with Rainmaking's world-class experience and capabilities in startup scouting and mentoring, as well as through the collaboration with other industry partners within the programme, we can truly create a joint impact that benefits the future." **Alex Farcet**, Partner and Founder of the Rainmaking start-up accelerator, summed up by saying, "Over the years, we have built proven models and experience in other industries, and we are now bringing this to maritime, cargo transport, and logistics. We are excited to do this with Cargotec, which has a unique position in the global cargo flow chain and needed capabilities and mindset to truly impact the industry change, together with other players in that field."

Antwerp to have a new tank farm

Mol Chemical Tankers and **SEA-Invest** will spend some €300-400m on setting up a brand-new tank storage terminal for liquid chemicals in the **Port of Antwerp**. The two parties have created a joint venture, **Sea-Mol** that will take care of the investment, which is expected to create 100 direct jobs. The terminal will be erected on 45 ha-big plot in the **Delwaide Dock** part of the Belgian port. "This investment is a further confirmation of our port's ability to attract major investors. It will also boost our position as one of the largest chemical clusters in the world. This is very good news for the port, and for our economy," **Jacques Vandermeiren**, CEO, the Antwerp Port Authority, commented.



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Kongsberg to tech-furnish OHT's first heavy lift vessel

The Norwegian marine tech supply company has won a \$13m-worth contract to deliver a technology suite and an electro package for a semi-submersible offshore windfarm foundation installation vessel. The delivery will include dynamic positioning, navigation, thruster control, and automation systems, all with inbuilt measures to improve functionality and safety, as well as battery hybrid power and energy management systems. The 216.3 m-long, 48k dwt ship, to be equipped with a 3.0kt of lifting capacity crane and feature a 10k m²-big open deck, will be capable of transporting and installing up to 10x1,500t jacket foundations or 11x2,000t monopiles (plus transition pieces). The ship, a customised **Ulstein Design & Solutions** blueprint, is currently under construction by **China Merchants Heavy Industry (CMHI)** and is scheduled to enter service in 2021. Once online, it will mark the entry of the Norway-based **Offshore Heavy Transport (OHT)** into the offshore renewables and installation market (OHT's order with CMHI includes an option for three more vessels). "The heavy lift market has always presented a series of very specific challenges, but combining heavy lift crane capacity with a semi-submersible vessel genuinely represents a bold step into the offshore working environment of tomorrow. In working with Ulstein to design an innovative transport and installation vessel everyone has had to pull out all the stops, including defining the most efficient marine technology and Kongsberg Maritime has demonstrated that they are in the forefront of delivering a state-of-the-art, integrated solution to meet our needs," **Torgeir E. Ramstad**, CEO, OHT, commented. **Bård Bjørlov**, EVP Sales & Marketing, **Kongsberg Maritime**, added, "The fact that CMHI selected our solution to enable OHT's expansion into the offshore renewables and installation market is a valued endorsement of our approach to the integration of operational and digital technology. We are looking forward to seeing this sophisticated vessel in operation and delivering continued support to ensure that OHT can maximise the potential of the Kongsberg systems on board."

Antwerp Gateway goes wireless

British Telecommunications (BT) has deployed a wireless backbone network at **DP World's** container terminal located in the **Port of Antwerp** with the use of **Rajant's** Kinetic Mesh technology. The network has been designed to provide always-on, real-time, secure, and resilient connectivity for not only the 900 people working at **Antwerp Gateway** but also the growing demands of connected devices. These, in turn, will help **DP World Antwerp** to analyse and optimise processes and operations, such as the movement of vehicles around the terminal. According to BT, the network dynamically adapts to accommodate connectivity for moving vehicles and overcomes obstacles within an ever-changing environment, including the presence of containers or large ships. It also complies with radio frequency and industrial regulations governing use of wireless on the site. "The container industry and the global supply chain are undergoing huge changes enabled by digital technology. BT understands this and is helping us innovate to build on our success. Working together, we have successfully completed a wireless backbone solution that creates an infrastructure for future IoT deployments, opening up the possibilities of automation and artificial intelligence. It is our backbone for growth," **Patrick Putman**, Chief Information & Innovation Officer, DP World, said. **Chet Patel**, Global Transformation Officer & President Continental Europe, Global Services, BT, added to this, "Deploying an innovative wireless backbone in such a complex and dynamic industrial environment, which operates non-stop, 24 hours-a-day, 365 days-a-year, demands detailed planning and precise execution. The success of the Antwerp Gateway wireless backbone solution is due not only to the technical expertise of the project team but also their in-depth knowledge of how major container terminals operate. This is a great example of how BT can innovate with customers and technology partners to create solutions that transform business."



Photo: DP World Antwerp

Kongsberg to furnish Grimaldi's G5Gs

The Chinese Nanjing Jinling Shipyard, which is constructing nine ro-ros of the Green 5th Generation for the Grimaldi Group, has contracted Kongsberg Maritime to deliver the power and hybrid systems. The NOK400m-worth contract (approx. €41.5m) includes the supply and integration of large battery systems, shaft generators, frequency converters, and energy management systems. Deliveries will start mid-2019 and are expected to be completed within 2022. Each of the Grimaldi's GT 54k-big G5G ro-ro ships will be 238 m-long and 34 m-wide, offering 7,800 lane metres of freight capacity. Deliveries will commence from 2020 onwards. Furthermore, the deal can be extended to cover also the three 5,800 lm freighters, increasing the value of the contract to NOK500m (€52m). "This delivery represents introduction of new technology into this market segment. The contract shows that our concepts for hybrid vessels are expanding into new vessel types and positions Kongsberg as a leading provider of hybrid technology in the offshore and marine vessel segments," **Stene Førsund**, Executive Vice President, Global Sales & Marketing, Kongsberg Maritime, said. He furthered, "Our hybrid solutions deliver tangible benefits. Vessels will have zero emissions while in port, and reduced overall fuel consumption by utilising our peak shaving technology, while the batteries will be charged at sea by using the shaft generators."

HaminaKotka-VRT Finland 3D co-op comes to the surface

The port authority and the Jyväskylä-based company have signed a contract under which the two will jointly work towards building a smart digital port with the use of 3D inspection technology. The two began cooperating in 2016 when VRT Finland surveyed the underwater structures of HaminaKotka's port areas and provided the 3D inspection data via the VRT BIM online service. Now, VRT will do the same with the terrestrial parts. The port authority intends to use the data to streamline its day-to-day operations, including communications, as well as to improve maintenance of the harbour areas and above the water structures. Specifically, VRT BIM will enable the comparison of inspection data collected from the same location, which is to facilitate the predictive planning and execution of repair and maintenance projects. "Our strength is the understanding of the entire 3D production chain from collecting data to reporting. As a result of our outstanding programmers, we have succeeded in creating a solution that is easy to use and especially serves the owners of structures in life-cycle management," Kirsi Hänninen CEO, VRT Finland, said. Saana Vuorinen, Maintenance Manager, the Port of HaminaKotka, added, "Locating and reporting damages as well as finding possible repair needs is easier, while communication with stakeholders is improved. Although VRT BIM is a great tool especially for operational activities of our port, it has plenty of features that are useful for the whole organization. The operating system will be an important part of our daily operations."

Samskip's new Antwerp-Hull container service

The new link, served by a 508 TEU-big vessel, will kick off in Antwerp on 12 October, with the arrival in Hull expected two days later. Initially, the service will run two times per week, sailing from Antwerp's **Associated Terminal Operators'** (ATO) terminal on Tuesdays and Saturdays and from **Associated British Ports'** (ABP) **Port of Hull** every Thursday and Monday. "We are excited at the prospect of offering a new solution that can meet the requirements of the local and hinterland markets in and around Antwerp, especially given the excellent rail and inland waterway links available. With the current Brexit uncertainty, we believe that our spread of dedicated short sea services can offer robust options for companies wanting to de-risk their supply chain in preparing for Brexit," **Richard Beales**, Regional Director, **Samskip UK & Ireland**, commented. **Jacques Vandermeiren**, CEO, the **Port of Antwerp**, also said, "We welcome Samskip to the port of Antwerp and their strategic decision to use Antwerp as the departure point for their new short-sea service to the UK. Mobility in and around the port remains a serious challenge and is therefore one of our strategic priorities to ensure further sustainable growth. To create a modal shift that brings the share of truck transport down, it is crucial to offer efficient alternative means of transport, and shortsea is clearly one of them. Samskip has excellent expertise in this field and this new shortsea service will definitely support us in achieving this goal." **Johan Gemels**, Managing Director, ATO, added to this, "Attracting a major multimodal operator such as Samskip very much aligns with the growth plans of ATO and fits perfectly with our services of handling ships, barges, trucks and trains. We look forward to working in partnership with Samskip to offer a new and competitive option for customers doing business in Antwerp and the UK." **Simon Bird**, **ABP Humber** Director, summarized, "It's fantastic news that Samskip has selected the Port of Hull once again as their premier short-sea departure destination. ABP has continued to drive substantial investments in its Hull Container Terminal, increasing container storage space and acquiring state-of-the-art equipment. We also make continual advancements in training our operational staff to ensure the best possible service and turnaround times for our customers."

Hamburg can go ahead with adjusting the Elbe

The third supplementary planning procedure for fairway adjustment on the Outer and Lower Elbe has been completed. The extra procedure was requested by the Federal Administrative Court and was mainly concerned with the Billwerder Island Tidal Connection project. Specifically, the Court saw the need for an additional coherence protection measure in line with the European conservation law for a unique type of plant, the hemlock water dropwort. Following the resolution, the legal preliminaries are now in place, enabling the construction works to start. However, the **Port of Hamburg's** press release reads, the Court's decision can still be challenged; this would require attempting to lodge an appeal with the Federal Administrative Court. Nevertheless, the Port of Hamburg together with the City and the State of Hamburg are looking forward to adjusting the Elbe River to meet the needs of modern container shipping. **Axel Mattern** and **Ingo Egloff**, Joint CEOs, the **Port of Hamburg Marketing**, said, "This is very good news for our trading and shipping customers worldwide and for the whole Hamburg Metropolitan Region. We have waited a long time for today and are now hoping for rapid implementation." Thanks to the fairway adjustment, ocean-going ships will be able to leave Hamburg with a draft of 13.5 m irrespective of the tide and one metre more using the flood tide. As such, container ships will be able to transport around 1,800 more TEUs. The 'passing box' downstream from Hamburg will make the Elbe navigable for mega ships in both directions without the existing restrictions. **Dr. Peter Tschentscher**, First Mayor of Hamburg, also commented, "For Germany's foreign trade, the Port of Hamburg is its gateway to the world. It is an important hub for global goods flows and contributes greatly to Hamburg's economic strength. With today's supplementary planning decision, we have full legal planning approval for the adjustment of the fairway that will make the Port of Hamburg considerably more competitive internationally." **Senator Frank Horch** summed up, "Since February 2017, we have worked intensively on eliminating the Court's final reservations. The results of this work are to be found in the resolution issued today. We now have planning permission: We will begin with explosive ordnance and preliminary construction measures in the next few days. All tendering has already been completed. The partner companies can be engaged to start work immediately."

Photos: Pexels

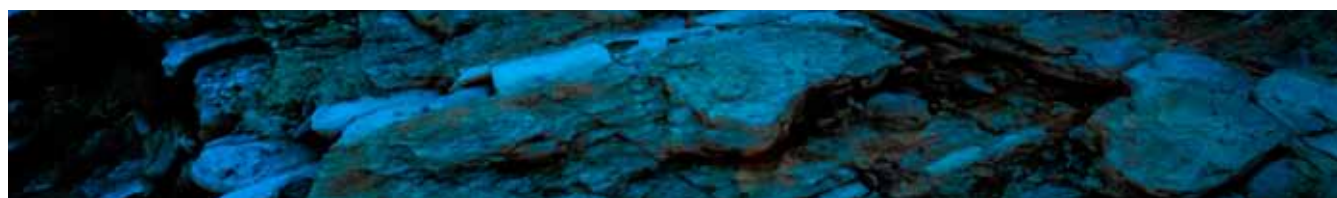
FINNISH PORTS:

50.75mt handled in international trade in H1 2018 (+7.0% yoy)

At the same time, the country's ports made 4.68mt in transit traffic, up by 17.7% on the H1 2017 result.

Finnish ports' international cargo traffic in H1 2018 [tonnes]

No.	Port	Imports	Yoy	Exports	Yoy	Total	Yoy
1	Sköldvik	6,278,219	-0.3%	4,344,603	+5.5%	10,622,822	+2.0%
2	HaminaKotka	2,355,934	+44.8%	5,455,013	+8.0%	7,810,947	+16.9%
3	Helsinki	3,671,572	+6.8%	3,861,364	+14.0%	7,532,936	+10.4%
4	Kokkola	743,946	+5.6%	2,715,814	+8.6%	3,459,760	+7.9%
5	Rauma	800,998	-6.7%	2,086,699	+5.3%	2,887,697	+1.7%
6	Naantali	2,071,112	+12.2%	783,472	-10.1%	2,854,584	+5.1%
7	Hanko	1,055,489	+4.5%	1,308,121	-2.3%	2,363,610	+0.6%
8	Raahe	1,726,506	-5.2%	468,227	+12.3%	2,194,733	-1.9%
9	Pori	756,032	-6.2%	800,048	+34.2%	1,556,080	+11.0%
10	Tornio	809,262	+2.7%	690,778	-3.5%	1,500,040	-0.3%
Top 10		20,269,070	Share of total imports: 84.64%	22,514,139	Share of total exports: 84.00%	42,783,209	Share of total: 84.30%
11	Oulu	738,054	-3.7%	688,661	-3.6%	1,426,715	-3.6%
12	Uusikaupunki	503,093	+28.5%	739,678	+9.3%	1,242,771	+16.3%
13	Turku	516,623	-0.8%	568,608	-8.6%	1,085,231	-5.0%
14	Inkoo Shipping	527,276	-6.7%	473,893	+101%	1,001,169	+25.1%
15	Kemi	319,038	+53.5%	597,394	+4.1%	916,432	+17.3%
16	Pietarsaari	209,764	+90.4%	361,308	+10.8%	571,072	+30.9%
17	Kaskinen	232,368	+29.4%	337,427	+17.2%	569,795	+21.9%
18	Vaasa	295,258	+2.0%	93,996	+0.5%	389,254	+1.6%
19	Kalajoki	57,669	-34.6%	231,967	+56.9%	289,636	+22.7%
20	Eurajoki	113,150	+172%	54,451	+55.0%	167,601	+118%
21	Kantvik	57,157	-53.5%	71,691	+31.3%	128,848	-27.4%
22	Tolkkinen	43,524	+30.2%	27,820	-2.6%	71,344	+15.1%
23	Lappeenranta	48,524	-12.6%	11,601	+68.6%	60,125	-3.6%
24	Joensuu	10,079	-57.1%	13,342	-60.2%	23,421	-58.9%
25	Kristiinankaupunki	–	–	13,481	+230%	13,481	+230%
26	Varkaus	2462	-80.0%	2,339	-60.2%	4,801	-73.6%
27	Kuopio	4554	-33.7%	–	–	4,554	-33.7%
28	Merikarvia	0.0	-100%	–	–	0.0	-100.0%
Total		23,947,663	+5.9%	26,801,796	+8.0%	50,749,459	+7.0%



EUROGATE:

3.46m TEUs handled in Q1 2018 (-4.0% yoy)

The performance of the group's container terminals, located in 12 places in Europe and Africa, was mixed over 2018's first quarter, with ups as high as +99.7% year-on-year and downs as deep as -60.4% yoy.

EUROGATE's volumes [TEU]

	Q1 2018	Q1 2018/Q1 2017
Bremerhaven	1,354,545	-0.9%
Gioia Tauro	571,489	-14.1%
Hamburg	384,442	-19.1%
Tangier	335,851	+8.7%
La Spezia	320,110	+2.5%
Wilhelmshaven	159,270	+99.7%
Limassol	88,551	+39.3%
Salerno	84,071	+16.7%
Cagliari	58,732	-60.4%
Ravenna	43,309	-4.2%
Lisbon	38,925	-18.0%
Ust-Luga	21,565	+5.0%
Total	3,460,860	-4.0%

THE PORT OF HUELVA:

16.19mt handled in H1 2018 (+3.7% yoy)

The Spanish port trades mostly in liquids which totalled 12.19mt in this year's first half, an uptick of 0.3% on the result from the corresponding period last year. A total of almost 3.43mt of dry bulk was also handled (+13.8% year-on-year) as well as some 488.1kt of general cargo (+33.8% yoy). Huelva's H1 2018 container traffic amounted to 36,292 TEUs, an increase by 40.5% yoy. The port's wheeled traffic advanced as well – by 12.5% yoy to 3,530 ro-ro cargo units. A total of 21,869 passengers went through the port's quays, more by 30.4% on the H1 2017 result. Out of the total, the ferry segment accounted for 15,885 (+9.6% yoy), while the cruise sector added the remaining 5,984 travellers (+162% yoy).

THE PORT OF PIOMBINO:

2.24mt handled in H1 2018 (-2.2% yoy)

While imports rose by 2.3% year-on-year up to over 1.31mt over 2018's first half, exports contracted by 7.9% yoy down to 932.3kt. With 1.55mt (-1.6% yoy), the turnover of general cargo constituted the bulk of the Italian seaport's cargo traffic in H1 2018. Out of this figure, ro-ro & ferry traffic (+0.8% yoy) accounted for almost the entire volume, with the remaining 2.0kt being break-bulk (-95.0% yoy). The number of ro-ro cargo units going through Piombino's quays was smaller than in H1 2017, too, down by 1.7% yoy to 69,347 trucks and trailers. Both the throughput of dry and liquid bulk decreased in the reported period, by 2.2% yoy and 31.8% yoy to 671.6kt and 20.8kt, accordingly. Passenger traffic noted a downtick as well, totalling 1,192,976 travellers (-5.1% yoy). Local traffic amounted to 1,161,696 passengers (-5.6% yoy), ferry to 25,788 (+5.3% yoy), whereas cruise to 5,492 (+154% yoy).

THE PORT OF VALENCIA:

37.39mt handled in H1 2018 (+3.0% yoy)

Only the turnover of liquids noted a drop in the reported period, by 34.9% year-on-year to a total of just over 1.05mt.

The Port of Valencia's volumes

	H1 2018	H1 2018/H1 2017
General cargo	34,882.9kt	+4.1%
Dry bulk	1,322.2kt	+26.1%
Liquids	1,052.4kt	-34.9%
Total	37,393.3kt	+3.0%
Unitised freight traffic		
TEU	2,498,384	+6.4%
Finished vehicle logistics (new cars & other vehicles)	443,218	+7.4%
Ro-ro cargo units	117,119	+11.2%
Passenger traffic		
Ferry	275,993	+2.8%
Cruise	156,845	+4.4%
Total	432,838	+3.4%

BREMENPORTS:

36.51mt handled in H1 2018 (-0.1% yoy)

While exports rose by 5.2% year-on-year in the reported period up to 18.67mt, imports contracted at the same time by 5.1% yoy down to 17.84mt.

Bremenports' (Bremen & Bremerhaven) volumes

	H1 2018	H1 2018/H1 2017
General cargo		
Containerised	28,463kt	+5.3%
Other	4,297kt	+1.1%
Total	32,760kt	+4.7%
Dry bulk		
Ores, cement, lime, plasters	2,178kt	-12.9%
Metallurgical products	639kt	-41.4%
Coal, lignite	324kt	-40.1%
Grains	151kt	+7.1%
Foodstuff, fodder, oil seeds	50kt	-51.0%
Chemicals	10kt	-33.3%
Total	3,352kt	-23.6%
Liquids		
Oil products	397kt	-54.5%
GRAND TOTAL	36,509kt	-0.1%
Container traffic		
TEU	2,721,111	+0.7%
Finished vehicle logistics		
New cars & other vehicles	1,118,831	-1.4%
Cruise traffic		
Passengers	94,702	+41.5%

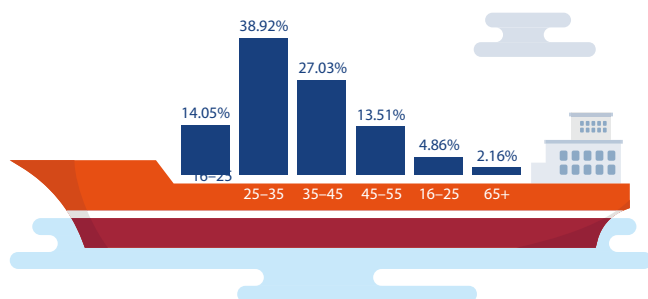
chart of the issue

Photo: Pexels

SEAFARERS' HAPPINESS INDEX Q1 2018

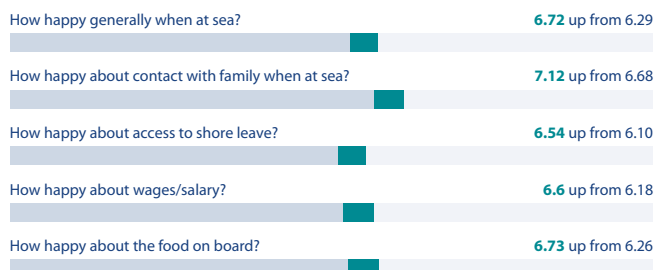
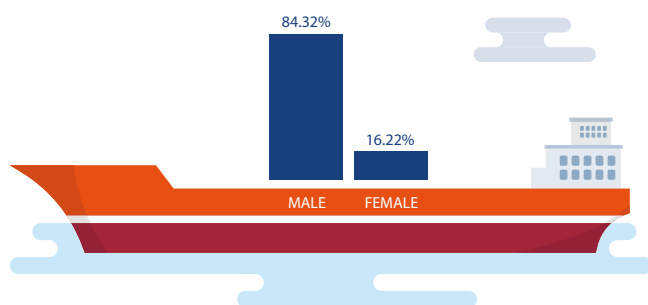
WHO

The happiest tranche of respondents was in the 25-35 year age group – and once again, these figures were hugely impacted by the ability to access the internet and to feel connected with the shore.



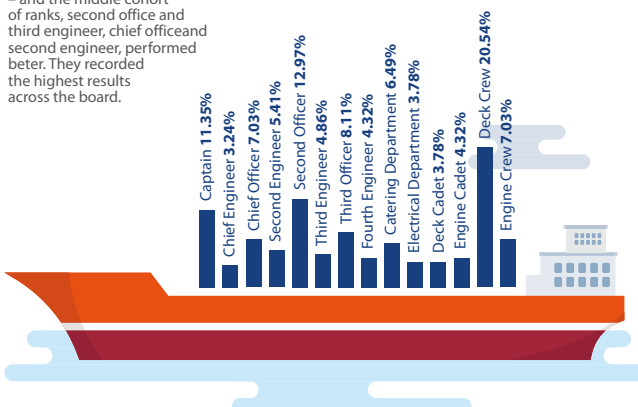
GENDER

Female seafarers actually marked themselves lower than the general average this time around. Which was a significant shift from previous Seafarers' Happiness Index results.



RANKS

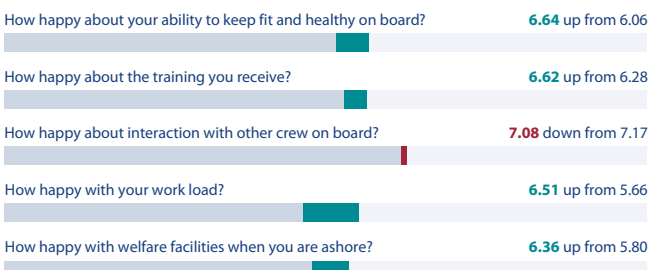
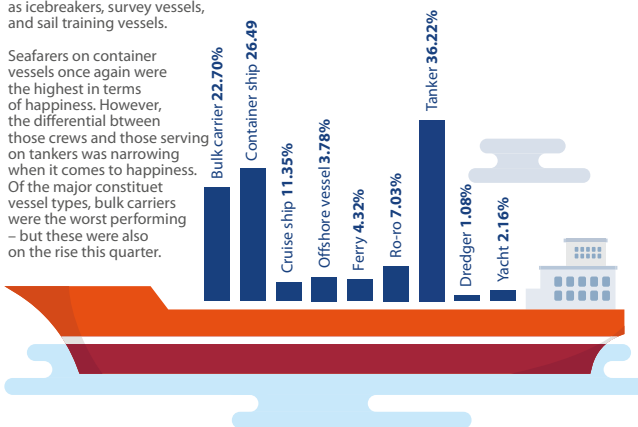
Deck crew and officers tended to be happier than their engineering counterparts – and the middle cohort of ranks, second officer and third engineer, chief officer and second engineer, performed better. They recorded the highest results across the board.



WHAT

Other 12.97% These included gas carriers, general cargo, specific kinds of offshore vessels, as well as icebreakers, survey vessels, and sail training vessels.

Seafarers on container vessels once again were the highest in terms of happiness. However, the differential between those crews and those serving on tankers was narrowing when it comes to happiness. Of the major constituent vessel types, bulk carriers were the worst performing – but these were also on the rise this quarter.



Overall average score: **6.69/10** in Q1 2018, up from **6.25/10** in Q4 2017

Source: The Mission to Seafarers



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Photos: Pexels

How the Maritime Module tackles Slow Steaming Strategy

by Roberto Accardi and Chiara D'Ambrosio

Synchro-NET is a logistics project aiming at developing an innovative tool set, to find the best possible succession of carriers between the sender and the consignee, and compare several multi-modal solutions, including ship, train, and road transportation. Key Performance Indicators and Key Risk Indicators are assessed for each alternative route, so the end-user is helped to choose the route that best suits his/her needs among a restricted selection.



Unlike road, maritime traffic is not limited in terms of space or speed. And although many areas near the coast can be found with strict regulations, there are many different routes on which a ship can sail between two sufficiently distant ports. In addition, environmental conditions, such as the state of the sea, currents, and wind have a significant impact on the hydrodynamic resistance, hence on fuel consumption, so that the best road either in terms of speed or costs is rarely a straight line between two ports. Last but not least, speed and fuel costs are strongly coupled. Then different ways to operate a given oceanic line can be chosen according to user's requirements.

To assess the costs and speed of a maritime route, and then choose the correct way to operate this route, the Synchro-NET project brought

together a consortium of actors from the maritime sector. The expertise of each partner is integrated in a software solution called Maritime Module.

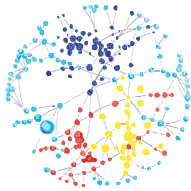
This module is an assembly of several sub-modules working together and includes a weather routing module, a "real-time speed pilot" module which consists mainly in a cost assessment tool, and a route management module. The main issue tackled by Maritime Module is the Slow Steaming Strategy, a premiere in the maritime world.

To optimize a route in terms of speed and trajectory regarding the required propulsion power (proportional to fuel consumption), Crain Technologies developed a weather routing algorithm that includes an advanced energy model of the considered ships developed by Bureau Veritas. This module can operate in four different modes. First, it can compute a fully optimized route, in terms of speed and trajectory, from a given Estimated Time

of Departure (ETD) and Estimated Time of Arrival (ETA). Second, it can perform only a speed optimization on a given trajectory, from given ETD and ETA. Third, it can evaluate a pre-defined route between two ports at constant speed. And finally, it can evaluate the fastest route between two ports. The algorithm takes the weather into account and returns the required power on the final route, which is used to calculate fuel costs. This module allows to evaluate the impact of slow steaming on the fuel consumption.

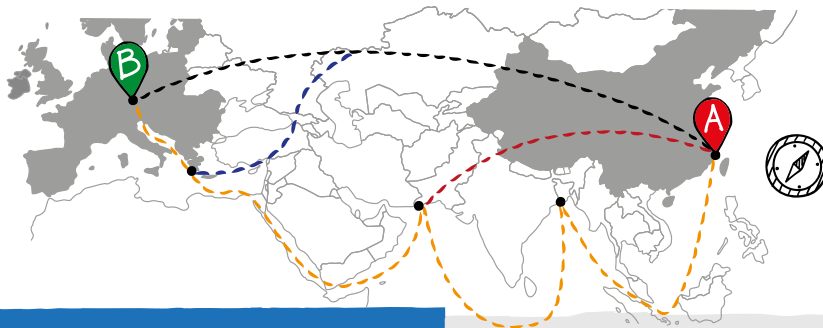
Kongsberg Maritime is developing then a "real-time speed pilot" that compares the overall cost for different berthing time, according to the different slots available at port. To this end, it calculates the cost of the trip, for the different slots the ship can reach and returns to the logistics partners of the project the cost of each alternative, so they can select the final route. As this module works in real-time, it also allows if there is a change at berthing time during the trip to "smartly" re-route the ship, either to speed up to catch the next slot, or to slow down to catch the following one. ■





Synchro-NET

THE NEW SYNCHRO-NET APPROACH TO MULTIMODAL INTERNATIONAL LOGISTIC CHAINS



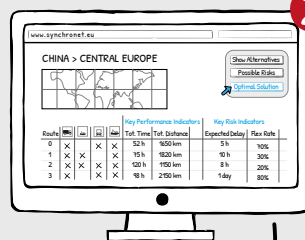
A major shipping line is planning its own deep sea services plus hinterland connections for connections between China and central Europe, analysing slow/smart steaming options that offer the best solutions for their customers.

STRATEGIC PLANNING PHASE

Determining the clients' preferences and the services that shipping line would offer.

1 DYNAMIC STAKEHOLDER ASSESSMENT MODULE

Using the Dynamic Stakeholder Assessment module, the shipping line approaches its customers (from different industry sectors and therefore with different needs) and asks them to determine their own preferences in relation to the different routes (cost, time, risk, environment).



2 SIMULATOR MODULE

These routes are passed to the Simulator Module that is used to compare the different routes and select the schedules to be operated. (e.g. For example a slightly slower Shanghai-Piraeus route, which saves a lot of money/CO2 and then a range of faster and slower options for the hinterland service).

2a MARITIME MODULE

Using the Maritime Module, the shipping line can simulate all the different parameters associated with each route.

2b RISK ANALYSIS MODULE

Based on historical risk profiles, Key Risk Indicators (KRI) are calculated for each alternative route that provide additional information for decision makers.

3 ROUTE SELECTION

The user/client/dispatcher selects the optimal solution according to his preferences.

OPERATIONAL PLANNING PHASE

Now the shipping agents and freight forwarders use SYNCHRO-NET to plan and schedule synchro-modal freight movements, using the optimised maritime slow/smart steaming services identified above.

4 SYNCHROMODAL BOOKING MODULE

Now the Synchro-modal Booking Module is used to plan and operate a "real" order. The user enters the locations, dates, etc. The module requests the best options from the Supply Chain De-stresser and presents them to the user. The user chooses the preferred option. Let's imagine it is ship + feeder + truck. The trip from the port in China can start.



5 REAL-TIME SYNCHROMODAL BOOKING MODULE

The Real-time Synchro-modal Booking Module alerts the user, and proposes a new solution e.g. switch from feeder vessel to train, so that the new route is: ship + train + truck.



6 HINTERLAND LOGISTICS OPTIMISER

When the ship actually arrives at the European port, the Hinterland Logistics Optimiser creates the detailed hinterland logistics plan.



7 RISK PROFILER

Finally, the Risk Profiler processes the information about the delayed ship and stores the resulting risk profiles, so that the KRI calculation for future orders can be refined.



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Beware of investors bearing gifts

by Dr. Kai-Dieter Classen, LL.M. (Berkeley), Deputy Director of the External Affairs Division, Hamburg Port Authority¹

Foreign Direct Investments (FDIs) are generally considered a source of growth. However, especially investments of state-controlled foreign enterprises in critical technologies and infrastructure, such as ports, cause concerns again and again. Now, the EU intends to evaluate such investments with a specific screening mechanism.



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defending national interests in global trade is usually related to practices like dumping, subsidies, or what lately makes the headlines – pelting each other with tariffs. FDIs, in contrast, are generally regarded not as a threat to but a benefit for the economy, being a source of growth and innovation, as well as an indicator of a competitive business location. The term itself describes, in short, investments made by natural or legal persons coming from a foreign state in the EU to establish or maintain a controlling ownership of the company invested in. According to the OECD's annual report *FDI in figures*, FDI flows into the EU amounted to \$290b in 2017.

FDIs has come under pressure. "Europe must always defend its strategic interests," Commission President Juncker pointed out in his 2017 State of the Union Address. "If a foreign, state-owned, company wants to purchase a European harbour, part of our energy infrastructure, or a defense technology firm, this should only happen in transparency, with scrutiny and debate," he underlined.

Good and bad FDIs

European ports have been the target of FDIs for many years. Global majors, like DP World (United Arab Emirates), Hutchison Ports (Hong Kong), PSA (Singapore), and COSCO and China Merchants (China), hold significant shares in

container terminals in the EU. Ownership of port infrastructure remains the exception, though, given the predominant landlord model. But such investments have not always been welcomed everywhere. In 2006, for example, the intention of DP World to take over the British company P&O, which operated six major ports in the US, became the subject of a heated national security debate in the aftermath of 9/11, eventually causing DP World to sell P&O's US business to Ports America.

Today, in the light of a strategic economic policy and the far-reaching Belt and Road Initiative, it is China's interest in US and EU companies and its willingness to fund states (and their infrastructure projects) which are at odds with EU values and policies, that evokes a desire for more control and protection against unwelcome FDIs. The European Commission's (COM) proposal for a regulation establishing a framework for the screening of FDIs is the response to such concerns, building in part on screening mechanisms in place in 13 out of the 28 EU Member States (EU-MS).

On the radar screen

In the US and Germany, for instance, monitoring systems for foreign investments have been used for a long time. They aim at protecting critical infrastructures and technologies. In the US, the Committee on Foreign Investment in the United States

(CFIUS) reviews the national security implications of foreign investments in US companies or operations. According to the Defense Production Act, the Committee shall review the relevant transaction to determine its effect on the national security. CFIUS may suspend or prohibit any transaction that threatens to impair the national security. A port-related case arose from COSCO's progressing takeover of OOIL, the parent of OOCL, which owns a modern container terminal in the Port of Long Beach. To meet CFIUS' concerns, the parties committed to selling all stakes in the terminal to a non-affiliated buyer.

In Germany, the Foreign Trade and Payments Ordinance vests similar powers in the Federal Ministry of Economics and Technology. The Ministry can examine whether the public order or security is endangered if a non-EU resident acquires either the entire or a direct or indirect share in a domestic company. The Ministry can prohibit the acquisition or issue instructions. Recently, the Ministry objected to the acquisition of the German semiconductor company Aixtron by the Chinese bidder Fujian Grand Chip. This case contained several political intricacies, a US subsidiary of Aixtron and the coincidental withdrawal of a large order by a Chinese customer of Aixtron, who had a relationship with the bidder.

The proposal

The COM's proposal (COM(2017)0487) defines a framework for both EU-MS' screening mechanisms as well as for a new COM screening tool. According to Art. 3, the EU-MS "may maintain, amend or adopt mechanisms to screen foreign direct investments on the grounds of security or public order" – *national* security according to the context. The COM, for its part, "may screen foreign direct investments that are likely to affect projects or programs of Union interest on the grounds of security or public order." When

screening an FDI, Member States and the COM may, according to Art. 4, consider the potential effects on, i.a., "(1) critical infrastructure, (2) critical technologies, (3) the security of supply of critical inputs, or (4) access to sensitive information." According to the Critical Infrastructure Directive 2008/114/EC, ports have been designated to the first category. When assessing an FDI, EU-MS and the COM "may take into account whether the foreign investor is controlled by the government of a third country, including through significant funding."

The proposal then lays down procedural rules for EU-MS' screening, notification, and reporting requirements, as well as mechanisms of cooperation between EU-MS and the COM. This includes the latter's right to issue an opinion where it concludes that an FDI is likely to affect security or public order in one or more EU-MS, which, on their part, shall give due consideration to such an opinion. The COM's screening mechanism is laid out in Art. 9: where the COM considers that an FDI is likely to affect projects or programs of Union interest on grounds of security or public order, it may issue an opinion addressed to the Member State where the FDI is planned. The addressee shall take utmost account of this opinion and provide an explanation in case the opinion is not followed.

The current state of the debate

The COM's proposal struck a nerve. Hence, the general tendency of the amendments tabled in the European Parliament's (EP) Committee on International Trade was to enforce the role of EU institutions. Some Members of the EP even proposed to give up the framework approach and to endow the COM with executive powers. The report finally endorsed by the Committee on 5 June 2018 does not go that far. However, it is quite clearly targeted at Chinese policies when it states,

among others, "state-led outward projects or programs", "strategic industrial goals", the acquisition of "key enabling technologies or knowledge", "significant funding", and "political presence" as criteria for the assessment.

The definition of critical and strategic infrastructure was specified, too, now explicitly including ports, rails, airports, shipyards, and transport services. In addition, the report allows for greater procedural involvement of other EU-MS, the EP, and civil society groups. As the next step, the EU institutions will enter into interinstitutional negotiations to reach an agreement.

A balancing act

For ports it is essential that the regulation strikes a proper balance between protecting national and EU interests and maintaining an open investment environment, as they are depending heavily on investments. Legal questions remain, among other things, with respect to the definition of FDI and the relationship between Art. 207 of the Treaty on the Functioning of the European Union (TFEU) on EU common commercial policy and the EU-MS' right to restrict the freedom of capital movements according to Art. 65 TFEU.

In the end, the underlying economic and political challenges will not all of a sudden become solvable by introducing a new mechanism of investment control alone. They are rooted to a large extent in the general economic and legal framework for investments, including (lacking) reciprocity in open markets, equality of opportunities, and a common understanding of state aid rules. ■

¹ This article represents the author's personal view



Are you compliant?

by Mateusz Romowicz, *Legal Counsellor*,
and Gabrielè Vilemo Gotkovič, *Legal Assistant*, The Mateusz Romowicz Legal Consultancy

The General Data Protection Regulation (GDPR) entered into force on 25 May. By introducing a new standard of data protection, it was designed to harmonize data privacy laws across the European Union. However, this legal instrument has an extraterritorial effect and as such also concerns foreign companies operating within the EU or process data of its citizens. Beyond doubt, maritime companies will be affected by the GDPR as they deal with large volumes of personal data, including on employees, business contacts, passengers, vessel crews, contractors, etc. The Regulation also entails stricter rules and higher fines.

First and foremost, the GDPR provides a number of new rights to European citizens. The most fundamental one is the legal basis for data processing which is, in fact, the consent of the person whose data is to be processed. As provided in the art. 4(11), the consent per se has to be given freely, unambiguously by statement or clear affirmative action. Permission from clients can be accepted in several ways, e.g., in writing, electronically, or verbally. Importantly, companies have to ensure that it is as easy to withdraw the given consent as it was to give it in the first place.

There's a set of additional rights granted under the GDPR, namely right to access data (art. 15); right to rectify data (art. 16); right to delete data (art. 17; known also as the "right to be forgotten"); right to limit processing (art. 18); right to transfer data (art. 20); and right to object (art. 21). Moreover, the GDPR sets out seven key principles that should lie at the heart of data processing: lawfulness, fairness, and transparency; purpose limitation; data minimisation; accuracy; storage limitation; integrity and confidentiality (security); and accountability.

At the moment, every company operating in the shipping industry worldwide has to comply with the GDPR's provisions when

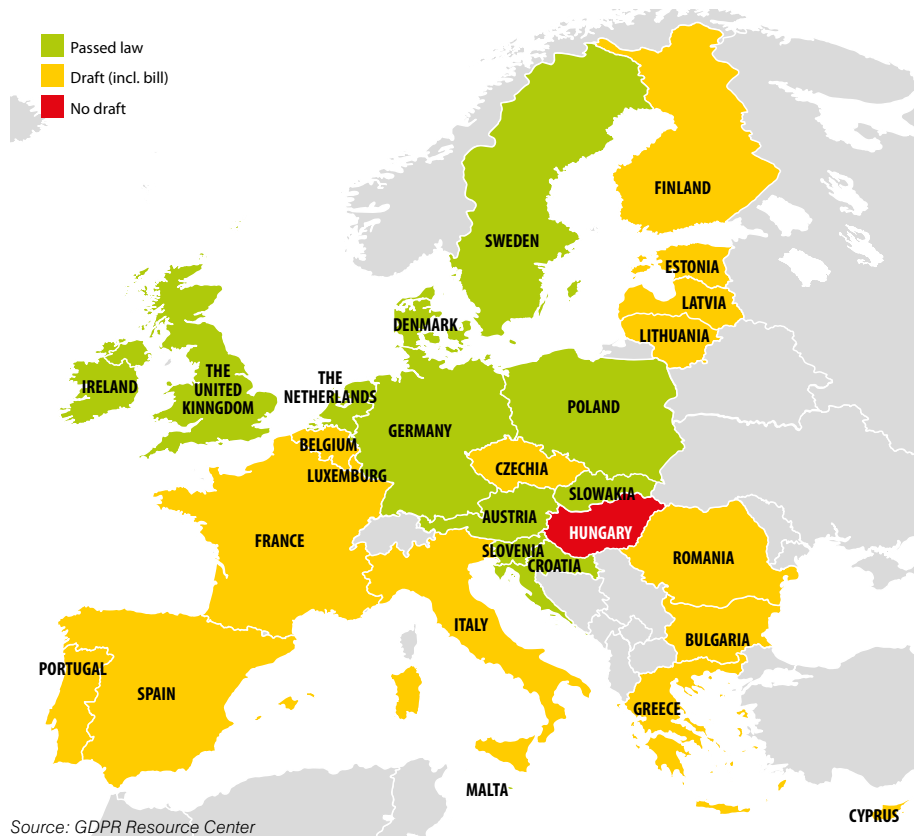
EU citizen's privacy rights are in question. This will have a major impact on those companies both time- and money-wise.

Bureaucracy, costs, and...

The companies that wish to be compatible with the new law will be subject to an enormous amount of formal requirements and paperwork. All relevant activities should be implemented by means of appropriate internal procedures and duly documented. For this purpose, it is recommended to prepare appropriate documentation indicating the measures taken to properly implement and apply the GDPR (such documentation may include, i.a., appropriate security certificates and certifying the competence of persons having the access to personal data, guidelines for employees, reports and risk analysis, and certification of the measures used to secure ICT systems).

The art. 30(1) of the GDPR obliges each data administrator to keep a register of personal data processing activities. At first glance, this obligation binds only those companies which have more than 250 employees. However, it may still apply to smaller companies when data processing may cause a risk of violation, is not occasional, or includes specific categories of information (e.g. race, trade union affiliation).





When the main activity of the administrator or processor consists of processing operations which by their nature, scope, or objectives require regular and systematic monitoring of data subjects on a large scale, then appointing a Data Protection Officer (DPO) is obligatory under the GDPR. What's more, the administrator is required by the GDPR to carry out an analysis whether it is obliged to appoint a DPO. However, even if such an obligation does not directly come from the GDPR, according to the position of the GDPR Working Group (the opinion-forming body that co-created the Regulation's contents), appointing an inspector is strongly recommended. The appointment of such a person gives additional security guarantees – it confirms that the relevant body has acted with due diligence as regards the protection of personal data. The art. 37(5) provides that a DPO should be designated on the basis of professional qualities and, in particular, expert knowledge of data protection law and practices, as well as the ability to fulfil the objectives of the Regulation.

... even more expenses

As one can well imagine, these necessary changes will be time-consuming and will incur unavoidable costs. According to

the authors of the article *It'll Cost Billions for Companies to Comply With Europe's New Data Law* published in *Bloomberg Businessweek*, the world's 500 biggest corporations are on track to spend a total of \$7.8b to comply with the GDPR.

The risk of non-compliance also entails potentially very high costs. The regulators will have the power to fine businesses which breach GDPR requirements – up to 4% of their worldwide turnover. In the event of violation of the rights of individuals, the administrator is exposed to civil and administrative legal liability, too. In the scope of the first type of liability, the GDPR provides persons whose rights have been violated with the possibility, i.e., to apply to the court demanding that the administrator refrains from violating or ordering specific behaviour, or for awarding damages. In addition, a data administrator is also exposed to administrative sanctions, taking the form of penalties. Specifically, it can result in a fine of up to €10m, and in the case of a company or group of companies with a total worldwide turnover exceeding €500m – up to 2% of total global turnover from the previous year; or a fine of up to €20m, and in the case of an enterprise or group of companies with a total worldwide turnover exceeding €500m euro – up to

4% of total global turnover from the previous year.

Who's prepared?

Already in 1995, the EU legislated on the protection of personal data. As such, the GDPR is a legal instrument with roots in the previous century (though, ever since the Internet boom a lot of things have changed regarding how personal data is targeted by companies with more or less honest intentions). Then again, barely a handful of EU Member States was actually prepared for the GDPR, implementing appropriate national legislation in order to adjust their legal systems to the Regulation.

However, it does not mean that other countries have resigned from introducing national modifications (Fig. 1). The majority of EU Member States have by now drafted at least some kind legislation that'll have to be passed in due time. That said, it's worth emphasizing that it is not recommended for entrepreneurs to refrain from adapting to the GDPR and its policy until the adoption of the new law on the protection of personal data in their respective EU Member State. The GDPR is a regulation – hierarchically the most important legal act of the European Union – which means that the provisions of the GDPR are directly binding and applicable, having an immediate effect. In other words, as of 25 May this year, the Regulation applies in full and entities that perform the relevant activities, including the collection and processing of personal data, are forced to strictly comply with these provisions. After all, non-compliance can be very, very costly.

The Mateusz Romowicz Legal Consultancy was established in 2006 in Gdynia. It began with offering legal consultation to natural persons, especially

Polish seafarers, and maritime workers and companies, to extend its activities over time to provide nowadays a broad range of legal services for numerous Polish and foreign entities. Today, the consultancy's core expertise covers maritime law, seafarers' taxes and compensation, and legal support of seafarers, shipowners, and shipbuilders.



Photo: Port of Gothenburg

No winners

by Przemysław Myszk

The so-called port conflict in Gothenburg – an ongoing dispute between APM Terminals and the Swedish Dockworkers Union's Brach Four (Local 4) – has been impacting in an unprecedented manner transport & logistics in Sweden since spring 2016. The redirection of approximately 240k TEU in 2017 alone generated negative economic, social, and environmental consequences felt as far as hundreds of kilometres up in the north of the country, as well as in other European seaports and on the continent's road and rail network. It even forced the Löfven Cabinet, a coalition in which Social Democrats have the majority, to seriously consider weakening the union's right to undertake industrial action, a step which might put the country at odds with international labour conventions, not to mention the country's constitution itself.

In October 2011, the Gothenburg Port Authority (GPA) concluded a tender by awarding APM Terminals the concession to run the Skandia Container Terminal for the next quarter of a century. Together with privatising the ro-ro stevedoring business, it was a real milestone for the port which could now focus its attention on landlord responsibilities. For its efforts, the GPA was recognised by our team with one of the very first Baltic Trendsetters Club Certificates back when we started awarding them at the beginning of 2012.

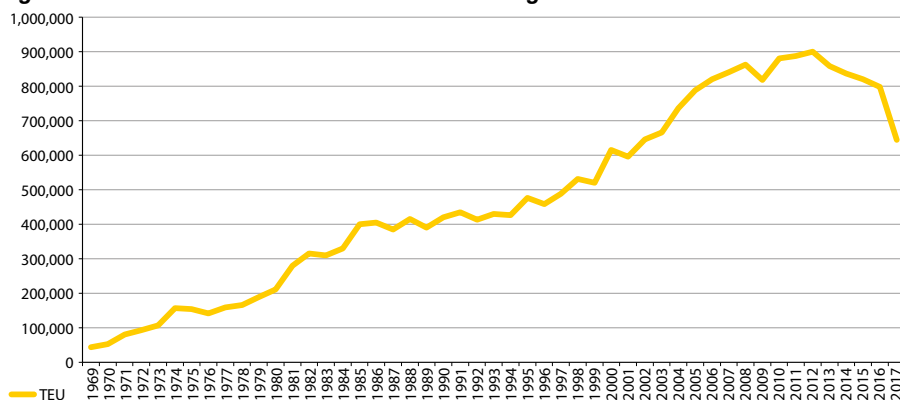
Shortly afterwards the new operator took over, and the facility started to run under a new name of APM Terminals Gothenburg (APMT-G) as of January 2012. The company also agreed to invest \$115m over the following five years, i.e., in two super post-Panamax ship-to-shore cranes, two rail-mounted gantries, and in increasing the terminal's rail capacity. "Throughout the bid process, we have been impressed by the Gothenburg Port Authority's clarity of objectives and effective approach to achieve them. We will build

on the port's current strengths of location and deep water, introducing our core expertise in world-class operational excellence and safety, improving productivity levels and developing new solutions that attract more business," Martin Poulsen, at that time CEO, APM Terminals Europe Region, promised.

However, if the port thought that handing over operations into private hands would boost Skandia's performance – after all Gothenburg together with the

nearby Danish Aarhus and the Polish Gdańsk were the first in the Baltic to be included in a direct Europe-Far East loop served by then the world's largest 14,770 TEU Maersk E-class container carriers – it must have been pretty quickly dissatisfied with the volumes that came. After a small uptick noted in 2012 (Fig. 1), the number of containers handled in Gothenburg has been steadily going down, until, that is, the 240k TEU carnage that took place last year.

Fig. 1. Container traffic in the Port of Gothenburg in 1969-2017



Source: Port of Gothenburg

Pointing the finger at...

The story behind the conflict is a classic. Depending on the perspective, we have on the one hand a trade union which is concerned with the safety of the workplace and cares about its members' rights, and a multinational corporation that looks at the world through Excel-tinted spectacles on the other. From another perspective, one can accuse the dockworkers of laziness and that they only see to themselves and their partisan interests (e.g. a union post that had to be paid by the employer, a case later resolved to the union's disfavour in a court battle) while the responsible operator puts its money at stake to bring the terminal to the next level, in order for the port to continue calling itself the biggest container harbour in the Nordic.

When it comes to trade unions, the situation in Gothenburg is more complicated than in other parts of the country. The Swedish Transport Workers' Union (Transport), part of the Swedish Trade Union Confederation (LO), is the one holding a collective agreement with APMT-G (for that matter a national agreement with Ports of Sweden, part of the Swedish Confederation of Transport Enterprises). The Swedish Dockworkers Union (SDU), in turn, was formed in 1972 when it split from Transport, which was a conclusion to a bitter disagreement that was fermenting within Transport since the 1950s (and which was symbolised in giving Hans Eriksson, who was elected Transport's President in 1968, the nickname "Hoffa" after Jimmy Hoffa, leader of the labour union U.S. Teamsters, but also a convicted mobster). In contrast to other Swedish seaports, through Local 4 the SDU has more (63%) members in Gothenburg than Transport (countrywide 55% of all union port workers are subscribed to Transport; in APMT-G Local 4 accounted for 85% of all dockworkers).

If APM took over in 2012, why then the first strikes broke out four years later? According to Local 4, it all started when a new management team assumed helm at APMT-G in 2015. "We had a massive amount of unresolved personnel matters, people who were caught between things in various ways," Erik Helgeson, the union's representative said and furthered, "They failed to invite our safety representatives to investigations of accidents and neglected their responsibilities with the notification of dangerous situation or dangerous work tasks that needed to be addressed." According to accounts given by workers, they were, i.e., denied parental leave, their input concerning the terminal's

work setup was ignored (e.g. insufficient access to straddle carriers or issues with installing a new computer system that led to truckers' and clients' frustration with which the dockworkers were confronted) while a 60 year-old dockworker, who worked in the port for over three decades, was refused previously agreed upon retraining for less physically demanding tasks unless SDU signs a no-strike deal and walks out on its fight for employee rights.

Feeling ignored, Local 4 decided to take an industrial action, which resulted in two day-long strikes, one in April and the other in May 2016. Henrik Kristensen, CEO, APMT-G, commented, "The Dockworkers Union does not respect that it is the Transport Workers' Union that has the national agreement." According to him, "It's a loophole that allows a trade union to strike at a company when there already is a collective bargaining agreement in place at the workplace." This was, however, questioned by Mats Glavå, Senior Lecturer, Labour Law, University of Gothenburg, who said, "There is no loophole. The basic rule is that trade unions that do not have a collective bargaining agreement may engage in industrial action."

Both sides continued to accuse each other of being responsible for the conflict. When in November 2016 Local 4 went for another strike, this time a 26 hour-long one, both parties decided that it's time to ask mediators for help. The go-between's proposal did not give Local 4 the same rights as Transport nor did it grant it independence. Helgeson said, "Their perception of the Swedish model is that LO and the employers' associations Arbetsgivareföreningen make up collective bargaining agreements. There is no flexibility for the workers to choose something else." As such, Local 4 struck again, on 24 January 2017 for eight hours (what's important, it was Local 4's only industrial action per se taken last year).

A new chance for resolving the dispute emerged when the previous collective agreement between Transport and Ports of Sweden came to its end. At first glance the proposal was quite straightforward, namely Transport and Local 4 would establish industrial peace in Gothenburg through a joint agreement. Jan Sjölin, who was one of the mediators, commented in this regard, "It would have been the easiest and simplest solution for the labour market as a whole. If



Photo: Pexels

the Swedish Transport Workers' Union and Hamnfyran [Local 4] sign a joint agreement, fine. The problem is finished with." That, however, did not come to fruition. Peter Winsten, New Agreements Secretary, Transport, rejected the scheme. "We have a nationwide agreement covering all of Sweden and ports in Sweden. And we make the assessment from our union's side that it works exceptionally well as it is right now," he said. To this Helgeson replied, "I think the simple explanation for the Swedish Transport Workers' Union's silence and LO's silence is that they quite simply are hoping that APM Terminals will destroy the Dockworkers Union in the container terminal, and then subsequently there will be a domino effect where we are weakened throughout the entire country. Because they believe that there should only be one union for dockworkers and that's the Swedish Transport Workers' Union."

Ultimately, Transport and Ports of Sweden signed a new three year-long deal. "Since employers in this area are well aware that the Dockworkers Union has the majority of employees in some ports, yet they enter into a collective bargaining agreement with the Swedish Transport Workers' Union, they know that their counterpart cannot offer what is essential for the employer, namely to attain a situation of industrial peace," Glavå commented on the new-old state of affairs.

The conflict thus carried on. While technically speaking Local 4 undertook

only one industrial action in 2017, it wasn't the last means in their strike toolbox. In response to APM's wanting to lay off about 20 dockers, the union started to interfere with overtime and hiring, including employing (non-unionized) contract workers from temporary work agencies. Then APM chose to drop its A-bomb. The operator decided to lock out the terminal. Specifically, the facility was to be closed in the evenings and at night. According to the SDU's website, "APM Terminals Gothenburg has effected one lockout. The employer's industrial action meant that the dockworkers were shut out from the port without pay and that the terminal was shut down between 16.00 and 07.00 on all weekdays between the 19th of May and the 30th of June. Total loss of production: 371 hours." In *Uppdrag granskning*, a TV programme of SVT, a Swedish national public TV broadcaster, a person described as a "source with good insight into the thinking of APM's senior management" commented on the lockout, "One killed the business that way, and it could only have been due to that they wanted to get rid of inconvenient personnel. Nothing else." One month into the lockout and APMT-G announced in July 2017 that due to lower volumes and decreased capacity, it will dismiss 160 employees, roughly one-third of its workforce. Not surprisingly, almost all of them were the members of Local 4. Due to a formal error, the operator had to back out, only to sack 140 people, of which half held fixed positions, a month later.

Meanwhile, the mediators said that they want to leave the negotiating table as they perceived their work as meaningless and useless to continue. Jan Sjölin admitted, "I cannot answer [...] exactly what is needed so that the Dockworkers Union will be satisfied. The Dockworkers Union has a share of the responsibility, in that they have not communicated to us. We have a part of the responsibility in that we failed to pick up with that broadcast, in the case that it ever occurred." But he also came up with a new solution, "If everyone in Gothenburg joins the Swedish Transport Workers' Union, then those who are currently in the Dockworkers Union will join over the Swedish Transport Workers' Union's local branch in Gothenburg. It will be them who will rule, quite simply. But of course this

would mean that they become a part of the Swedish Transport Workers' Union, and they certainly don't like the idea."

Sjölin's words were indeed prophetic. Well into 2018, there were ongoing talks about Local 4 joining Transport. A potential collaboration between the two would cover a countrywide collective agreement, including a no-strike deal. Local 4 and Transport would also appear as one cartel in talks with employers as well as subject themselves to third-party arbitration if needed. A working group was meant to be set up to iron out the co-op details. However, the Swedish Trade Union Confederation demanded that Local 4 subordinates itself to Transport within the local collective agreement, and most importantly that it disbands itself and joins Transport without changing the organizational structure of the latter. As could be foreseen, Local 4 disagreed with these conditions (which, symbolically speaking, would be a negation of what they did 46 years ago when they opposed what they believed to be an overly bureaucratic and unsympathetic towards dockworkers nature of Transport). Their representatives said in March 2018, "Unfortunately, we cannot accept this. A co-operation agreement must be built upon two equal partners [...]. We are interested in a cooperation, but that requires that we retain vital elements of what makes Dockworkers Union unique. [...] A future merger must be built upon a compromise and not on a situation when one partner swallows the other."

As such, APMT-G, GPA, Ports of Sweden, LO, and Transport are now waiting for what Ylva Johansson, the Minister of Employment, will do, i.e., is she and her government determined enough to change the labour law to make it harder for unions, particularly those outside of collective agreements, to engage in industrial actions. "The Swedish model does not function as we thought in this situation and I'm therefore ready to go as far as to change legislation in a matter which is to us Social Democrats of course very sensitive," she said. Glavå is sceptical about this set-in-stone approach, "Due to that the situation in the port is unique, a solution should be created for that particular situation, not a legislative solution that could fundamentally alter the Swedish model. The right to engage in industrial action is governed in the Swedish constitutional legislation, plus Sweden is bound by international conventions [...]."

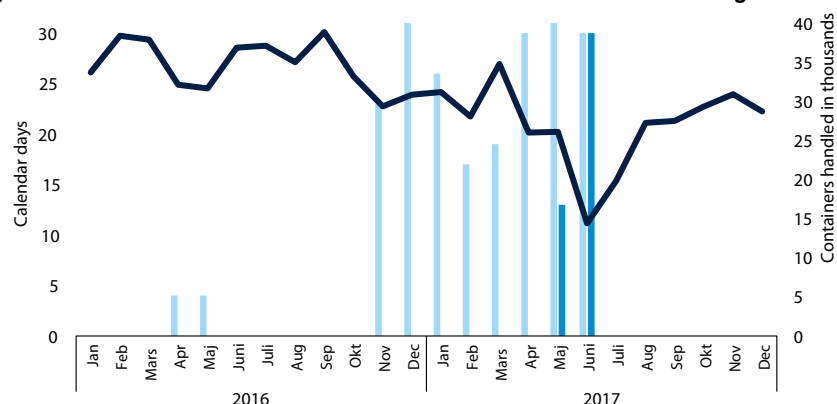
The latest proposal surfaced in June and came from a working group set up by LO, the Swedish Confederation of Professional Associations (Saco), the Swedish

Confederation of Professional Employees (TCO), the Confederation of Swedish Enterprise, and the Association of Swedish Engineering Industries. The group was concerned in which direction the governmental inquiry into the strike law is proceeding, fearing that the government might amend the legislation in such a way that in the end it would considerably disturb the balance on the labour market. So, the partners came up with their own suggestion how to limit the chances of another conflict of the Local 4-APMT-G magnitude. According to their proposal, it would be possible to undertake an industrial action only in a situation when its aim is to bring about a collective agreement. According to the group, this "surgical operation" would not affect the right to engage in a sympathy strike, take political actions, or set up repayment blockades. All of the interested parties underline the fact that various organisations – representing both employees and employers – have come together to resolve the difficulty that was sparked off by the port conflict in Gothenburg. That is all except for Local 4, whose representatives weren't included in the working group. Helgeson commented on the proposal, "It means a displacement of power and can result in many unforeseen consequences for independent trade unions. I see that we are used by the Confederation of Swedish Enterprise as a whip, cornering and forcing LO to become part of this panic agreement." Interestingly, Minister Johansson welcomed the move, saying, "We will analyse it, but because the partners agree with each other it is obvious that this proposal will have priority [...] and will be the foundation for a legislative change." Yet, while Minister Johansson said that she'll seek out to secure the widest possible support in the Swedish parliament for amending the law, she also said, "However, nothing will happen before the autumn elections." The polls aren't favourable for the Social Democrats, so ultimately a completely different government may inherit the port conflict hot potato. The clinch, for the time being, continues.

In the wrong box

Meanwhile, at the height of the conflict, Sweden's importers and exporters, as well as transport & logistics companies serving them with the use of the container terminal in Gothenburg had to deal with a situation without a precedent. Thousands of containers had to be immediately shifted away from APMT-G or were stuck in the facility, putting enormous stress on the supply chain. In the short-term, it resulted in massive delays;

Fig. 2. Conflict measures and container volumes in the Port of Gothenburg in 2016-2017



¹ Light blue bar: number of days of strike measures undertaken against APMT-G, incl. blockaded and strikes

² Dark blue bar: number of lockdown days

³ Horizontal line: containers handled in thousands

Source for Fig. 2 and Tabs. 2-4: Confederation of Swedish Enterprise's Hamnkonflikten i Göteborg. Vilka kostnader har konflikten get upphov till?

Tab. 1. Top 10 Baltic container ports in 2017 (TEU)

No	Port	2017	2016	2017/2016 [%]
1	St. Petersburg	1,920,650	1,745,182	+10.0%
2	Gdańsk	1,580,508	1,299,373	+21.6%
3	Gdynia	710,698	642,195	+10.7%
4	HaminaKotka	690,326	631,334	+9.3%
5	Gothenburg	644,000	798,000	-19.0%
6	Aarhus	511,424	456,652	+12.4%
7	Helsinki	491,000	451,266	+8.8%
8	Klaipėda	472,998	443,231	+6.3%
9	Riga	445,984	385,937	+15.6%
10	Rauma	277,507	255,905	+8.5%
Total		7,745,095	7,109,075	+8.9%

Source: Actia Forum

lengthened routes and congestion on the Swedish road and rail networks as well as in the country's other ports, increasing costs of transportation and logistics; modal backshifts, thus higher greenhouse gas emissions; business deals that failed to come; disappointed clients; worsened relations with partners all over the world; furious shipping lines that scratched Gothenburg from their loops; and so on and so forth. In other words – millions of euros lost.

The conflict in general and the lockout in particular resulted in around 240k TEU being rerouted from the Gothenburg port last year (Fig. 2), that's 15% of all twenty footers handled in Swedish ports (the value of goods packed in these boxes was estimated at SEK64b, approx. 6.21b, which represented around 3% of Sweden's goods trade in 2017).

What's worth underlining, is that the conflict was the sole reason behind the redirection – the port had the capacity to handle the volumes, and there were no

major negative disturbances neither in global trade nor in shipping lines' networks. As a matter of fact, other general cargo goods handled in Gothenburg actually noted double digit increases last year. Ro-ro traffic advanced by 10.2% year-on-year up to 596k freight units, whereas finished vehicle logistics by 19.9% yoy to 295k units. By contrast, the container sector decreased by 19.0% yoy, totalling 644k TEU.

Specifically, the port lost ca. 54.4k TEU between the lock-out Q1 and Q2 2017 (-29.5% yoy). Meanwhile, other Swedish ports rose by 15.4% yoy to 222.2k TEU. Overall, sea container traffic in Sweden rose last year by 2.7% yoy to over 1.56m TEU. If we were to exclude Gothenburg from the 2017 total, the increase would be 27.4% yoy (to altogether 921k TEU), which again points to the fact that other Swedish ports gained at the expense of Gothenburg, particularly the nearby Helsingborg (+27.3% yoy to 259.3k TEU) and very interestingly also the east coast Gävle (+30.9% yoy to 209.5k TEU) and Norrköping (+39.4% yoy to 107.6k TEU). A third of the rerouted volumes went to/from Antwerp, Rotterdam, and Hamburg, propelling feeder, truck, and rail traffic between the Baltic and North seas. All in all, while back in 2015 and 2016 Gothenburg still held over half of Sweden's sea container market share (56% and 53%, respectively), it contracted to 41% last year. Regionally, Gothenburg dropped out of the Top 3 Baltic container seaports chart (Tab. 1) and was last year overtaken by Gdynia and HaminaKotka.

The reputation of the Gothenburg port took a hard blow, too, the long-term economic repercussions of which are hard to calculate, and certainly, aren't easily restored. "This is a downturn that we have never been close to at any point in the history of the port, and it took place in a year when container trade globally had increased. It is difficult to put into words the seriousness of the situation," Magnus Kårestedt, CEO, GPA, commented on the 2017 container volumes. He also said, "We had hoped for a recovery towards the end of the year in the absence of any industrial action since last summer. But this was not the case. The message from the freight owners is loud and clear – the constant threat of industrial action hanging over the container terminal means they will not be returning without a long-term solution that will ensure reliable freight handling over time." As a confirmation of his words, Gothenburg handled 188k TEU over 2018's first quarter, which represents only a small 2.2% uptick on the Q1 2017 result.

As a consolation, the Swedish Ministry of Infrastructure recently agreed to cover approx. one-third of the costs (SEK4.0b; ca. 390m) of deepening the Port of Gothenburg's fairway (from the current 13.5 m to 16 m) and strengthening the quayside, all in order for bigger and heavier box carriers to call at the container terminal. But will Gothenburg re-establish itself as a trustworthy partner? Judging from the figures and stories presented in the next chapters, this will be a Herculean task.

Counting the cost

In a paper commissioned by the Confederation of Swedish Enterprise, *Hamnkonflikten i Göteborg. Vilka kostnader har konflikten get upphov till? (The port conflict in Gothenburg. What costs has the conflict generated?)*, the authors from Damvad Analytics made an attempt to evaluate the extra expenses Swedish businesses, as well as the society, had to incur as a result of the port conflict and, more specifically, the costs that were created in the fallout of the summer 2017 lockout.

According to Damvad researchers, the 2017 period of the conflict came with a total price tag of SEK4.5b (440m). Out of this figure, one-third (Tab. 2) can be attributed to the increased costs of logistics, namely backshifts onto the

more expensive transport modes/solutions (trucks, feeders, and trains, incl. those over the New Silk Road, as compared with direct oceangoing vessels), as well as increased warehousing costs and higher labour expenses due to extra work needed to manage the disruption. On average, the higher cost of transport, logistics, and warehousing amounted to SEK6.0k/container, more or less the price of shipping a TEU from Asia to Gothenburg.

Tab. 2. Increased costs of transports and logistics (million SEK)

Transports within Europe	750
Domestic transports	410
Transshipment	220
Sea transports to other ports	80
Total, of which	1,460
Direct transport costs	530
Logistic management & warehousing	920

The remaining two-thirds were accumulated delay costs, including deals that weren't cut, contracts that were broken, the need to scale down businesses, not being able to offer seasonal products (like cloths) on time, etc. Additional SEK60m can be attributed to transport having to travel over longer distances, hence taking more time. For comparison, the annual cost of delays on the Swedish rail freight network sums up to around SEK1.4b, over two times less. The SEK3.0b figure represents only short-term losses. According to estimations done by Business Region Göteborg, which is also preparing a report on the subject, the port conflict cost the Swedish trade, industry, and business world anything between SEK6.4b and SEK12.8b over the two year period.

At the same time, the society – not only in Sweden but also in the areas through which Gothenburg's container traffic was rerouted – also incurred excess costs. In total, the conflict put on peoples' shoulders an additional burden of SEK190m, of which SEK80m came from the emission of extra 70kt of CO₂, while SEK70m resulted from the increase in domestic traffic (Tab 3).

As mentioned above, the rerouting resulted in modal backshifts, which drove up the cost of logistics. On average, overland routes (road and rail) rose by 180 km in Sweden alone.

Europe-wise, the ad-hoc alternatives put in place to stitch up the supply chain could mean adding as much as 1,000 km of extra travel distance. For instance, one company took its shipment from the US to the Port of Antwerp, loaded it onto a truck, which then drove all the way to the final destination in Malmö. In total, some 327m tonne-kilometres of excess truck and train mileage was created because of the conflict.

Sea transports were lengthened as well, by 590 km on average. This resulted in a backshift within the mode itself, as direct ocean services served by the world's largest container carriers were replaced by feeder traffic, a solution that is slower and more expensive (because of the need to tranship the boxes; according to *Hamnkonflikten*, feeder transshipment added on average extra two days) as well as less eco-friendly (also due to the extra quay-ship-quay movements and worse TEU/fuel/CO₂ ratio). Overall, approx. 5.7m extra container-hours were generated, out of which 3.4m can be attributed to sea transports, 2.1m to transshipment in Europe, and 200k to overland transports within Sweden. However, it should be noted that these figures apply exclusively when a container was actually on the move. According to a survey carried out by Damvad Analytics, the average delay for a box rerouted from Gothenburg was 10 days. Interestingly, the average – yearly! – delay for a container that was still handled in the port was two days. Nevertheless, the real delays could take weeks. For instance, Elvine, a Gothenburg-based seller of jackets, got its autumn collection from China after a one month delay; Hobbex, a company dealing with retail sale of toys and recreational equipment, said that it took up to four weeks to get the stocks at the height of the conflict. In *Dagens Nyheter*, one of Sweden's biggest media outlets, one could read about an unexpected consequence of the port conflict, namely major discounts on clothes which arrived in stores off season.

Handling the rerouting wasn't easy. The Västra Götaland County, where Gothenburg is located, is by far the country's most important international trade node. About 50% of all imported goods, measured in tonnes, land in Västra Götaland, from which they're often transported to other parts of Sweden. On the export side, 24% of outbound tonnage goes through the County. It comes therefore without surprise that, according to the same questionnaire, the western part of the country was hit the most (42%). However, 20% of companies in the north of Sweden also said that the port conflict negatively impacted their operations. This only

shows the magnitude of the conflict's reach. Small companies, taking in semi-finished products which require further processing, were affected the most on the import side. Big exporting companies had in turn difficulties in sending out their goods, which put their business reputation as well as sales at risk. In short, the just-in-time supply chain model was crippled, and companies relying on it had fallen victim to the conflict.

“Like a punch in the face”

Statistical data delivers a good bird's-eye (over)view of the economic consequences of the port conflict. At the same time, individual case studies give insight into the actual efforts companies had to make to cope with the crisis. The Damvad's report contains stories about enterprises from the commerce, industry, and transport sectors (incl. shipping lines).

With 220 shops Clas Ohlson, a Swedish hardware store chain and mail-order firm that specialises in hardware, home, leisure, electrical, and multimedia products, is one of the biggest of its type in the Nordic region. Since the company does not produce anything on its own, it has to rely on imports, of which ca. 70% come from Asia. Prior to the conflict, these Asian volumes were exclusively handled through Gothenburg, with 95% of the goods directly transported on rails to Clas Ohlson's central warehouse in its hometown of Insjön. Due to the conflict, the company decided in the summer of 2017 to swap Gothenburg for Gävle. Initially, however, because of capacity restrictions on the rail network, around half of the flows had to be transported with the use of trucks. Eventually, Clas Ohlson returned to Gothenburg in autumn. Overall, the bill for logistics the company had to pay during the port change period was around 20% higher than in the more logistic-friendly times.

Another Swedish commerce major, Löfbergs, a coffee roastery based in Karlstad, with a daily production of an equivalent of some 10m cups of coffee, also had its logistics based on a direct train shuttle connecting its roasting centre with Gothenburg. Its imports of raw beans from South America and East Africa amounted to six-seven containers per day. The predictability and smoothness of these transports were cut short in the summer months of 2017. Then, all of a sudden, Löfbergs' facility was flooded with 47 containers in a single day! The company tried to redirect its shipments to other ports in Sweden, but it did not know in which harbour they would finally land. To make things even worse, 10-15% of the boxes still

had to be transported by truck from other Swedish seaports to Gothenburg in order to have them shipped to Karlstad onboard trains. Löfbergs says that it cost the company millions of Swedish crowns to sort out this logistic puzzle and keep the production going despite this seriously bent supply chain.

Moving to the port conflict's impact on the auto industry, Volvo's facility in Tuve, a factory located near Gothenburg and delivering not only finished trucks but also parts for the company's other plants all around the world, had major issues with shipping its products. As a result, exports to Volvo's manufacturing plants in Australia and Brazil failed to come in on time, meaning extra costs for overtime once the parts arrived, but also lost business as some customers decided to buy other than Volvo vehicles. The company tried to patch its logistics by sending the exports via trucks and trains to other Swedish ports, like Halmstad, Helsingborg, Varberg, and Åhus, as well as to the Danish Aarhus, and Antwerp and Ghent in Belgium. It also employed feeders from Gothenburg to Belgium for further oceanic voyages; still, the distance between Tuve and Antwerp is around 75 times longer (as the crow flies) than from the facility to AMPT-G.

Next, Uddeholm, a manufacturer of steel for industrial tools, exports 95% of its products (60% out of Europe). Before the conflict, the company used to drive its global shipments by road to Karlstad from where they were picked by a shuttle train going to Gothenburg. From there, in turn, they were



Photo: Pexels

loaded onto oceangoing vessels. During the conflict, around 60% of the volumes stayed in the Gothenburg port, while 20% was rerouted by truck to other Swedish ports (Stockholm, Södertälje, Norrköping, Varberg, Helsingborg, and Malmö). The remaining one-fifth was also loaded onto lorries and headed to Hamburg, where the containers were put on a train heading eastbound over the New Silk Road to Shanghai and Ningbo (apparently, time was critical for the delivery of these shipments). Despite these countermeasures, Uddeholm's warehouse inventories in India, Singapore, and South Korea ran dry. No stock meant no sales, along with deteriorated relations with clients. According to Uddeholm, while in normal times transport costs account for approx. 3-4% of the company's sales, the conflict months that hit the company the hardest added to this some 60% (the Hamburg-China trains were alone 300% more expensive than the direct ocean shipments via Gothenburg).

What's interesting, too, transport companies weren't happy with the extra work the conflict provided. DB Schenker, for instance, often didn't know where a given container will pop up. This drove up the operational and administrative expenses, all because one had to localize the box in the first place and then send a truck to get it. In cases when the pickup was long enough, the container had to be stored, which added to warehousing

costs. Paradoxically, once the trucker capacity shifted, chiefly southeast and east to other Swedish ports to speed up the collection and therefore minimise the storing expenses, the cost of warehousing rose in Gothenburg, as it was difficult to find a truck driver in the region even when the situation in the port became less tense. At the beginning of this year, DB Schenker's clients still weren't convinced of the idea of returning to Gothenburg, preferring other Swedish harbours to take care of their imports and exports. This was reflected in Gothenburg's Q1 2018 container volumes mentioned earlier.

Another transport and logistics company, the Helsingborg-based GDL Transport, was affected as well. Its rail subsidiary, SCT Transport, decided in March 2018 to call off the services linking Gothenburg to Jönköping and Gävle. The delays caused by the conflict made it difficult to fill the shuttle trains. Running underload transports, and having to pay the same fixed costs for using the rail infrastructure, just did not add up at the end of the day. Furthermore, these lighter trains offered worse energy efficiency per container, which posed a risk of deteriorating relations with customers that pay particular attention to rail's eco-friendliness. On the road side, GDL Transport ran into the same problems as DB Schenker did; the company reported a higher number of empty runs it had to make to eventually hunt down a container.

And finally, the shipping lines. First, MSC, which supplied APMT-G with around 20% of the volumes before

Tab. 3. The conflict's impact on the society (million SEK)

Per cost type	
Extra CO ₂ emissions ¹	80
Infrastructure wear & tear	60
Extra emissions of other greenhouse gases	20
Noise	20
Accidents	10
Per area	
Increased domestic traffic	70
Increased sea traffic	60
Increased traffic within Europe	60
Total	190

¹ SEK1.14/1.0kg

Tab. 4. Different transport modes' impact on the society (öre/tonne-kilometre)¹

Mode	Infrastructure wear & tear	Accidents	CO ₂	Other GHG	Noise	Total
Truck	6.0	1.0	6.0	1.0	2.0	17
Train	7.0	0.2	0.2	0.1	0.8	8.6
Ship	0.6	0.2	3.0	1.0	0.0	5.0

¹ SEK1.0 = 100 öre

the crisis, scratched Gothenburg from its ocean network in May 2017. In exchange, it included the port in its feeder traffic to/from Hamburg. Eventually, MSC returned with deep-sea services, but the ocean/feeder ratio continues to be tilted in favour of the latter. Next, also in May 2017, OOCL suspended Gothenburg from its booking system, saying that it will reverse the decision once two conditions are met: the conflict is resolved and Gothenburg gets a deeper fairway. Also, both companies shifted their feeder traffic toward other Swedish ports, including those on the east coast, like Gävle, Stockholm, and Norrköping.

Nevertheless, the most symbolic event took place when Atlantic Container Line (ACL) has decided to drop Gothenburg out of its combined container and ro-ro service that linked Sweden with Canada and the US – a route that was a cornerstone of Gothenburg's container traffic back when it started to unroll in the 1970s. The company's con-ros ceased to directly call to Gothenburg in mid-January 2018 (the A Service in question used to loop on a regular basis the ports of Gothenburg, Hamburg, Antwerp, Liverpool, Halifax, New York, Norfolk, and Baltimore). A week later, the company introduced a feeder service connecting Gothenburg with ACL's vessels calling at Continental Europe ports. "It almost felt like a shock when I sat in our headquarters' boardroom, realising that the battle was lost. For a number of reasons, one of the ports had to be taken out of the loop and, unfortunately, it was Gothenburg," Anders Ivarsson, CEO, ACL Sweden, commented. He then added, "It was an extremely difficult day. Nevertheless, we're going to install a feeder service that will meet with ACL's ships on the European mainland. The majority of the clients with whom we have talked seemed to even like the idea, because feeder ships are more flexible as they can call at ports other than Gothenburg in the event of a new conflict breaking out. But for the Gothenburg port, which strives to attract more – not less – direct services, this is of course like a punch in the face."

Caught in the middle

In a sense, the port conflict in Gothenburg resembles an epidemic. It started in one particular place, brewing



Photo: Pixabay

for months before erupting and infecting numerous parties not only in Sweden but worldwide, to temporarily put itself out, like a forest fire leaves burning ember underneath the surface.

Except maybe for the ports in Sweden that unintentionally gained container volumes at the expense of Gothenburg, though they had to deal with congestion caused by this flash box flood, no one can claim to be a winner in the dispute between Local 4 and APMT-G. The union did not get what it wanted. The terminal operator lost one-fifth of its handlings despite growing world trade and global ocean container traffic, nor did it stifle the union. The port's reputation has been battered. Dozens of companies have been considerably impacted by the need to alter or

even set up new supply chains virtually overnight, and it can be argued that they'll think twice before trusting any logistics provider trying to sell them the Gothenburg pitch. The society and the environment have been affected by increased pollution. By considering an alteration to the Swedish labour model, politicians are about to venture into a blank space on the map, and so on and so forth.

The port conflict has caught many off guard. However, it wasn't their fault. After all, who could have expected that summer 2017 would bring about a lockout, which, in turn, had such a ripple effect? If any lesson can be drawn from the port conflict after all these months, maybe it's this one, particularly the second part: hope for the best and prepare for the worst. ■



Photo: Port of Gothenburg

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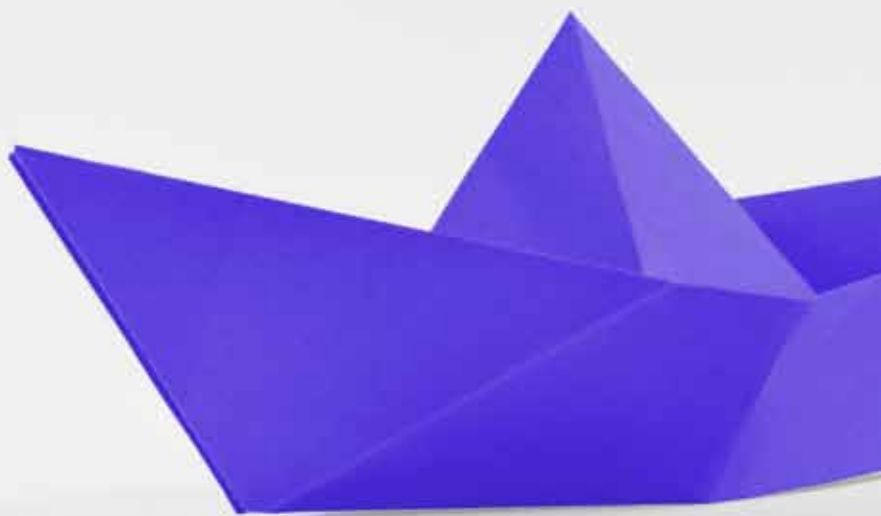




Photo: X-Press Feeders

An invisible trade

by Dirk Visser, Senior Shipping Consultant and Managing Editor, Dynamar

“The Times They Are A Changin’...” And so has indispensable feedering over the last decade, one might tune in. The adage that the capability of a port decides upon the size of the feeder ship is still true – thus such vessels have grown in size over time. The bigger the mainline ship, the fewer ports of call? Not really, but where call sizes increase, service frequencies come down. Hence an ever larger number of feeders are swarming the mainliners, increasing their capacities if and when the destination ports allow. But do we really need more feeder ships?

One of our latest reports, *Transshipment and Feeder 2018 – Trades and Operators – Ships and Hubs*, is all about an invisible trade; about containers that do not exist in statistics on the worldwide carriage of full containers. Why not?

It is “commercial” full containers that are being counted to assess the world container trade, which reached around 168m TEUs last year. These boxes are shipped on a Bill of Lading issued by the shipping company to the shipper. This Bill of Lading covers the carriage of the containers from their (first) port of loading to the (ultimate) port of destination.

In contrast, a feeder move constitutes an operational port-to-port activity, arranged by the mainline carrier using the services of a feeder company. Feeder containers usually travel on a Service Bill of Lading issued by the feeder operator. In the case of feedering, the container, whether full or empty, is the cargo. Relevant statistics do not exist, but the total number of feedered containers can be estimated at 65m TEU worldwide. While feeder boxes may not exist in full container trade statistics, they’re however counted twice when handled in a port. In that case, both the move

from the mainline vessel and the handling into the feeder are added up.

The web

Feeder is the first/last maritime leg of an ocean-borne container transport, where the ports of loading or discharge of the mainline container ship are not the same as the ultimate origin or destination port of the container. Feeder is a short-haul trade between a deep-sea hub and regional ports that do not have sufficient cargo to warrant a direct call from a mainline service or which are lacking the infrastructure to handle larger vessels.

Feeder involves transshipment. Containers are discharged at a direct port of

call, the hub, for on-carriage to their final destination, the feeder port. The direct mainline port of call serving as a hub can either be a gateway (a port serving its direct hinterland) or a port specifically built for processing transshipment, or both. A port handling more than 50% transshipment containers is a dominant transshipment port; in 2017, around 25 harbours could be considered a facility of this type. Only two such seaports can be found in Northern Europe, namely Bremerhaven (57% transshipment share) and Wilhelmshaven/JadeWeserPort (70%). In the Baltic, an important feeder destination/origin – Gdańsk, has been functioning as an ever more important hub, but

Tab. 1. Top 10 independent common feeder operators by Annual Trade Capacity and rotations

Operator	ATC rank	ATC	Rotation rank	Rotations
X-Press Feeders	1	2,803,600	1	2,824
Unifeeder	2	1,286,400	2	1,664
Arkas Container Transport	3	1,268,400	4	1,196
Simatech	4	986,800	8	681
Samudera Shipping Line	5	795,700	7	822
Sinokor Merchant Marine	6	602,700	5	1,144
Regional Container Lines	7	553,400	10	468
Transworld Group Singapore	8	509,600	9	556
KMTC	9	501,800	3	1,212
Samskip	10	498,300	6	905
Total		9,807,000		11,471

Source for all tabs.: Dynamar’s Transshipment and Feeder 2018 – Trades and Operators – Ships and Hubs

so far, gateway boxes prevail. MSC is promoting Klaip da as its hub in the Baltic port; here the Klaip dos Smelte box handling facility is run by Terminal Investment Limited, MSC's partner. Nevertheless, it's the Mediterranean that accommodates the largest number of such hubs, namely nine with an average transshipment share of 79%, including the 95% Maltese Marsaxlokk (which shouldn't be a surprise given Malta's own rather scarce hinterland; the transshipment share of Bahamas' Freeport is even greater, standing at 99%). In absolute numbers, Singapore enjoys the highest transshipment volume: 28.5m TEUs in 2017.

To sum up, as the regional part of the global container transport system, feeder- ing is an integral part of the door-to-door transport chain. While feeder- ing is a shipping activity outside the limelight of the fancy big ships, at the same time it creates the indispensable web of container liner shipping across the world.

Dedicated and common

We have identified 124 shipping companies worldwide that offer feeder services (Tabs. 1-2). These are split into dedicated operators – mainline shipping companies handling the feeder- ing of their own boxes,

Tab. 2. Top 10 dedicated feeder operators by Annual Trade Capacity and rotations

Operator	ATC rank	ATC	Rotation rank	Rotations
MSC	1	6,419,800	2	4,118
Maersk Line	2	5,795,700	1	4,243
Evergreen	3	2,528,000	4	2,184
CMA CGM	4	2,328,400	3	2,636
COSCO	5	1,633,100	5	1,981
Pacific International Lines	6	1,249,700	6	1,404
Hapag-Lloyd	7	1,151,600	8	806
Wan Hai	8	954,600	7	936
Yang Ming	9	841,200	9	624
Hyundai Merchant Marine	10	338,300	10	494
Total		23,240,000		19,427

and common carriers, smaller shipping lines moving another carrier's boxes.

The 13 dedicated carriers have been recognised to deploy the largest ships serving as a feeder. Another four, CMA CGM, Maersk Line, Pacific International Lines, and ZIM, operate their feeder- ing business under separate brands, which may also be active as common carriers. When it comes to company numbers, the remaining 107 common feeder operators are clearly calling the shots.

Most companies carrying feeder containers are also taking regional cargo. Few of them, e.g. Regional Container Line and

Samudera Shipping Line, report split numbers for Carrier Owned Container/regional boxes and Shipper Owned Container/feeder containers; the vast majority, however, does not. It is believed that X-Press Feeders, present in all feeder trades, is the only pure feeder operator. It is also the world's third largest feeder operator, just after dedicated carriers Maersk and MSC.

What makes a feeder a feeder?

Feeder is basically a vessel classification used in the chartering industry,

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Photo: Klaipėdos Smeltė

Tab. 3. Annual Trade Capacity and annual feeder service rotations by feeder trade

Trade region	%	ATC	%	Rotations
North/Southeast Asia	38%	16,066k	42%	19,292
North Europe/Med.	32%	13,723k	32%	14,768
Mid. East/Indian subcontinent	17%	7,177k	15%	6,812
Latin America	8%	3,563k	8%	3,588
Africa	5%	2,042k	4%	1,976
Total	100%	42,571k	100%	46,436

comprising four different capacity categories of between 1,000-2,750 TEU. In reality, though, any ship that can carry any box may function as a feeder. For instance, a lot of ferry and ro-ro lines take on-board containers, some of them, like Transfennica or Atlantic Container Line, operate con-ro vessels. Multipurpose vessels, by default, can be loaded with containers. As intra-Europe containers come in a large variety of types and sorts, cellular container ships serving the intra-Europe routes also are required to offer a flexible stowage configuration. It is an absolute need to carry, next to the common 20' and 40' units, such odd sizes as 30' boxes, 40' high cubes, 45' pallet-wides, half height tanks, you name it.

That said, in North Europe container vessels have been designed and built with the specific purpose of feeding in mind. A somewhat famous ship in this respect is the Sietas 168, a partly hatchcoverless vessel. Between 2001 and 2008, more than 40 type-168 units were built with a capacity of 870 TEU, plus another few of 1,010 TEU each. A good number of them have ice-class A1, a requirement to serve the Baltic trades during the winter season. Yet, the ships' designer and builder, J.J. Sietas KG Schiffswerft of Hamburg, was declared insolvent in

2009 and two years later was sold to a Russian shipyard.

Recently Maersk Line started taking delivery of seven so-called V-Class Feeders. Big feeders indeed as with their 3,600 TEU nominal capacity, they are more than 2.5 times larger than the Baltic feeder average. According to the carrier, with their ice-class A1 and capability to lift palletwide boxes, the V-Class sisterships have been specifically designed for the North Sea-Baltic feeder and intra-Europe trade.

Leaving aside the V-Class as an exception, is it true that as many feeder ports have become more capable over time, they have allowed the feeder ship to grow larger, too? Yes, but not half as big as it is often thought! Today, it's 1,300 TEU on average against 700 TEU a decade ago for the common feeder ship; and 2,000 TEU average against 1,200 TEU for those employed by the dedicated operator. At the same time, however, MSC continues its policy of deploying surplus tonnage in feeder traffic here and there. For instance, the company recently used a 10,000 TEU ship across its Antwerp-Eastern Baltic feeder route...

The size of the mainline vessel plays a role, too. Combined with a lower service frequency, their much larger call sizes require either more or larger feeder vessels to distribute the cargo to the final destination. As of early June 2018, the North Europe-Far East trade counted 18 weekly services, operated by nine different carriers organised

in three Alliances (2M and Ocean Alliance both with six services, and THE Alliance with five), plus one service of Hyundai Merchant Marine operating as a standalone. The average capacity of all 205 ships employed was 15,000 TEU, and their total shipboard space was 3,183,000 TEU. The largest vessel measured 21,400 TEU (COSCO/OOCL), whereas the smallest one 4,100 TEU (Hyundai). The average number of North European mainline port calls is four. As such, any cargo on-board for other ports will have to be feedered.

Feeder market capacities

Instead of nominal vessel space, Dynamar expresses the carrying capacity provided by individual feeder operators in Annual Trade Capacity (ATC). This measure constitutes a dynamic combination of carriers, vessels, capacities, and sailings made in one year.

Europe, and North Europe in particular, can be considered as the cradle of feeding. At present, more than 280 feeder service rotations per week can be counted there. Baltic/Scandinavia, parts of the UK/Ireland, and Iberia Atlantic are the most traditional feeder destinations. However, in terms of the ATC, the Old Continent has been overtaken by the Far East, Southeast Asia in particular (Tab. 3). Not any of the major East-West Europe-Far East and Transpacific services are calling at any other port there than at the three large Malacca Straits outlets. Two years ago, the ports of Kelang, Tanjung Pelepas, and Singapore jointly handled a transshipment volume of 43m TEU, a share of 82% of their total handlings. Other main feeder trade areas and their ATCs are the combined Middle East/Indian subcontinent (7,200), Latin America (3,600), and Africa (2,000). Coastal shipping in Australia and North America is reserved for national flag/local carriers, resulting in a very limited feeding activity. ■

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Photo: PBES

No more (big) cargo ships?

by Marek Błus

The title question has been provoked by the recent hands change behind Daewoo Mangalia Heavy Industries (DMHI), the last stand for Korean shipyard capital on the European soil. In 2017, the Netherland-based Damen Shipyards Group, together with the Romanian state, became co-owners. Most recently, the DMHI shipbuilding facility was fully covered by the Damen umbrella. A revolution followed shortly afterwards. The plant's focus was shifted away from large bulk carriers, container vessels, and oil tankers to ro-pax ferries, cruisers, and offshore ships and structures. This way the transfer of the production of cargo carriers serving the world's main deep-sea ocean trade lanes to Asia came to its conclusion.

In 2017, still under the DMHI brand, Mangalia delivered six crude oil tankers, one series with a deadweight of 113k (dwt) and the other 156k dwt, altogether gross tonnage (GT) of 541k. Although this was a drop by almost a third, the final output, some 21.5% of the whole European production, placed Romania atop Europe's shipbuilding list (Tab. 1).

Something ends, something begins

Renamed as Damen Shipyards Mangalia, it will stay the largest plant in Europe in terms of total area or active dry dock capacity, but most probably it will never go over the GT 0.5m threshold again. This shouldn't necessarily be viewed as a failure but rather as an opening of a new chapter. After all, delivering cruise ships is one of the most lucrative slices of the shipbuilding cake nowadays. However, meticulously putting together the tens of thousands of elements required to float out a seagoing hotel and amusement park, from itsy-bitsy

tiles to huge dual-fuel engines, isn't a piece of cake (more about that later).

With GT 151k – two product/chemical tankers, one asphalt tanker, one car carrier,

and one self-unloading bulker (for trade in the Great Lakes) – Croatian shipyards came in second last year. In Germany, Flensburger Schiffbau-Gesellschaft (FSG)

Tab. 1. European shipbuilding countries' performance in 2008 and in 2016-2017 (thousand Gross Tonnage)^{1,2}

No.	Country	2008	2016	2017	2017/16	2017/08
1	Romania	454	795	557	-29.9%	+22.7%
2	Germany	1,047	420	503	+19.8%	-52.0%
3	Italy	643	421	469	+11.4%	-27.1%
4	France	230	228	175	-23.2%	-23.9%
5	Finland	310	106	173	+63.2%	-44.2%
6	Netherlands	473	191	159	-16.8%	-66.4%
7	Croatia	609	45	151	+236%	-75.2%
8	Norway	339	182	122	-33.0%	-64.0%
9	Russia	90	59	90	+52.5%	+/-0%
10	Spain	240	69	53	-23.2%	-77.9%
11	Poland	545	31	40	+29.0%	-92.7%
12	Denmark	565	10	11	+10.0%	-98.1%
13	Greece	–	6.0	9.0	+50.0%	–
14	UK	1.0	4.0	1.0	-75.0%	+/-0%
15	Bulgaria	36	2.0	1.0	-50.0%	-97.2%
Total		5,961	2,569	2,515	-2.1%	-57.8%

¹ Statistic based on location of contracting/outfitting shipyards

² Total for 2008 also includes Portugal (GT 16k); for 2016 – Estonia (GT 1.0k)

Sources for tables 1-2: CESA (2008), SEA Europe, and national and associations' statistics corrected by own research



Photo: Meyer Turku

built four ro-ros (GT 130k), whereas Dutch companies delivered a mix of 18 vessels, amounting to a total of GT 73k. All in all, the cargo sector counted GT 973k (38.7% of the total) in 2017, comprising mostly tankers (25% of the total) and ro-ros (6%).

Looking from a global perspective, Europe's share was a "stunning" 1.6% regarding freight ship deliveries and 14% when it comes to "other tonnage", like non-cargo carrying vessels (NC-CVs) and small ferries. At the same time,

though, the region accounted for a whopping 89% of all cruise ships.

Cruise monoculture

Europe saying farewell to big freighters, particularly bulkers, shows even more clearly the region's reliance on the "monoculture" of catering to the needs of the cruising industry only. Today, the maximum output of the European shipyards that focus on the passenger sector amounts to about GT 1.0m. As such, the nine cruisers made in Europe last year totalled exactly GT 1,024k (40.7% of the total).

Out of this figure, the Italian multi-yard Fincantieri supplied GT 434k in the form of five vessels, including the GT 153,516-big MSC Seaside, the largest ever built in Italy. The Meyer family delivered three units: two from the Papenburg yard (GT 319k, both destined for the rapidly developing Chinese market), and the remaining one from Turku (GT 99k). The ninth vessel of GT 172k came from France STX (now also part of the Fincantieri conglomerate).

Tab. 2. European shipbuilding countries' 2016-2017 order books (thousand Gross Tonnage at the end of each year)¹

No.	Country	2016	2017	2017/2016
1	Italy	2,090	3,166	+51.5%
2	Germany	2,684	2,566	-4.4%
3	France	988	1,897	+92.0%
4	Finland	1,155	1,425	+23.4%
5	Spain	771	807	+4.7%
6	Russia	325	650	+100%
7	Croatia	794	610	-23.2%
8	Romania	1,109	410	-63.0%
9	Netherlands	412	361	-12.4%
10	Norway	165	150	-9.1%
11	Poland	70	74	+5.7%
12	UK	41	46	+12.2%
13	Denmark	8.0	21	+162%
14	Greece	13	9.0	-30.8%
15	Bulgaria	4.0	1.0	-75.0%
Total		10,630	12,204	+14.8%

¹ Total for 2016 also includes Estonia (GT 1.0k); for 2017 – Portugal (GT 11k)



Tab. 3. Vessels over Gross Tonnage 100 built by Baltic shipyards in 2016

Name	GT	Shipyard	Type	Flag
Agar	188	Pella Shipyard	Tug	Estonia
Aine	798	Karstensen ¹	Trawler	Ireland
Atameken	5,686	Nevsky Plant	General cargo	Kazakhstan
Elektra	1,275	Crist	Ferry	Finland
Fadiq	32,770	FSG	Ro-ro	Turkey
Fedor Ushakov	8,597	Arctech	PSV, icebreaking	Russia
Gardenia Seaways	32,336	FSG	Ro-ro	Lithuania
Gennadiy Nevelskoy	8,365	Arctech	PSV, icebreaking	Russia
Grateful	2,388	Karstensens ¹	Trawler	UK
Ilya Muromets	5,202	Admiralty	Icebreaker	Russia
Malik Arctica	10,537	Remontowa	Containership	Denmark
Megastar	49,134	Meyer Turku	Cruise ferry	Estonia
Mein Schiff 6	98,811	Meyer Turku	Passenger (cruise)	Malta
Meleq	32,770	FSG	Ro-ro	Turkey
Pathway	2,935	Karstensens ¹	Trawler	UK
Piret	4,987	Remontowa	Ferry	Estonia
Pola Sevastiana	5,686	Nevsky Plant	General cargo	Russia
Salish Eagle	8,728	Remontowa	Ferry	Canada
Salish Raven	8,728	Remontowa	Ferry	Canada
Sara Karin	268	Poltramp	Trawler	Norway
SD Tempest	495	Safe	Tug	UK
Solea	924	Baltic Workboats	Ferry	Estonia
Stepan Makarov	8,365	Arctech	PSV, icebreaking	Russia
Toll	4,987	Remontowa	Ferry	Estonia
Tulipa Seaways	32,770	FSG	Ro-ro	Lithuania
Voyager	4,290	Karstensen ¹	Trawler	UK
Zaisan	174	Baltic Workboats	Research	Kazakhstan
Total	372,195			

¹ Hull delivered by Nauta plant in Gdańsk

Note this, building cruise ships is no low barrier to market entry. While in 2017 two cruisers were commissioned outside Europe, one small “expedition” vessel was made in the US (GT 2,920) and the second by Mitsubishi (the GT 125,572 AIDAperla), delays and a huge loss incurred on a contract for the delivery of two ships for Aida Cruises eventually inclined the Japanese company to abandon plans to stay in the market for large cruise vessels. In other words, “monoculture” also stands for “monopoly (or “expertise” if you like).”

What's on order

While the order books (Tab. 2), especially of Croatian, German, and Dutch years, still include contracts for cargo ships, these are in most cases vessels tailored for carrying processed goods (read: smaller ships). The 2020 outlook for the Europe shipbuilding industry shows that the cruise sector will continue to grow, whereas that of the cargo ships – decline.

Till end-decade, at least nine shipyards in Croatia, Germany, the Netherlands, and Norway will join the exclusive club of cruise vessel suppliers. Additionally, some older facilities will increase their capacities to catch up for the demand. Summing up, completions of cruise vessels in Europe in 2020 will



Photo: BC Ferries

amount to approximately GT 1.5m. At the same time, cargo carrying ships will fall to GT 0.5m. The NCCV sector will be more stable.

The million GT question

When production somewhat stagnated in Europe, shipyards in the Baltic Sea region grew for the second year in

a row, up by 31% year-on-year to GT 372k (Tab. 3). This was chiefly thanks to the increases seen in two shipyards, altogether responsible for



Photo: Wikimedia Commons

Tab. 4. Top 10 shipbuilding countries in the world in 2016-2017 (million Gross Tonnage)

No.	Country	2016	2017	2017/2016
1	China	22.30	23.74	+6.5%
2	South Korea	25.33	23.42	-7.5%
3	Japan	13.24	13.14	-0.8%
4	Philippines	1.20	1.98	+65.0%
5	Taiwan	0.48	0.57	+18.8%
6	Romania	0.80	0.56	-30.0%
7	Germany	0.42	0.50	+19.0%
8	Italy	0.42	0.47	+11.9%
9	Vietnam	0.46	0.38	-17.4%
10	US	0.36	0.23	-36.1%
	Total	65.01	64.98	-0.05%

three-quarters of the region's output. As already mentioned, Meyer Turku completed a cruise ship, but it also finished building a cruise ferry (+49% yoy to GT 148k in total). The also mentioned FSG fed four ro-ros

(+84% yoy to GT 130k). The remaining 21 vessels came out from 10 shipyards, of which four delivered more than GT 10k, namely Remontowa (37,967), Arctech (16,730), Nevsky (11,372), and Karstensens (10,411).

Worth noting are also the activities of the Baltic yards that find themselves outside official statistics, such as Neptun Werft (Meyer Group's Rostock branch) or MV Werften (part of the Genting Group; Wismar plant we're talking here about); both of them completed two river cruise vessels. Crist from Gdynia delivered a floating dock (without propulsion) for the production of concrete caissons used for land reclamation in Monaco.

Although production will most likely drop below the GT 300k level this year, forecasts for 2019 are quite optimistic. For instance, Meyer Turku (GT 295k in total) will build two over GT 100k cruisers within a single year for the first time in its history. Another of MV Werften's Baltic facilities, this time located in Stralsund, is expected to complete its first cruiser (GT 20k). In Russia, a leading nuclear icebreaker of the new Arktika class (GT 28k) will leave the docks of the Baltic Shipyard. In 2020, in turn, the two biggest Baltic producers of cruise ships will together deliver GT over 500k, which means a chance of striking the GT 700k mark region-wide.

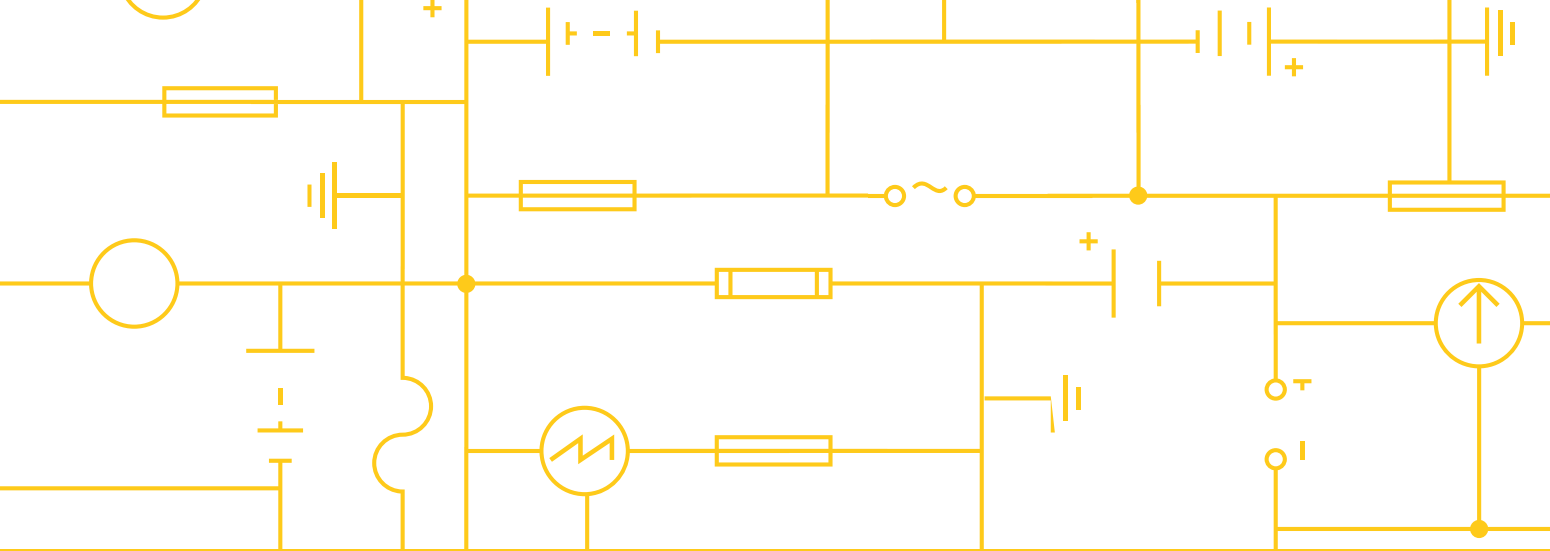
Can we, therefore, expect to hit GT 1.0m/year at some point in the coming decade, maybe even sooner than later, a figure last seen in the Baltic in 2010? What would be a ridiculous question barely a few years ago, when the industry was scratching the bottom in the search for new lows, started to once again make sense. We are indeed living in interesting, often surprising, but also, it appears, promising times. ■



Photo: Nevsky Plant



Photo: Wikimedia Commons



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Information is power. Seize it.



Truly online

by Gregor G. Ross, Sales & Marketing Director – Europe, Globecomm

Briese Schiffahrts – a German shipping company managing a 130+ multipurpose heavy-lift vessel fleet and a real pioneer in provision of crew welfare services – has a vision. To support its growth strategy and ensure that its new and existing ships are connected to shore 24/7, Briese selected the global Ku-band very small aperture terminal (VSAT) service from Globecomm Maritime.

The working relationship between Globecomm and Briese dates back 16 years to the delivery of the first narrowband satcom systems and has relied since then on consistent service provision, competitive pricing, and strong after-sales support. As technology has evolved, through higher speed L-Band systems to the agreement to supply the VSAT service, Globecomm has remained a trusted partner. “Our communications strategy goes back some years to a company meeting that discussed the challenge of attracting and retaining good crew,” says Holger Borchers, IT-Manager, Briese Schiffahrts. He continues, “Nowadays you hear this story widely, but back then there was less recognition that it was about more than just the salary, we had to improve crew welfare by keeping them in touch with their friends and families.”

Getting the crew aboard – and online

Briese operates sophisticated multipurpose vessels, some with heavy-lift capacities and moveable decks, a task that is carried out by the crew not by stevedores, meaning it must acquire and retain well-trained and highly competent sea staff.

From the first installation, Briese crew saw the value in the technology, prompting successive upgrades to meet the growing demand for bandwidth. Internet access is included as a benefit in kind, with Briese paying the airtime bill and issuing vouchers for crew with unlimited data, subject to a fair use policy. “My argument to management has always been this: don’t think of it just as a cost, think of it as being an additional seafarer onboard who takes care of the welfare of the other guys. Having Globecomm VSAT onboard makes managing demand for crew and our business communications simpler and more efficient,” Borchers explains.

The Globecomm’s solution is a high capacity end-to-end VSAT service integrating premium shipboard hardware and monitoring tools to provide maximum service performance across the broadest coverage footprint. Built, managed, and supported by Globecomm, the service supports a broad range of applications over a robust, scalable, managed network that’s designed specifically to deliver shared services and private networks to customers in the maritime and energy markets. Crew access is prepaid via the Nimbus smartbox, and the service supports a full “Bring Your Own Device” experience via selected Wi-Fi access points. Added value services include firewall and content filtering, advanced email management, and a prepaid crew management

portal, with proactive network monitoring and a 24/7 global support.

But ship-shore connectivity is much more than just crew welfare; Briese’s specialist vessels are also driving increased demand for applications such as navigation chart data, with the use of other applications expected to increase in the future. Specifically, using Nimbus together with its Cirrus shoreside portal enables Briese to segregate network traffic and employ performance monitoring and enhanced safety services in a cyber-secure environment. Working with the Globecomm development team in Munich, Briese has developed a system for automatically updating electronic chart display and information system (ECDIS) navigation chart data with specially-defined firewall permissions.

Using Nimbus also means that whenever Briese needs to install a new PC, it can be pre-configured and delivered ready to use, avoiding the need to follow a complicated network or software set-up by the crew. Describing Briese as “a large fleet with a small IT department,” Borchers says the company’s aim is to get all its ships visible on the Cirrus portal so it can recognise any problem with communications or software.

Unlimited data

“When you have a fleet of 132 ships you need visibility,” explains Borchers.



“The next step will be for us to have better access to the vessel systems. It’s hard for a small IT department to monitor everything that is happening, but we want to be able to respond not just after we are aware of any potential problems.” Asked what he would like to see from vessel communications in the future, Börchers mentions the usual items of better value and higher bandwidth, but he says the over-riding need is for better access to Briese’s assets: “For us the target is to make it possible to connect vessels in real time to the office using our in-house software solution. With higher quality and more reliable VSAT bandwidth we would like to see that available to vessels at sea. That’s the next step; to be truly online in real time.”

At present, Briese Schiffahrts is undertaking a fleet renewal programme, constructing a series of eight Open Top Eco 5000 multipurpose vessels, designed to consume 30% less fuel but with increased crane and cargo capacity. The first of four ships was christened in mid-April 2018 at the Chinese yard of Zhejiang Zengzhou Shipbuilding, with three more of the 90 m-long, GT 3,415, Dutch flag, ice-class 1A ships slated for delivery later this year.

Another newbuilding, the project cargo carrier *BBC Russia* – a sister ship to the 12,500 dwt *Jan* – was delivered from the Chinese Hongqiang Heavy Industry also in April 2018.

As such, Briese is engaged in a global rollout of the Globecomm VSAT system across its owned and managed fleet, upgrading L-Band systems on a continuous basis to around 60% of vessels to date. The shipowner assumed management of six craned project cargo vessels of 12,780

dwt in 2015 and 2016 and a further four vessels of this type were taken over in March and April 2018, which will also be equipped with Globecomm VSAT. All the vessels feature a combination of Sailor 900 VSAT terminal, one or more Iridium OpenPort L-Band as a back-up, and the Globecomm Nimbus network management ‘smartbox’. As a result, Briese will enjoy unlimited data for enterprise users and crew members. ■



Globecomm, headquartered in Hauppauge, NY, is the leading engineering-driven, global connectivity provider serving media, maritime, enterprise, and government markets in over 100 countries. The company develops smart connectivity solutions to address customer issues across a broad spectrum of areas, such as system design and integration, managed communication services (incl. mobile and Internet of Things), media services, and mission critical networks. To find more please visit www.globecomm.com



The Leer-based Briese Schiffahrts GmbH & Co. KG was founded in 1984 by Captain Roelf Briese. Today, the 225 highly qualified employee-rich company manages a fleet of over 130 multipurpose vessels, fit to take care of various project cargo, dry bulk and containerised freight. The company also engages in the design and creation of intermodal logistic models and helps with designing and construction of ships and floating equipment. For more info please go to www.briese.de

Photos: Liebherr

From manufacturing to digital optimisation consulting

by Przemysław Myska



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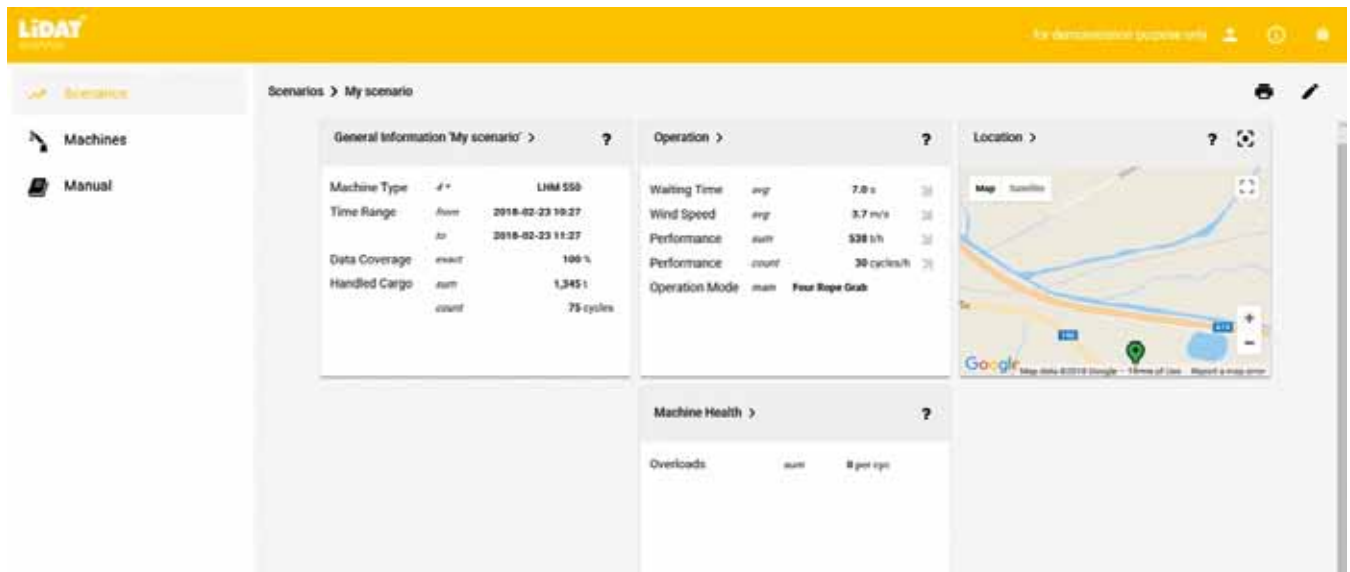
In hindsight, manufacturing port cargo handling equipment was pretty straightforward – it was all about big steel machines lifting dozens of tonnes from one place and placing them onto another. We're talking with Liebherr's Philipp Helberg about the fact that while the core of the business remained unchanged, new requirements emerged, like the demand for green emission-free and fully-electric machinery, or the need to provide extra digitally-enhanced services.

- Your company is about to launch its first purely electric port crane. What stands behind the decision to swap diesel for electricity?

The cranes offered up-to-date in the market were hydraulic. This one, on the contrary, has no parts requiring hydraulic oil. All motors are electric, powered by electricity coming from the grid. We have also replaced the luffing cylinder with an extra winch. The two lifting winches have a power of 190 kW each in order to provide a maximum lifting capacity of up to 124t, same as the hydraulic machine LHM 420. For bulk operations, this crane can move up to 1.2kt per hour. This is because moving our lattice booms requires less power than moving heavy booms with a box design. Hence it can be done faster and more energy efficient.

The decision to go fully electric in the first place came from an extensive market study we've done. Specifically, we see a big potential in the Commonwealth of Independent States (CIS) market. First, because there's already a number of





other electric handling equipment in the country, including on portals, so there's experience in using this technology. Second, a lot of machines are old and operators will find themselves anytime soon in a need for replacing them.

In addition, not only this crane but also other Liebherr machines, e.g. ship-to-shore gantries, can have installed extra capacitors; when lowering the load, energy is created and stored for further use. You typically wouldn't need this battery-like solution in Europe, but in CIS electricity supplies, while constant, may be characterised by certain deviations, particularly sudden brief slumps. We can counteract these fluctuations thanks to the capacitors, thus guaranteeing uninterrupted and smooth operations.

We're currently testing the crane in our Rostock plant and we'll send the first prototype to Russia by end-year.

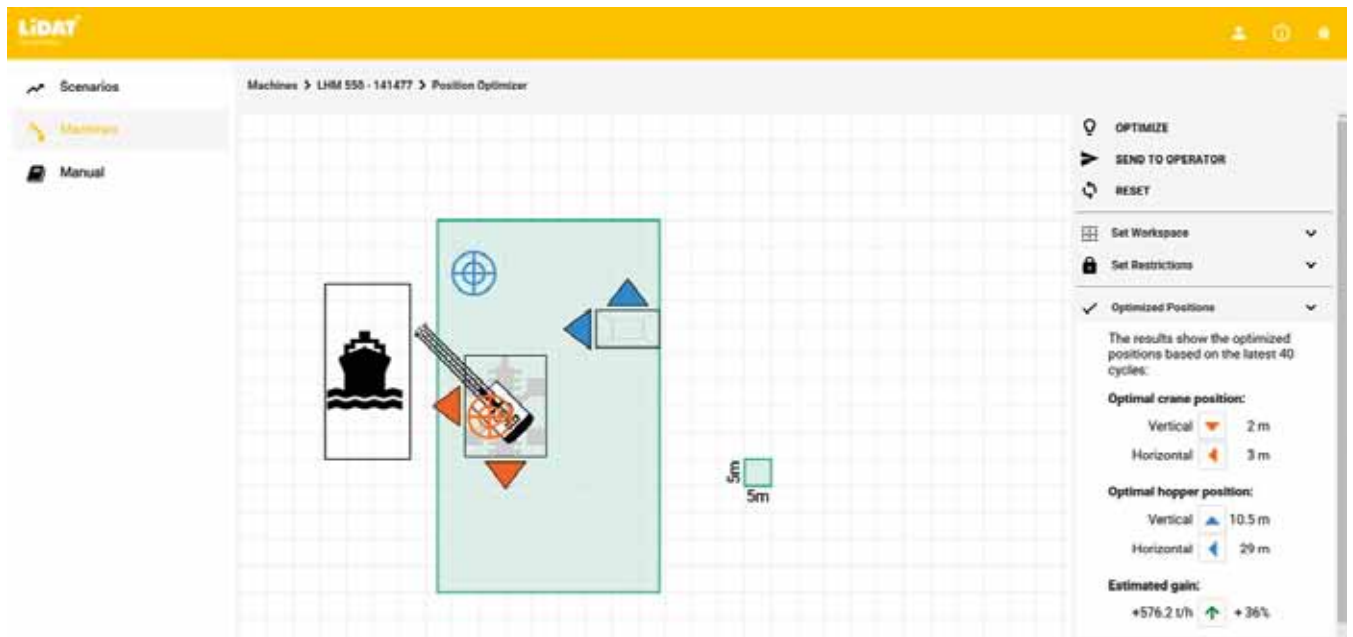
We also already have on our drawing boards a bigger and a smaller purely electrical driven crane model, because we believe this will be the future of port handling equipment.

Apart from CIS, we see a big potential in Europe as well as on the west coast of the US, especially when it comes to terminals that want to become emission-free (either because they care about the environment themselves or are forced by state legislation to curb their greenhouse gas pollution). There're other green solutions offered by our company as well. For instance, we're offering hybrid reachstackers, where energy from braking is stored in a gas-pressure device. This excess energy can be in turn utilised for making diesel's work lighter when accelerating the reachstacker. The hybrid solution mentioned earlier is also available for our hydraulic mobile harbour cranes. Here the braking

energy is stored and release while lifting the load. So the which operates faster when the extra energy from the gas-pressure device is used. More moves can be done in the same time, without additional fuel consumption and emission.

■ How is Liebherr tapping into the digital revolution?

We have a machine monitoring app to which operators can connect their Liebherr mobile harbour cranes in order to monitor the position and performance of their fleets (as for now, the app is available only for mobile harbour cranes, but in the future it will also encompass reachstackers and ship cranes). Sensors from the cranes feed data to the app, e.g., how long a given machine



has been running, who's operating it, is he or she focused on their tasks or are they fooling around, etc.

What's very useful is the positioning tool, which can advise on the

location of the crane, so the boom/load/speed ratio is optimal. Let's imagine that docker Smith is transhipping some bulk cargo from a vessel into a hopper. With the use of the app, his manager can see that Smith's

productivity today is worse than yesterday because the crane is placed in the wrong place between the hopper and the ship. By having this information at hand and virtually in real-time, he can tell Smith, directly via the app, that driving the crane two metres forth and one to the left will speed up the transshipment. What's worth underlying is the fact that it isn't the manager who, basing on his or her experience, knows what location is best, but it's the feature of the software.

In addition, the app keeps a finger on the maintenance pulse, showing when you'll need to change oil, replace wearing parts, or refill fuel. It all saves time and ensures that the machinery is kept in good condition.

Helping employees improve their performance is another valuable feature. Because you have a history of operations, you can send the data and then replay in a simulator the situations which docker Smith struggles with in order to train him in this virtual environment – to perform better in real life. In this way money is saved, too, as you don't have to run an actual machine to level up Smith's skills.

Think of all of this like an optimisation consulting service. From this perspective, it's interesting to see the path our company travelled the past several years – from being solely a manufacturer of heavy-duty machinery, to providing machines that go hand-in-hand with what the digital world has to offer.



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The creeping revolution

by Andrzej Urbaś

“Smart.” A great word, especially when you’re trying to sell someone on an idea. Smart isn’t just new and exciting – it is the right thing to do. It gives you the sense of moving in the desired direction. And that’s what companies want most – to grow, evolve, and stay competitive in an ever-changing environment. To win, putting it simply. Smart decisions are what you need to accomplish this goal.

In this regard, shipping isn’t different from any other industry. Smart is a word being thrown around a lot these days. Recently, it has been combined with another powerful notion, namely revolution. This transformative change is usually sudden in nature, completely tipping the state of the game as we know it. In a survey-based white paper published by Seatrade Maritime, a B2B event organiser, titled *The Smart Shipping Revolution*, the authors present the findings along with comments from various senior industry executives on what actually the blend of smart and shipping means to them.

Ghost ships

The paper identifies two main pillars that smart shipping will be set upon – autonomous ships and big data. The first is fairly self-explanatory. We live in a world that is becoming more and more automated, from robots helping workers build cars on an assembly line, through automated check-in terminals at airports, to self-checkout machines at large grocery stores. Automation in shipping means crew-less vessels operated by a skeleton staff (if any at all), tucked in safely at high-tech headquarters. In this context, the report brings up the problem of

the increasing difficulty in finding highly trained ship crews. As such, automated vessels mean less people you need to find and prepare for the job.

According to the report, 35.1% and 41.2% of the surveyed are convinced that it will take five-to-ten years or over a decade for the concept of autonomous ships to really take off, respectively. They see the main area of application in short sea shipping and across fixed, short, and easy to predict routes. The paper gives an example in a very recent project, the first phase of which is about to become a reality in the second half of 2018. YARA, a global fertilizer group, and Kongsberg, a supplier of high-technology systems and solutions, combined their forces to grace the seas with the world’s first, fully electric and autonomous container ship, the *YARA Birkeland* (read more about the project in BTJ 3-4/17’s *Destination 2020. The world’s first autonomous and zero-emission container vessel*). Still, Kongsberg’s CEO, Geir Håøy, is cautiously optimistic. He agrees that there’s still some time before unmanned vessels start operating on ocean lines.

While it’s evident that the respondents agree on the fact that autonomous shipping is still a thing of the future, they do however clearly see the merit in researching the technology. A whopping 79.1% of those surveyed believe that there is something to be gained from pursuing the trend

and see it as valuable. Even the sceptics regard it as a natural evolution of the current state of affairs. Fully automated vessels might not be their endgame, but they certainly see benefits in the areas of safety or further digital integration. Besides, you don’t have to fully abandon the idea of a human crew manning a vessel to understand the financial benefits of having to pay a smaller number of people to operate it.

Using technology to address crewing shortage is already a reality, whether some people like it or not. The number of crewmen needed to bring a container vessel over the ocean has been on the constant decline. An article by *The Economist* from December 2014 cites the all-time seafaring classic *Moby Dick*, describing the great number of hands involved in prepping a ship to sail, from mending and bringing on-board new sails, to loading up the cargo. They set this against the story of John Møller Jensen, the captain of *Marie Maersk*. At the beginning of his career, he recalls, over 30 crew members were needed to operate a container carrier. Then the number went down to 22, while in fact, only 13 would be needed for the job. From here it is not that hard to imagine a “ghost” ship sailing the waters without a single soul present on the bridge.

Nothing ever is “that” easy

Where there are benefits, there are also challenges. For instance, one can easily



picture a vessel gliding a calm and peaceful surface of the waters of the Atlantic Ocean, steered by a team of engineers from HQ located thousands of miles away. It is like pushing a button on one of these new fancy cars that results in a perfect parking manoeuvre. But what if the ocean isn't still? What if there is a storm raging? Seatrade Maritime's report informs us that 46.9% of the surveyed cite exactly this issue as their number one concern. Handling complex conditions and navigation at sea is a major hurdle. Extreme weather and a port environment crowded with smaller vessels are situations in which having a crew aboard can be of immense value. After all, thinking outside the box and improvisation are what humans definitely are better at than algorithms (for the time being).

The regulatory framework comes in as the second thing in line to be most concerned with. Some 19.4% of the surveyed believe that the legal work is lagging behind the development. According to an article in the *Maritime Executive*, published on their website in July 2017, the International Maritime Organization has only just begun to evaluate the need for a legislative update that would cover autonomous vessels in international trade. The necessary changes might take up to 10 years, as they require agreements between the countries involved in a given trade.

Issues of liability and insurance, financial benefits of running a crewless vessel vs. a manned one, as well as questions regarding remote maintenance and repair were all seen as the least problematic, with respectively 14.3%, 9.7%, and 7.1%

of the surveyed citing them on their list of potential worries.

Everybody loves big data?

The second main pillar of the smart shipping revolution, as mentioned earlier, is big data. According to the Oxford English Dictionary, the term describes "data of a very large size, typically to the extent that its manipulation and management present significant logistical challenges; (also) the branch of computing involving such data." But even with an apparent lacking of a deeper understanding of big data's inner workings, 56.85% of the respondents saw it as "having a major transformation impact on the industry," whereas 40.1% of the respondents have given it at least a bit of credit as the next big thing (pun intended), with it "having somewhat of an impact." Only 3% decided that they don't see it having any impact at all.

Dictionary definitions aside, according to a report commissioned by Trelleborg Marine Systems, we can identify a few main areas in which big data can be useful for the maritime sector. These include energy saving operations, safety and schedule management, fleet allocation and chartering for the ship's operator. From the point of view of the owner, it offers, among others, benefits in the areas of safety, monitoring and maintenance, environmental regulation compliance, and design optimization. In other words, some clear gains are to be made thanks to big data.

But is the industry really embracing the opportunity presented by big data? Based on Seatrade Maritime's survey, not so much.

The inquiry clearly showed a big gap (pun intended, again) between people believing in the tremendous impact big data has on the industry and the actual scope at which the technology is being implemented. As such, 37% of the surveyed declared that their companies are either not making use of the technology at all, while only 25.6% said that they are still in the process of exploring the potential benefits they might gain from its usage. On top of that, only 8.7% of those who revealed that their companies are implementing the technology said that it is a major part of their operations. Lastly, 28.7% of the users said that they are "using it to some extent." In the Trelleborg Marine Systems report, Constantine Komodromos, CEO of VesselBot, offers one particular insight into the reasons behind this state of affairs. According to him, the shipping industry is lagging behind because it usually waits for others to first test the waters.

Is this a revolution at all?

What is then the most important takeaway the shipping industry is looking for when thinking about implementing the two technologies? According to 42.6% of the respondents of Seatrade Maritime's survey, it is the optimization of sea operations. The paper cites Egil C. Legland, Country Manager at ABS Norway, who identified four main issues – managing costs, improving productivity, creating value, and thinking about the future. These are certainly areas in which autonomous shipping and big data can help, even if implemented partially. Digitalisation of processes and customer experience are two other aspects in which smart shipping can come in handy. According to the paper, container shipping is the branch of the maritime industry that can benefit most from the above – 46.2% of the respondents agree that this is the case, with 24.1% naming ports and terminals as the main beneficiaries.

Smart shipping does not seem like a revolution. It's more like a sometimes sluggish but constant process, gradually changing how the maritime industry perceives its future. But that is not necessarily a bad thing. Change requires time and patience. Just don't mistake patience as an excuse for inaction. ■



Truck orders with the click of a mouse

by Kevin Hohmann

The award-winning start-up Cargonexx is expanding its services into the Baltic region. The young company from Hamburg specializes in optimizing truck capacities with the help of Artificial Intelligence (AI). “Approximately one third of the trucks on our roads run empty. This means unnecessary costs for hauliers, unnecessary journeys for carriers, unnecessarily crowded roads and unnecessary environmental pollution caused by particulate matter emission and CO₂,” says Rolf-Dieter Lafrenz, Founder and CEO of Cargonexx.



The company is currently zeroing in on ways it can support Baltic transport companies by increasing their business. This is to be achieved, i.e., by reducing empty runs and finding long-term business partners through Cargonexx's platform. “Our focus now is on Eastern Europe and the Baltic States. There are a lot of very good transport companies in this part of Europe. With Cargonexx, they can grow faster and with less risk because our service solves many problems these transport companies are traditionally facing,” states Lafrenz.

According to Lafrenz, Baltic transport companies often suffer from delayed or incomplete payment on the European spot market. “For example, demurrage payments are not paid or arbitrary deductions are made, in the case of delays, which often are not attributable to the carrier,” he comments. Those things can be barriers for transport companies when it comes to expanding their business. The start-up, on the other hand, aims to be a partner for developing long-term business relationships. “One thing that makes us a welcome partner is the guaranteed and quick payment, 48 hours after the shipment was delivered,” says the company's CEO. What

distinguishes Cargonexx from other start-ups that came up in the recent years, as well as from load boards and classic freight exchange platforms, is that the company acts as a ‘digital haulier’. “We assign orders directly to the transport companies and are their business partners,” explains Lafrenz. In the German speaking area, the start-up has already scooped up several awards for its innovative use of AI. Lately, the European Parliament and the European Commission, in cooperation with the Boston Consulting Group and Europcar, awarded Cargonexx as the best mobility start-up in Europe. Out of over 500 competitors from all over Europe, they were the only German start-up that made it to the final round. “We convinced the European jury with our business model that adds value for everyone: We help transport companies to do more business. We guarantee an easy procedure and quick payment for our users. And our algorithm helps to reduce empty runs, which makes roads less crowded and saves CO₂,” comments Lafrenz.

One click trucking

The company offers shipments on the spot market, round tours, and fixed charter



agreements. “With Cargonexx, a Baltic transport company can simply buy new trucks, find drivers and charter the capacity to us. They only need one click for the transport contract, we accept all loading documents digitally,” Lafrenz states.

Simplicity then is another feature of the transport platform. Cargonexx users can process all business transactions via the platform. They do not have to send orders and freight documents back and forth, a common and often burdensome task the traditional transport business has to deal with. In turn, the start-up’s tools make the work of dispatchers easier so they can engage in more transports. “We want to make trucking as easy as ordering a taxi. You don’t need any training before you can use our platform,” claims Lafrenz.

The digital approach seems to work. Numerous Baltic transport companies have already signed in to the platform, including some of the leading names in the region. And the network is expanding fast. Nearly 4.0k transport companies with over 60k trucks have registered for the platform so far. Around 50 to 100 new transport companies enter every week.

New answers to old questions

In 2015, the European logistics market was worth around one trillion euros. “The truck transport market in the EU alone has a turnover of 395 billion euros. With Cargonexx, we want to build on that. We are of course aware that it is a difficult path. Many in the logistics industry are sceptical about how we can support them. So we have to earn their trust bit by bit,” says Lafrenz.

Due to the prospering e-commerce market and consumer demands of same-day-delivery, the logistics sector is set for an even bigger growth. At the same time, many transport companies across the EU are struggling with the effects of this development. There is a constant lack of drivers and cargo space. This problem is particularly acute in export countries such as Germany. And the truck driver shortage not only concerns traditional freight

forwarders and carriers; it affects the entire supply chain from production to dispatch of the goods to the end customer. “Even large retailers approached us and complained about this increasing problem,” states Lafrenz.

Forwarding companies and traders nowadays must develop new ideas to be able to deliver their planned shipments to the designated places on time. Cargonexx is advancing into this area. “Margins in the transport sector have always been very low compared to other sectors. However, the continuing lack of drivers has made the situation even worse in recent years,” stresses Lafrenz. The Cargonexx solution makes the spot market prices more transparent. An intelligent algorithm takes into account countless influencing factors – including weather data, traffic volumes, routes, and many more – to predict the prices.

Predicting the future

The prediction of spot market prices is not the only feature of the Multidimensional Artificial Neural Network Intelligence (MANNI) algorithm that Cargonexx has developed and trained. The start-up’s neuronal network and its algorithms are also able to predict entire truck flows. “If we really want to make the transport sector more efficient and fit for the future, we need to know today where a truck will be needed tomorrow or the day after. Only this way, transport peaks can be compensated,” says Lafrenz.

To make this possible for the truck transport market, Cargonexx has built up a neuronal network and trained it with over 750k data sets at the very beginning. By now, the digital transport network entails over 2.5m entries – the broader the database, the better the predictions MANNI can make. “This concept is new for the truck transport market. We are one of the first companies which are using it in this specific area,” underlines Cargonexx’s CEO. The prediction of the flow of goods is already common in the e-commerce sector. “Amazon has been using

prediction software for many years, and let’s face it: They are incredibly fast in commissioning and dispatching – only because they know what people are most likely to buy in the future,” Lafrenz adds.

Disrupting the disruption

In the near future, the start-up not only wants to offer its services to the whole European market but also address bigger challenges. Lafrenz is particularly concerned about the future of the transport market, as in recent years some start-ups from the mobility sector have begun to enter the road cargo transportation business. In 2017, Uber launched its transport service Uber Freight in Texas. It is still unclear when the American start-up will offer this service on the European market. Nevertheless, it is worth taking a look ahead and thinking about the future of the business. “I see Cargonexx as a defender against digital players like Uber and their advance into the freight forwarding sector. They are about to disrupt the transport market and no one seems to have a plan of how to deal with it. I think Cargonexx offers a good solution to that problem,” Lafrenz sums up. ■



Cargonexx, founded in 2016 in Hamburg, is a digital transport network, currently covering the markets of Germany, Austria, Denmark, Poland, and the Baltic States. The company’s one-click logistics platform, which takes into account different external factors such as weather data and traffic volumes, uses Artificial Intelligence and self-learning algorithms to make efficient use of free truck capacity. In February 2018, the company won the first edition of the European Startup Prize for mobility. For more details please visit www.cargonexx.de/en



Photo: Rajant



Darwin was right (even about IT)

by Przemysław Myszka

We've been covering technological developments and how they have changed the transport and logistics domains for a number of issues now. However, the subject is far from exhausted. It even seems that we've sometimes barely scratched the surface, so many things are happening virtually on a daily basis. During the latest TOC Europe we sat down with Rajant's Chris Mason to talk about IT and how it ties to security, people, communications, standardisation, and ultimately Charles Darwin himself.



■ Why do we need to worry about cyber-security in the first place?

Data is most probably the biggest asset an organisation has. Organisations are therefore concerned with the integrity of their data and also with its competitive nature. At the same time, however, it is often underused, not disseminated widely enough, and potentially a point of vulnerability. In the modern industrial world, how one handles data makes all the difference between a successful and an ailing process. Take for instance automation, the next big thing for a lot of various industries. While it's true that automating things takes some people out of the equation, it also makes those who stay all the more important, because they supervise the automation process. These people then have to act based on correct information. Imagine now that you're dealing with heavy assets, like expensive autonomous machinery that takes care of tonnes of valuable cargo. If you're prevented from controlling that equipment to the point of not being able to stop it if required, due to a hacker attack or malfunction, you find yourself in a grave situation with possible loss of life and limb, not to mention other damages, including reputational. Integrity of data is, therefore, absolutely vital.

■ What can we do to manage the risks? What should be the specific safety measures or obligations of different port employees, starting from dockers and clerks, and going all the way to managers and C-level execs?

To my mind security in general, and its cyber part in particular, is composed the same way as IT is, namely as a combination of people, process, and technology. As such, most security breaches happen because people do not follow the rules. Frankly speaking, it's never the fault of the third component; technology has the capability to be secured against cyber-attacks. Yet, this is compromised either because people fail to behave in line with the right procedures, or the process is flawed itself. In short, you need to train people, govern them, and monitor in order to keep an organisation safe and secure. Technology helps with this – e.g., our particular speciality is securing from interventions on Rajant's wireless networks – but for the time being it won't do the whole work for humans. It's a vulnerability, the fact that you cannot take people 100% out of the equation. Understanding this is key, because rather than squaring the circle, an organisation can focus on equipping their staff with the right set of IT tools and competencies. Putting it a bit bluntly, if the CEOs of major companies were more forthright

in acknowledging their security, they'd agree that they had vulnerabilities and that they had suffered hacks, or any other security issues at some point in their operations, like a contractor plugging in an infected thumb drive, a staff member clicking on suspicious links or responding to e-mails from scam artists who promise the moon, etc. And I mean all of them. However, you won't see this happening, because this would negatively impact share prices and the company's reputation. If security isn't on the agenda during each and every board meeting, it should be. In addition to the need for raising the awareness of CEOs on the subject, we're seeing a very strong trend of hiring Chief Security Officers. These CSOs – often coming from the military, computer, radio, and system integrator sectors – sit at the board and have governance over both the managerial and operational aspects of a company's IT. That's a major shift in comparison to how things were arranged in the past, when there was no real interface between the different IT and exec silos, and how they communicated with each other. For instance, at Rajant we have acquired a whole team of cryptographers to make sure that we can offer absolute data security to our customers, including the United States Department of Defense and other defence agencies, but increasingly also commercial clients.

■ **What is Rajant's answer to the challenges of modern communications? Specifically, why traditional, fixed Wi-Fi and LTE networks aren't good enough anymore?**

Our CEO, Bob Schena, asks in this context one short, yet very apt question, "How important is your data?" If you're operating in an environment in which data is essentially your business, and the port environment is very data-oriented, you can manage it only if you have constant communication. Every asset that is controlled by IT must have a connection at all times as well as having no points of vulnerability. The latter are defined as single points without which the system could not function. A good example is LTE where every communication must go through a switch which identifies the subscribers and allocates traffic to them. Target the switch and communication is a goner. Another of LTE's single vulnerabilities is the fact that this technology runs on a single

frequency. Traditional Wi-Fi does exactly the same; it has different frequencies, but for different purposes. Typically, the access points will be connected by one frequency and the client's devices on another frequency. Now, if you take out the access point, the client's devices connected to it won't work and operations will stop. If you want to have autonomous operations, this is a clear no-no. In stark contrast, the Rajant kinetic mesh system gives you multiple physical routes for data and multiple frequencies. In other words, it provides a core data transmission platform – connectivity that's 100% fully mobile, has low latency, and offers a wide bandwidth – upon which companies can expand their businesses. Wi-Fi needs to disconnect in order to connect anew. So, if you break a session, you must start a new one. With a Rajant mesh network, this session would be maintained, as the network does not have the need for handoff if a failure occurs, another node simply picks up where the other left off with no down time, providing you with constant connectivity.

■ **Your company is using the term "Connected Port of Things". What stands behind it?**

Ports are not benign environments for radio signals. In many ways, harbours are similar to mining – you move heavy items from one place to another as seldom as possible and according to a predetermined plan by using machinery that itself needs to be monitored (as modern port handling equipment is loaded with all sorts of engine, tyre pressure, load, hydraulic, and even human alertness sensors). At the same time, though, there are barriers to communication and all kinds of interferences scattered all over the place. For years, port communication was a real problem, and that isn't just our opinion at Rajant, it is replayed by others, too. For a port to operate efficiently, uninterrupted connectivity is simply a must, hence the term Connected Port of Things. You've now got organisations, e.g. OSIsoft, that are offering platforms that take in feeds from different sources and integrate them, as where in the past you had to juggle silo data. Now, imagine that you're a terminal operator and your yard fleet comprises STS cranes from one company, RTGs from another, and straddle carriers and reachstackers

supplied by yet other companies, etc. You've got a few IT systems for these machines, supplying data either to you directly or which goes via cloud to the manufacturer who then gives you access to the information. What we're seeing now is a big drive toward standardisation, so that operators will be able to manage their heavy-duty assets through a common standard. This can only be a good thing, and you don't have to look far for proof. Just as containers have standardised the hardware part, parties like OSIsoft will do the same at the software level. An analogy would be if you'd imagine ports and terminals as computers or smartphones, run by common operating systems, such as Windows, Linux, or Android.

■ **How about tech-developments which until recently were considered as science fiction, but nowadays are making it to the headlines, like, for instance, blockchain? Is this only hype or can such technologies revolutionise the way economies are set up?**

Technologies like these require a first-mover. Our experiences with industries that involve significant investments, like mining, oil & gas, ports, manufacturing, or refining, is that it takes time for them to assess and then embrace technology. However, once a given tech solution is adopted by one of them, proving that it's actually doable and workable, and it delivers a competitive edge in the end, others then follow suit. My understanding is that companies are grappling with these technologies, seeing how can they use them, as well as how to steer clear of repeating such mishaps as the dot-com bubble. For instance, if blockchain will be the technology that enables reinventing how we set up supply chains, how payments are carried out within them, how integrity is maintained throughout them, etc., surely it will become the stepping stone to new processes, businesses, or the economy in general. The bottom line is that Darwin was and still is right – it will be survival of the most adaptable to change.

voices



Photo: Pexels



Ignacio de Sebastian

Senior Sales Manager Spain & Portugal, Kalmar

In general terms my feedback of this last TOC is very positive as we have seen new developments presented by the different exhibitors like Kalmar and others. The goal of most of us is to fight against the contamination going toward the electricity power supply that is the trend where Kalmar is by far ahead the market and adapting their way of manufacturing according to the environment. We have had the pleasure to receive the visit of different customers mainly terminal operators with whom we have had the chance to talk about the future and how Kalmar is positioned. Seems that the crisis times have gone within the Spanish economy and that made that the participation was more numerous than previous years.



Lies Barra

Business Development Manager, TVH

This year, TVH participated in TOC Europe for the sixth time. Just like the previous editions, it was the perfect opportunity to get together and exchange thoughts in a professional environment with our current customers and suppliers. We also got to know new customers and providers and we picked up a lot about new trends in port equipment. The ideal networking event, as it were. With our participation, we again wanted to emphasise our presence in port equipment and as a supplier of parts and accessories for various port equipment machines: from heavy forklifts, over reach stackers, to container handlers, spreaders and terminal tractors. Altogether, we were so excited about this edition that we already booked our spot for next year. See you at TOC Europe 2019!



Stefanie Gesiorski

Marketing Manager, XVELA

TOC Europe is a great opportunity to connect with customers, prospects, media, and colleagues from around the world to explore possibilities for the future of shipping. While our industry is generally viewed as slow to adopt new technology, I find no shortage of delegates at TOC Europe who are eager to learn more about XVELA's collaborative planning solution and the much-needed transparency and connectivity it can bring to the ocean supply chain. During the networking reception on Tuesday, we had a well-attended book signing for the launch of Container Logistics, a new book by Dr. Rolf Neise with foreword by XVELA CEO Guy Rey-Herme and a contributed chapter from XVELA CTO Robert Inchausti. Robert also shared his expertise on data sharing and standardization in two CSC Conference sessions. At the joint XVELA and Navis booth, we had the opportunity to demonstrate our

latest collaborative planning technology, and saw particular interest in XVELA's integration with Navis N4 TOS, which delivers unprecedented visibility into real-time crane activity for the relevant ocean carrier and across the terminal. We also saw a lot of anticipation around XVELA's upcoming app for collaborative berth window management, which we look forward to sharing with attendees at TOC Europe 2019!





Julian Alexander

Product Line Manager Material Handling, Continental

TOC Europe 2018 in Rotterdam: Five years ago Continental for the first time exhibited at TOC Europe, a really important fair regarding our Port business segment. We are really happy to this year celebrate our fifth anniversary at the TOC, and this year was a big event for us as we launched an upgrade to our V.ply tire portfolio with a brand-new compound "Port Plus" which is matched to today's working environment leading to an increased lifetime of the tires. The fair has once again proven to be the leading fair for the port industry. It is not only a great platform to gather for talks with new and old customers but thanks to the TOC conference it also brings a lot of new insights into the latest developments and future trends of the port industry.



Derek Kober

Vice President of Marketing, Navis

At TOC Europe 2018 we noticed an increased enthusiasm and interest in topics around automation, data sharing, standardization, and optimization of terminal operations. The conference continues to be a key gathering of our customers, and we showcased record momentum in Navis N4 go-lives, with 31 implementations in just the first five months of 2018 as customers scale to handle new levels of capacity and competitive customer service. Frederik Stork, Director of Optimization and Analytics at Navis, briefed the crowd at his TECH TOC session with optimization services that have helped customers like QQCTN achieve record-breaking performance in automation. And Navis EMEA GM Chuck Schneider previewed our Working as One landmark report on the extent to which different players in the supply

chain can work together in a unified fashion with a common set of shared data to improve coordination and synchronization of operational processes. We also geared up our customers, partners, and sponsors to save the date for Navis World 2019 on March 25-28, 2019 in San Francisco at the Palace Hotel. Thanks to Kalmar and all participating customers, partners and staff at TOC Europe for a great conference. We'll see you next year in Rotterdam for TOC Europe 2019!



Nicola Mori

Export and Product manager, ARISTONCAVI

TOC Europe never disappoints! It is always an important place to run business. Being ARISTONCAVI part of ports & cranes community since several years, strong partnerships with the main cranes manufacturers around the world are nowadays consolidated, but it is still pushing us to make our best in providing a customized solution for many different applications. During the three-days event we had opportunity to meet our main customers, coming from not only Europe. All meetings we had, were focused on next coming projects, that represents a fundamental sign of development and growth. In order to be closer to our partners in developing innovative solutions, we have so much appreciated the TOC Europe's peculiarity of combining training and networking, mixing a busy schedule of interesting conferences with

well-chosen and useful topics, and an excellent meeting services before, during and after the event. Finally we can confirm ARISTONCAVI interest in participating to TOC Europe 2019, hoping to meet again the same atmosphere and feelings next year.



Lisa M. Barbieri

Vice President Marketing, CM Labs

The subject of increased productivity remains top of mind for all who attend. These can be achieved via staff, equipment, TOS and process improvement initiatives. Simulation for training purposes is still a new idea but the idea seems to be gaining adoption as it is a very inexpensive way to train with a low total cost of ownership allowing for increased productivity of staff while decreasing the downtime of equipment. The equipment can remain in production while the simulators train the new recruits. Our clients claim a 40-50% reduction in training time with simulator-trained operators demonstrating faster time to full competency. This is due to the accessibility of the simulators compared to real equipment for training purposes.



Matthew Wittemeier

Marketing Manager, INFORM

TOC 2018 saw the coming together of major players across the terminal industry to share ideas and discuss prominent industry issues. Throughout the year, there has been lots of smaller gatherings which have allowed good conversations to start. TOC Europe provided the base for so many thought leaders in our industry to come together and debate a broad variety of topics such as data ownership and industry standard interfaces, and for me, this is the real advantage of TOC Europe – the gathering of minds and its ability to advance our industry forward in only a few days.



Roberto Bernacchi

Global Product Manager Shore-to-ship power & Smart Ports, ABB

Undoubtedly, electrification and sustainability are moving up in the agenda for container terminals: this was the clear outcome amongst several discussions held during the Clean Technology session of Tech Toc seminar. If we look back a couple of decades, the port industry used to rely on heavy diesel-powered equipment, while electricity consumption in terminals was kept as a minimum for buildings, lighting and warehouses power supply only. Technological evolution, with the introduction of new consumers, such as electric cranes, shore-to-ship power and e-mobility solution for both passengers and goods transportation “forced” ports to become energy hubs, with the additional opportunity of becoming greener through the local implementation of renewable electricity production such as wind farms and

photovoltaic generation. Balancing new demand and supply of electricity is therefore becoming a challenge for container terminals and, in order to achieve this goal, state-of-the-art port electrification solutions are now made available by technology providers where an optimal dimensioning of the power infrastructure is key to achieve the highest level of energy efficiency in a competitive market environment. Amongst the new solutions that can be implemented, specifically in brownfield terminals where available space for power upgrades is typically very limited, digital substations will be key to reduce the required cost and footprint for port grid connections to a minimum by enabling up to 50% of space savings compared to a traditional design. In addition to port electrical needs, shore-to-ship power is now perceived as a key element for a greener container terminal, in view of the fact that global policies and regulation are under implementation to reduce the environmental impact of the whole maritime industry, thus moving again terminal sustainability to the top of the agenda. For ABB, a leading shore-to-ship power technology provider, Tech Toc seminar was a great opportunity to introduce a new concept for shore-to-ship power installations in container terminals where, taking into consideration the contemporaneity factor (number of vessels to be connected to shore power at the same time) and the utilization factor (average power consumption per vessel), an optimized solution in terms of capital expenditures can be implemented. Leveraging on ABB’s static frequency converter enhanced portfolio, capable to deliver up to 24 MVA per device, a new concept with a centralized shore-to-ship substation capable to supply multiple container vessels at the same time has been developed. Opposed to the traditional approach, where each vessel used to have a dedicated shore-to-ship power connection, cost savings up to 25% can be easily achieved during the project execution phase. Additionally, the optimized number of components used, as well as the high efficiency level of water cooled static frequency converter devices, will decrease the total cost of ownership of the facility. When it comes to building a safer, greener and more productive container terminal we therefore need to consider that sustainable development in ports is now a must and a thorough analysis of each specific port needs is required to achieve an optimum balance of costs and benefits. The role of technology providers like ABB is key to remove barriers towards the large-scale implementation of shore-to-ship power and port electrification solutions, where the final goal is to realize a stronger, smarter and greener port grid.

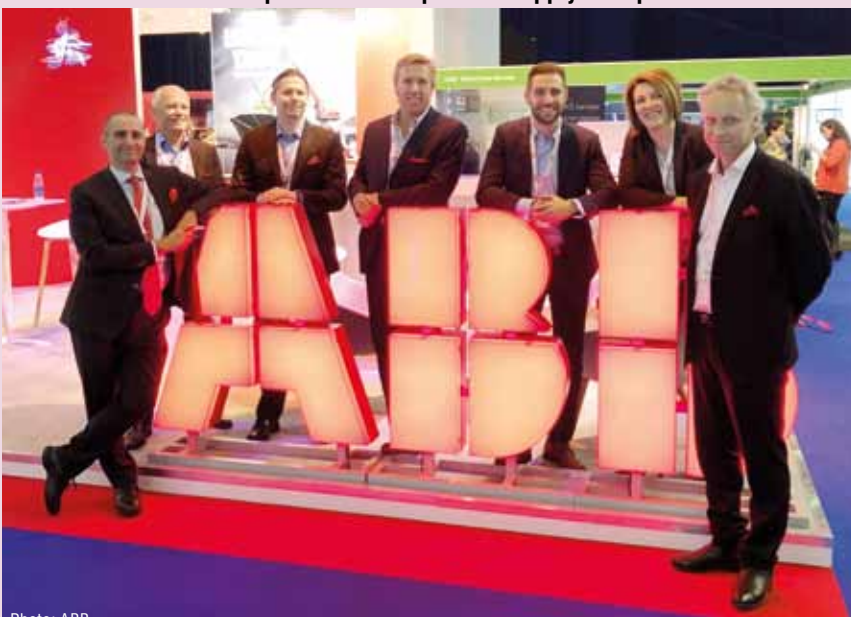


Photo: ABB



Karri Lehtonen

COO, Youredi

Visited the TOC Europe in Rotterdam for the first time this year. With a background in IT, it was fascinating to understand of the terminal operators' perspective of the world as well as the various suppliers doing business with the terminal operators. Understanding the ocean shipping industry better will help me and my teams at Youredi to provide better solutions for all stakeholders. I found the Container Supply Chain stream especially interesting as many of the speakers presented fresh and new views for the future of the industry. I was also very impressed by the quality of the keynotes in the event. In the main exhibition hall, I had a chance to discuss with other IT vendors operating in the industry, and we hope to continue those discussions later this year. I highly recommend the event to everyone involved in the ocean shipping & cargo.



Niklas Thulin

Director Electromobility, Volvo Penta

For Volvo Penta, TOC is a great place to meet and network with all relevant stakeholders in the material handling industry. The setup of the total event really promotes dialogue and knowledge boost. Compared to last year there is more evidence of the electrification trend for all sizes of equipment. It's also clear that there is a general agreement that electrification can bring both lower emissions and higher energy efficiency while also being competitive from a total cost of ownership perspective. I'm also happy to see that we start seeing solutions also for grid and high power charging of mobile equipment. Especially for charging, there is still a lot of room for innovation and also standardization efforts will be needed to make charging infrastructure cost effective and interoperable. Given our strong presence in the material handling segment it was natural for us to choose this event

for the first reveal of our complete solutions for Electromobility powertrains. We have a unique position utilizing the Volvo Group proven electric platforms. Combined with deep application knowledge in material handling, our focus is on the fit between technology and customer needs. Now, we will take a full systems supplier approach helping in the transition to the new technology and welcome dialogue and collaboration in the way forward. We will surely come back with more new exciting technology launches in future shows.



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Ships, ports, their emissions, and what can be done about them

by Andrzej Urbaś

The Harbours Review Spotlight: GHG Emissions in Shipping seminar concluded on 27 November in Copenhagen, Denmark. The event, organized in cooperation with Danish Shipping, produced many valuable conclusions that will hopefully help stakeholders to approach this complex issue.

Maria Skipper Schwenn, representing the host of the seminar, Danish Shipping, set the stage for the discussion mentioning the importance of creating a level playing field for all parties involved during her brief opening speech. After that, the audience has been left in the hands of the seminar's moderator, Niels Bjørn Mortensen.

Day 1

The first session gave the participants an overview of the regulatory framework behind the GHG emission reduction goals set by the International Maritime Organization (IMO). Representing the aforementioned was John Calleya, their Technical Officer, reassuring that IMO remains committed to reducing GHG emissions from international shipping and stating that technological innovation and global implementation of alternative fuels and energy sources will be integral to achieving the overall ambition.

The importance of prioritizing the measures already available has been underscored by Petra Doubkova, Policy Officer at European Commission's DG MOVE. Reduction needs to happen as soon as possible by building upon existing instruments. Possible short-term measures cited by Doubkova included

the strengthening of the Energy Efficiency Design Index for new ships, by, among other things, possible tightening of the reduction rates, also improving the energy efficiency of existing ships and optimization or better management of speed. A silver-bullet solution does not yet exist.

After a short break the voice has been given to a representative of the shipowners themselves. Poul Woodall, Director for Environment and Sustainability at DFDS, shared his views on the best path to achieving the emission reduction goals. Before shipowners can and will make a move, the regulators need to support them with clear guidelines as to what to report and how exactly it needs to be done. A lack of clear instructions will result in a lack of action due to fear of making the wrong investments. Woodall also stated that the first planned emission cuts, i.e. the reduction of average carbon intensity by 40% by 2030, can be achieved with the currently available technology.

The improvement of existing fleets as the key short-term measure has also been cited by Dr Dimitrios Dalaklis of the World Maritime University, as the implementation of new technologies won't be the immediate next step on the road to emission reduction. Furthermore, a solid and updated benchmark is needed for the next steps to happen.

It was then time to shift the focus of the participants to the role of ports in addressing the matter at hand. In his presentation,



Jeppe Skovbakke Juhl, representing BIMCO, tackled the impact that ports might have on emission reduction. A lot of attention has been paid to the concept of just-in-time arrivals as one of the efficient ways of reaching the reduction goals. A key requirement for it to be implemented is excellent communication between all of the involved parties. Though, this may be difficult to achieve due to the shipping sector's conservative nature.

The presentation was expanded upon by a representative of the port sector itself. Gert Nørgaard, Manager for Strategy & Planning, Copenhagen Malmö Port, admitted that ship emissions are considered a major struggle point for ships, carbon emissions being no exception. He also expressed worries that the speed at which international environmental regulations are being implemented is too slow, mainly due to the sluggish decision-making process.

The first day of the seminar ended with a presentation on the topic of the cost efficiency of different emission abatement technologies, delivered by Johanna Yliskylä-Peuralahti of the University of Turku. She underscored the need for a holistic approach to the choice and implementation of solutions being necessary to achieve the goals set but the policymakers.

Day 2

The second day of the conference kicked off with an analysis of the shippers' influence on the shipowners' stance on GHG emissions. Jordi Espin Vallbona, Policy Manager for Maritime Transport at the European Shippers' Council, underlined the fact that a high transparency level is needed for an honest discussion between all the involved stakeholders. One should also not forget that a lot can be learned from previous initiatives, such as the implementation of the 0.1% Sulphur Emission Control Area in the Baltic region and the upcoming 2020 global 0.5% sulphur cap. Vallbona has also assured the audience that shippers are well aware of the high compliance costs the shipowners carry.

A close look at the concrete solutions to the discussed problem has been provided by representatives from ABB and Nauticor. Roberto Bernacchi, Shore-to-Ship Power & Smart Ports Global Product Manager at ABB, gave an overview of the benefits of cold ironing, both for ports and shipowners, emphasizing onshore power supply being a great solution for local needs. Jan Schubert, Senior Manager for Sales & Business Development at Nauticor, discussed on the other hand the idea of liquefied natural gas (LNG) as the fuel for the zero emission era. LNG can offer some GHG emission reduction potential, but one has to take into account the problem of the so-called methane slip. During his presentation, Schubert also mentioned liquefied biogas (LBG) as the possible next step in the discussion surrounding future fuels. This type of fuel reduces or in some cases even eliminates the risk of methane slip, while at the same time allowing for a nearly 100% reduction of CO₂ emissions if sourced from renewables.

The very last presentation of the seminar was delivered by Mark Clintworth of the European Investment Bank, giving the audience an overview of the institution's green shipping initiatives. The Green Shipping Guarantee Programme's (GSGP) focus is to de-risk environmentally focused investments, with the main objective being the



development of a sustainable, scalable, and commercially sound financial instrument for accelerating investments in greener shipping. The event concluded with a discussion panel summing up the tools available to stakeholders for meeting the emission reduction goals and how they can be utilized.

The meeting was a part of the Harbours Review Spotlight seminar series. Organized by Actia Forum and hosted by Danish Shipping, it enjoyed an honorary partnership by BIMCO and was kindly supported by ABB and Nauticor. ■



Roberto Bernacchi
Shore-to-ship power & Smart Ports Global Product Manager, Power Grids Division, ABB Italy
The International Maritime Organization (IMO) has clearly recognized that reducing greenhouse gas emissions is key to avoid negative impacts on climate coming from shipping sector. This is paving the way for the development of the most efficient emission reduction technologies to be implemented on board and on shore. In this new scenario, electric and hybrid vessels are becoming reality, starting from short sea shipping routes where batteries located on

board can be charged easily during port stopovers. While vessels are sailing towards a zero-emission future, ports are doing the same on land. The need to maximize productivity and operational efficiency, while promoting energy efficiency and environmental sustainability, means new technical challenges. ABB has engineered a shore-to-ship power solution, which minimizes environmental impact and also helps terminals reduce capital expenditure by 25% compared to existing systems. ABB's solution is about achieving the highest level of electrification, which is fundamental for zero-emission terminals, allowing smooth and reliable power supply both to traditional consumers, like cranes or warehouses or newcomers, as e-vehicles and shore-to-ship power supply infrastructure. Each shore-to-ship power supply project is subject to preliminary technical assessments to ensure compatibility between the existing electricity grid and the characteristics of the vessels. During this initial phase, technology suppliers, such as ABB, play a crucial role developing an optimal, customized solution, fully compliant with global standards and local regulations. The ultimate goal of ABB's Shore-to-ship power and Smart ports is to facilitate the transition of the port concept: from traditional, that is a place of transit of people and goods, to modern and sustainable, that is totally integrated with the surrounding community. Ship owners, operators, and port authorities will therefore join forces with ABB from the design stage of new electricity infrastructure, allowing access to a unique portfolio of innovative solutions, and take advantage of years of experience in the industry, in-depth knowledge of applications and – not least – use the qualified support of ABB's global service network. Events such as "GHG Emission in Shipping", held in Copenhagen recently, are key to discuss the most current trends in the market, and to facilitate interactions amongst the various stakeholders whose commitment is required to achieve the demanding environmental targets and bring about a sustainable future.



Photos: PLNG

Creating a market

by Andrzej Urbaś

Over 120 participants gathered at the Novotel Hotel in Warsaw, Poland, on 14-15 November 2018 to explore the latest trends and discuss the current market state of the liquefied natural gas (LNG) industry in Europe and Poland. It was the second edition of the event, designed to bring together stakeholders from all the corners of the LNG sector to exchange their knowledge and experiences.

The event kicked off with a look at the main drivers for the development of the LNG market in Poland and Europe. The keynote speech, delivered by Tommy Mattila, Marketing & Sales Director at Skangas, set the field for the discussion. Talking about Poland, Mattila mentioned the country's high rate of LNG utilisation, leading to high growth potential for its small-scale LNG sector. The session continued with Marcin Płocharski, Indirect Channel Marketing Advisor at Shell, focusing on the development of LNG as fuel for road transportation in Poland. Cost competitiveness and positive environmental impact, combined with already available and reliable engine technology, and a secure supply chain were among the listed benefits.

Small- and large-scale

The attention of the participants was then switched to the topic of energy independence and the role LNG plays with regard to that issue. During an in-depth analysis of the importance of the partnership between the US and Poland, prepared by the Center for Industrial Development, it has been stated that further regulatory work on both sides is required in order to create better market conditions, enabling trade between the

involved parties to flourish. Zooming in on the situation in the Baltic region, the audience was then given the chance to follow the Baltic Connector project from its inception to the beginning of construction works. The ambitious initiative, enjoying significant financial support of the EU, presents an opportunity for the region to create a common gas market in the Baltic countries. The session concluded with a closer look at the state of natural gas infrastructure development in the Baltic and Central Eastern Europe region, with special attention given to Gaz-System's Baltic Pipe project.

After getting a taste for large-scale projects, the focus shifted to the small-scale market, with Ernst & Young kicking the session off with an examination of the sector. As of now, small-scale is still a niche market, but one should not forget the opportunities it presents for capturing segments that historically comprised low proportion of natural gas mix due to the lack of access to pipelines or historic reliance on fuels such as petrol and diesel. This view was shared by Chart, presenting their take on LNG intermodal transportation and mobile & relocatable systems for energy supply, also underscoring the constant and rapid development of the small-scale sector. The day concluded with Wärtsilä taking the stage to further explore the various immediate benefits offered by LNG usage, emphasizing the need for the industry to embrace them in order to prepare for broad-scale implementation.



The evening cocktail saw some intensive networking, accompanied by lovely live music. Some of the participants even decided to share their piano skills with their colleagues.

The technical side of things

Returning to the conference hall on the second day, GIE kicked things off with an insightful LNG market forecast, paying special attention to global trends currently influencing the situation in Europe. NGVA was up next, with a natural gas HDV outlook 2030 and some policy recommendations. The presentation came on the heels of European Parliament's vote on its final position on the heavy-duty CO₂ regulation, pushing for an emission reduction of 20% by 2025, going up to 35% in 2030. The Parliament also called upon the European Commission to develop a methodology by the end of 2020, set to include a CO₂ emission reduction effect from bioCNG and bioLNG in the computation of the average fleet emissions.



From there on it was all about the technical side of things. In a series of presentations by ASE, Emerson, Remontowa LNG Systems, Iveco, Volvo, and Nauticor, the audience got the chance to explore the impact of technological advancement on the development of the LNG industry. Iveco and Volvo made the case for LNG as a clean, cost-efficient alternative to other fuels, also having the added benefit of noise reduction. Despite the higher initial cost, LNG-fuelled fleets pay off in the long run. Not to leave the

maritime sector out, Nauticor wrapped up the session sharing their experiences and offering ways to overcome the hurdles standing in the way towards global implementation of LNG as fuel for ships, as well as giving examples of challenges that the industry already mastered. The event ended with a discussion panel featuring Wärtsilä, Iveco, BP, Liquind, and ELINOIL discussing the best path stakeholders from different industries can take to cooperate and promote the usage of LNG on a wider scale.

The second edition of the Polish LNG Conference was organized by Actia Forum in close cooperation with the Polish LNG Platform. The event was granted honorary partnerships by the Polish Ministries of Entrepreneurship and Technology, Infrastructure and Maritime Economy and Inland Navigation, as well as various industry organizations.

The third edition of the Polish LNG Conference was announced, too, set to happen in the fall of 2019. ■



Wartsila Polska

■ Could you tell me about the current situation in the LNG market from Wärtsilä perspective?

Wartsila Polska: LNG market has been strongly expanding worldwide. There is, and will be, a firm LNG supply from the Middle East and the US. In addition, new huge deposits have been found recently and will be explored, e.g., the Vaca Muerta field in Argentina, second-largest shale gas deposit in the world. The rising demand for natural gas will be driven by fast growing emerging economies, especially those in Asia: the continent is expected to account for around two-thirds of the growth in energy consumption and natural gas demand by 2040. This Asian dominance of gas demand is reflected in the development of US LNG export terminals. Asia is already the biggest export region for US natural gas, despite the US' pipeline connections with emerging markets in the Americas, such as Mexico. The majority of export contracts for the new LNG terminals coming online in the US over the next few years are for companies in South Korea, China, and Japan, which imposes transportation of LNG cargo by ships. Wärtsilä plays an active and leading role in developing various segments of the global LNG market. In the early 2000s, the company introduced the so-called DF-E (Dual Fuel-Electric) ship propulsion concept based on Wärtsilä 4-stroke dual fuel engines portfolio. Primarily dedicated to LNG tankers, utilizing the LNG cargo boil-off as fuel for the engines, the system has been a big success. In time, besides LNG carriers and bunker vessels, it has also spread over other ship segments and is being now proposed in numerous newbuilding projects including ro-pax ferries and cruise passenger vessels where gas appears as the main fuel. Following the gas engine technologies, over the years Wärtsilä has built-up its expertise in other elements of the LNG chain including LNG cargo and fuel handling systems for ships and offshore objects, floating LNG terminals (FSRU), LNG cargo and LNG-fuelled ship designs, complete LNG-fuelled land-based power plants and small scale LNG terminals (vide LNG terminals in Finland), etc. In the energy sector, popularisation of the LNG technologies and its improving availability means that it becomes possible to supply this low-emission fuel to many remote locations, especially islands, which could not be supplied by a traditional pipeline infrastructure. In such places LNG will replace high-emission fuels such as heavy fuel oil. High flexibility of gas-fuelled power generation systems will, in turn, facilitate integration of renewable energy sources at such locations, thus greatly reducing local emissions and improving sustainability of local economies.

■ How has the LNG market changed during the last five years?

Wartsila Polska: Once LNG was perceived as an attractive alternative to the conventional fuels, the LNG terminals started to appear. This, apparently, boosted the LNG trading and transportation. Also, a few years ago there were many safety concerns about the transportation and storage of liquid gas, but the LNG market stakeholders have done a fantastic job by organizing informative campaigns to increase the knowledge and awareness among the gas end-users. Classification societies have adopted IGC and IGF Codes into their class rules which helps the shipyards and shipowners to design and build the ships using LNG as cargo and/or fuel.

■ What is the biggest challenge for the global LNG market in the next decade?

Wartsila Polska: The biggest challenge facing operators in the next two decades will be meeting global energy demand in compliance with high environmental standards, while also running successful businesses. To achieve this, operators will need to adapt their strategies in three distinct ways. Firstly, there is a push among operators to grow their natural gas production capacity, either organically or by acquisition. Secondly, in response to the anticipated growth in demand for chemicals, many operators are boosting investment in their petrochemicals and downstream businesses. The third distinct trend is in response to concerns over climate change and the environmental impact of their businesses. Some are investing in renewable electricity assets and associated technology such as batteries. Gas, on the other hand, will remain a primary source of electricity as a backup to renewables that provide electricity only intermittently, not constantly like gas. Foreseen sustained period of economic growth in the coming decades means that natural gas is predicted to grow into one of the planet's leading energy sources by 2040. LNG infrastructure needs to grow faster to match the increasing demand. In coming years we should experience many upgrades of the existing LNG import terminals to allow also export of liquid gas with smaller LNG tanker ships as well as the development of the, so called small-scale LNG niche, which include smaller import/export terminals and small LNG carriers and bunker vessels. The anticipated dominance of gas as the world's primary energy source by 2040 is an opportunity that oil & gas operators are already seeking to maximize. In addition to acquisitions of gas assets and increasing their own production capacity, operators can further boost their gas revenues by extending their activities beyond exploration and production. One solution is to collaborate with electricity companies in building new gas-fired power plants. The primary demand force driving this change is the push to reduce greenhouse gas emissions that originate from burning of fossil fuels. Governments, private companies, financial institutions, and universities are investing in the development of technologies and policies to achieve lower carbon footprints in the coming decades, and Wärtsilä is deeply engaged in this process.

■ How does LNG look, at this moment, in the shipping sector?

Wartsila Polska: In the shipping industry LNG has already been found as attractive fuel, compared to conventional diesel, due to the lower operating costs and the environmental compliance. More and more ship newbuilding projects are now designed and built with the natural gas as fuel, and this concerns many types of ships. Shipowners also install bigger LNG tanks allowing the ships to extend their operating range on gas. The success of LNG fuel in shipping depends largely on development of the LNG distribution chain and availability of the LNG fuel for the ships. It's also worth to mention that the only feasible way for transportation of LNG cargo in the long-distance oversea trading is shipping.

■ **Could you tell us something more about your Wärtsilä VOC recovery system?**

Wartsila Polska: VOC is an abbreviation from the Volatile Organic Compound. It is simply a crude oil vapour that is emitted to atmosphere during loading, storage and transportation of crude oil. VOCs are destructive for the environment as well as a financial loss. Wärtsilä VOC recovery system is designed to capture the harmful VOC emissions from the vent lines of the oil tanks. Moreover the system is utilizing the captured vapour by converting it into light fuel.



Piotr Frycz

Vice President, Commercial Director, CHEMET

■ **Could you tell me about the current situation in the LNG market from Chemet perspective?**

CHEMET SA, as a relatively new manufacturer of equipment for the LNG market, has been focusing its recent business and marketing activities in Central and Northern Europe. And these two regions have presented a rather declining demand for our products over the last three years. Fortunately, this year is characterized by a rising demand – both in Poland and in Scandinavia. Definitely we are now looking more optimistically into the future – we hope that we will be able to fully use our expertise and production capabilities to meet the requirements of the European LNG market.

■ **How has the LNG market changed during the last five years?**

The European market has been very tough for all equipment manufacturers – some of them have disappeared or concentrated on other market segments. CHEMET, after a successful and promising premiere in the first four years of this decade, had to shift to the LPG market and the railway business, giving us a momentum for a stable growth – our total sales revenues have grown by more than 65% in comparison to 2013, our cumulated CAPEX has exceeded €20m, and as a result we are now even better technologically prepared for the incoming recovery.

■ **What is the biggest challenge for the global LNG market in the next decade?**

Generally speaking, it is the competition created by other fossil fuels (LPG, heating oil), especially if their prices start to dwindle due to the future economic slowdown. We must not forget about renewable energy sources, promoted and subsidized by the EU and countries like Norway or Switzerland. The new legislation being passed in favor of renewable energy may soon be a bigger challenge than cheaper long-time “fossil” competitors.

■ **Could you tell us something more about your LNG solution offer to the market?**

Since the time our adventure with cryogenics and LNG market in particular began, we have developed and supplied to the market the following two groups of products: complete LNG regasification stations offered in a form of turn-key projects as well as ISO containers for intermodal transportation. We hope that our strategy of being a complimentary LNG equipment provider in Europe, offering custom-made solutions, will contribute to the establishment of a modern and competitive energy market segment, providing its customers with an efficient energy source – both for industrial facilities and domestic applications.



Piotr Werner

Product & Rental Manager, Volvo Group Trucks

■ **Could you tell me about the current situation in the LNG market from Volvo perspective?**

In June 2018, Volvo Trucks has started the production of first truck tractors and rigid trucks powered by LNG. Energy efficiency and alternative fuels are essential in our strategy moving towards sustainable transports. The Volvo FH and FM LNG opens up long-term possibilities to move into renewable fuels – making the transport industry less dependent on fossil energy sources. These are all important steps towards our vision of zero CO₂ emissions and transports that are sustainable – both for the environment and businesses. At the same time, Volvo Trucks observes the high demand of such solutions from the society.

■ **How has the LNG market changed during the last five years?**

From Volvo Trucks perspective, last five years is just the beginning of LNG market around Europe. Natural gas has a huge potential as a substitute for diesel in trucks. There's a good supply globally, and Volvo Trucks sees this as a long-term energy source, emitting considerably less CO₂ in comparison. In 2010, Volvo started offering the Volvo FM MethaneDiesel truck, which was the beginning of our current offer of the trucks powered by LNG. In past five years we also found the great solution of an engine powered by both LNG and diesel which not only reduces CO₂ emission but also keeps very high performance of the trucks (420 and 460 horse power).

■ **What is the biggest challenge for the global LNG market in the next decade?**

The biggest challenge right now is infrastructure. With introducing the new LNG trucks, we expect the growth of infrastructure when it comes to LNG stations both around Poland and Europe. Volvo Trucks also hopes that the profits of LNG solutions will be noticed

by the local authorities and the countries will help the transport industry to increase the fleets with LNG trucks.

■ **Could you tell us something more about your current investments in LNG?**

Within Volvo Trucks, we think that we have an important role to play in the development of sustainable transport solutions. Our Volvo FH and FM are unique models which are combining the low emissions from gas-powered engines with the performance of diesel-powered engines. That is why on the Polish market we decided to have our own demo unit powered by LNG which is now tested by the fleets in regional and long haul transport. Our solution was well received by the transport industry, and the first orders were placed. We also started to prepare our workshop network to service such units, e.g., trainings for mechanics and rebuilding our main Volvo Trucks Services. Volvo Trucks is now working together with gas suppliers and customers to develop the expansion of LNG infrastructure in Europe. This development is also being supported politically in many countries and by the EU. A strategy for expanding LNG infrastructure is also included in the European Commission and Member States' action packages for securing Europe's long-term energy supply.

■ **How does LNG look, at this moment, in the road transport sector?**

The LNG in road transport in Poland is very small right now, however, the interest and demand are considered to be high. The transport companies are more and more interested in LNG solutions since they are in line with their own or their client's values. There is also a potential of the lower transportation cost since classic fuel prices are growing every month. Some of the cities around Europe are implementing green zones in which only low emission trucks are allowed, and there is high demand for transportation solutions.



Piotr Kozuń

PlantWeb Sales & Marketing Manager, Emerson Automation Solution

■ **Could you tell me about the current situation of the LNG market from Emerson's perspective?**

LNG market is growing and is the fastest growing gas supply source with a demand CAGR of 4%. In 2035, 1/3 of world total gas supply will be from LNG with Asia accounting for 55% of the total demand. It's forecasted 25-35 more countries expected to import LNG by 2040 adding a total to the demand. Forecast gas demand in Europe in 2035 is expected to be in a range from 540b m3 to 570b m3 and contribution of LNG will become more and more important (25%+). All is because of new market price dynamic, environmental protection regulations, and, last but not least the recent policy developments by the EU Commission regarding "Strategy for LNG and Storage" which have called for the specific

storage, distribution, and use of LNG in Europe to meet energy security. In case of Poland, we have a long-term strategy to differentiate the natural gas suppliers. A good example of that policy is the recent PGNiG contract with two companies from US for the LNG supply of 2mt/year within 20 years, starting from 2022. The USA now is one of the fastest growing suppliers of the LNG with over 75% rise during 2017-2023.

■ **How did the LNG market change during the last five years?**

Historically, LNG has been traded based on large scale/long-term contracts; the market shows a constant increase of spot/short-term contracts and small-scale increases significantly. As a consequence, the LNG new services inventory offered by terminal operators are expanding, such as reloading (the transfer of LNG from the LNG reservoirs of the terminal into a vessel); transshipment (the direct transfer of LNG from one vessel into another); loading of bunkering ships (the loading of LNG on bunkering ships which transport LNG in smaller quantities supply to LNG-fuelled ships or LNG bunkering facilities for vessels); truck loading (the loading of LNG on tank trucks which transport LNG in smaller quantities); and rail loading (the loading of LNG on railcars). These increasing trading transactions drive the need for dynamic and accurate LNG measurement so the measurement custody transfer demand increases, to comply with CT International rules and minimize financial risks. It is clearly visible that LNG is changing logistics market significantly and coming with full speed from marine to inland water, road and even rail transportation. We can say that LNG is on its way to becoming the fuel of choice for road and maritime transportation. In the beginning, ecology and clean transportation were the main drivers, but due to technological innovation and competition in the global market, LNG brings very positive savings in OPEX in the logistics sector, which enables investments and growth of consumption. However, technological innovation has some white spots, and we still have many possible opportunities for LNG usage in various different sectors. That is because many projects are in R&D stage and waiting for testing and proof. FRSU is becoming a "proven-in-use" technology with some remaining questions about economics. One of FRSU perks is fast and flexible demand creation and quick opening of LNG new markets. The good example of FRSU in operation is Klaip da LNG terminal, started in 2014 with the handling capacity 2.2mt/year.

■ **What is the biggest challenge for the global LNG market in the next decade?**

Due to the high popularity of LNG, we already do see a lack of infrastructure building capacities globally and a must of development of the regional LNG trading hubs plus LNG spot market aggregators. So, for the coming future, I see that as one of the challenges. Due to the fact that everybody has limitations in R&D projects, lack of technological innovation slows down all the potential of the industry and positive changes in ecology. I am talking about utilizing LNG potential in recycling, food industry, and also the transportation sector (like inland water), or even manufacturing LNG from biogas. All these

technological innovations would significantly reduce energy usage in our industry and/or replace existing technologies with cleaner ones. That I would treat as the main challenge.

■ **Could you tell us something more about your LNG solution for carriers?**

Emerson is fully committed to the whole LNG market and business chain, from gas extraction to distribution. Considering that LNG carriers are basically a transportable LNG storage, the following systems are the primary focus: integrated vessel automation system like load control, engine management, power management, custody transfer systems. In case of cargo management, we offer marine tank management, loading and offloading and safety systems, including fire & gas detection. It's worth to underline that except delivering "state-of-art" products and solutions we offer an extensive range of project management services.

■ **How does LNG look, at this moment, in road transport sector?**

I would say that currently this sector is still in a starting position, but very promising. LNG filling stations in operation for road trucks increased by 141% to 169 from 70 stations over the past year. Volume in truck loading increased with 8% compared to last year. We already see growing popularity in logistics, but still, infrastructure is not yet there. LNG is an ecological fuel, so we see growing popularity and also some good programs from few major players in the FMCG market. There are some strong benefits in LNG use for the transport like fuel cost savings, compliance with global emission requirements and standards, and increased engine longevity. It's obvious that most vital for humans is clean air and green environment, and that's why we should widely promote LNG use with its cleaner burning emission profile.



Jan Schubert

Senior Manager, Sales & Business Development, Nauticor

■ **Could you tell me about the current LNG market situation from the perspective of Nauticor?**

The increase in LNG production over the last years, both in terms of number of sources and volumes, has led to LNG being available in sufficient quantities and at attractive prices. With ample capacity existing in European LNG import terminals, and more being planned, the adequate receiving and storage capacity is also at hand to allow standard LNG loads be redelivered in small parcels. These factors constitute an excellent framework for the development of LNG as bunker fuel, allowing Nauticor to reliably offer LNG at competitive prices to marine customer choosing the use cleaner fuels for their ships.

■ **How has the LNG market changed during the last five years?**

The last five years were characterized by the significant development of new LNG production capacity, both sanctioned and now operational capacities. According to the International Gas Union, in 2016 the worldwide liquefaction capacity increased by over 30mt to altogether 336mt/year. At the beginning of 2017, some 114mt of new liquefaction capacity was under construction. This increased availability is very supportive for the development of new and alternative uses of LNG such as transportation but also off-grid power-plant supplies.

■ **What is the biggest challenge for further developing the global LNG market in the coming decade?**

LNG as a fuel for power plants, industrial purposes, and transportation represents often a cleaner alternative than alternative readily available fuels, like coal or oil products. It is therefore well positioned to substitute such fuels in a context of increased environmental awareness and efforts to curb emissions of pollutants.

■ **Could you tell us something more about your cooperation with Gas Natural Fenosa in the first LNG bunkering of Fure Vinga in Europe?**

Gas Natural Fenosa and Nauticor joined forces when they were approached by the Swedish shipowner Furetank regarding the possibility to conduct the first LNG bunker operation in Europe for their newbuild chemical tanker Fure Vinga. The Port of Cartagena was selected as the bunker location and the two companies combined their LNG expertise. While Nauticor had already experience from previous LNG bunker operations for Furetank's Fure West and other vessels in northwest Europe, Gas Natural Fenosa, as a leading provider of innovative LNG solutions in the Iberian Peninsula, brought in the knowledge it gained from supplying customers, like the ferry company Baleària, in the Spanish market.

■ **What's the shipping sector's current uptake of LNG?**

According to DNV GL, more than 265 ships are confirmed to run on LNG by 2026 and another 131 ships are already LNG ready, hence one can say that the use of LNG as fuel alternative has gained significant momentum. Furthermore, LNG is used by a large variety of different vessel types in northwest Europe as well as in the Mediterranean, North America, and Asia. Major shipping companies, such as CMA CGM, and the majority of cruise shipowners have decided to order LNG-fuelled tonnage. Furthermore, regulatory pressure, notably the IMO decision to implement a global sulphur cap in 2020, creates an environment favourable to fuels and technologies with a lower output of emissions. Therefore, we expect this development to continue and are preparing the respective bunker infrastructure to ensure the supply of environmentally-friendly LNG as fuel for maritime applications.



Tommy Mattila

Marketing & Sales Director, Skangas

■ Could you tell me about the current LNG market situation from the perspective of Skangas?

Our company is focusing on the small-scale LNG market in the Nordics and northwest Europe. We are delivering LNG to three main segments. First, for industrial use for customers who are not in the reach of the natural gas network. This is mainly in Norway, Sweden, and Finland, where the natural gas grid is very limited from a geographical point of view, this is mainly due to geographically large countries and thus long distances. Here LNG comes in as an effective way of distributing natural gas to the industrial sites around the countries. The main drivers for the customers are to reduce emissions by converting from more polluting fuels than gas, cost efficiency is also important for the customers, that comes via competitiveness against alternative fuels and via reduced maintenance costs and lower cost for emissions. Second, marine use is driven by stricter rules on emissions for both sulphur and as well as nitrogen oxides in the future. We also see that lowering CO₂ emissions by using LNG compared to oil is getting more important. In addition, we see some ports and cities taken up the discussion on particle matters, where LNG again comes in as a very viable solution to get rid of particle emissions. Also the price competitiveness of LNG vs. compliant oil fuels is in benefit for LNG. LNG is though mainly for new builds and to renew the shipping fleets takes time and requires investments. Third, the heavy duty vehicle segment is also on the rise as several main truck manufacturers have and are introducing new models using LNG, there is also an increase of new LNG filling stations being built. The driver is reduced emissions compared to using diesel products. We also see an increasing interest in the use of liquefied biogas (LBG), the beauty is that LBG is also methane as LNG, it's though produced from waste, sludge from waste water etc., thus LBG being a renewable fuel. The LNG supply chain as well as the customer installations in all segments can directly use also LBG instead of LNG, or a blend of these. This makes it an very efficient way of transferring gradually to a renewable fuel with no new investments needed in the supply chain or for customers. Skangas has already delivered LBG both for marine and industrial use.

■ How has the LNG market changed during the last five years?

The small-scale LNG market is still in a developing phase and it's a conversion market where customer convert from mainly using more polluting oil products. Thus the lead times for conversion in the industrial segment or newbuilds in the marine segment takes time. We though see that the interest for LNG solutions are continuously growing. During the last five years the availability of LNG for end users has also increased thanks to a number of investments made in the small-scale LNG distribution chain, including small-scale LNG import terminals, shipping capacity, tank trucks for delivering LNG, as well as ship-to-ship LNG bunkering vessels where, for example, Skangas has introduced the Coralius bunker vessel.

■ What is the biggest challenge for further developing the global LNG market in the coming decade?

The global LNG market is still growing, new production facilities will come to the market within years to come. There is a need for further investments in the production as the global demand will continue to increase. The market is changing; customers are not committing to any long-term deals, this goes especially for the end users in the small-scale market – they are used to short-term contracts as they have been, for example, in the oil market. This uncertainty might influence the willingness of producers to invest in large-scale LNG production.

■ Could you tell us something more about your cooperation with the Metsä Tissue Corporation and an agreement on the supply of LNG to the Mänttä tissue paper mill?

Metsä's Mänttä paper mill is a prime example of an industrial off-grid customer, which is located outside the reach of the natural gas grid and had until now used butane in their process. By converting to LNG they will reduce their CO₂ emissions by about 15%.

■ How can LNG contribute to energy security?

From our perspective, as Skangas is primarily active in the small-scale LNG distribution market, we aren't directly involved in the discussion how LNG may make a country more independent energy-wise. That said, we, at the same time, have our own LNG production facility in Norway and we also source LNG directly from different large-scale LNG import terminals in northwest Europe, thus we can ensure customers with reliable supplies at a competitive price.





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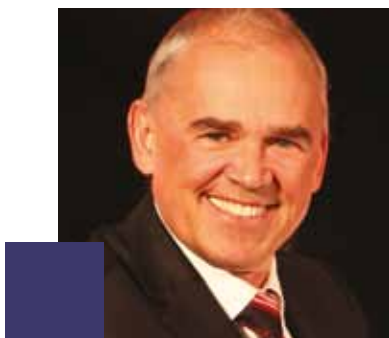


Photo: ASE

Ready for LNG

by Przemysław Opłocki

During the Polish LNG Conference 2018 in Warsaw, we had a chance to speak with Dariusz Jachowicz, the Chair of the Board at Automatic Systems Engineering (ASE) about his views on the importance of liquefied natural gas on the market. He also gave us a bit of insight into the the projects carried out by his company.



- **How would you comment the current situation on the LNG market and how has it changed within the last five years?**

In the past, I had a very general view on the LNG market. We were once involved in a huge project of the LNG Terminal in Świnoujście. We were responsible for designing the hydro-technical and navigation side of the facility. But at that time we didn't see LNG as the source of energy itself, but as the source of gas which would be transmitted to the pipeline. Since then the situation has changed dramatically as such. Presently, we can observe it is still undergoing changes towards the LNG being the intrinsic, individual source of energy, which can be transported into the country, and also for the smaller customer. At the moment a lot of medium size industries are more and more interested in independent power generation. Our second office, the BIPRORAF Design and Investment Office, is very much engaged in the medium scale LNG and generation processes. ASE was also one of the first companies to build and design the liquefaction plant in the south of Poland – LNG-Silesia plant. That was before the Świnoujście project, and on a much smaller scale, but different

companies from our group where involved. So the present situation and attitude to LNG is completely different, which I am very happy about.

- **What projects is your company currently involved in?**

Presently, as PROJMORS Design Office for Maritime Structures, we are engaged in the new project concerned with the future development of the Port of Gdańsk. The whole undertaking is pretty large, estimated to even \$2b. And LNG factor needs to be considered in the whole process, which will be critical, meaning the LNG bunkering of the ships as well as powering of the whole harbour. The Port of Gdańsk project is still flexible but we are deeply involved in it as a company.

Apart from this, we have now five projects in tube. But I can't mention the customers. One of them is a local power plant which has problems with coal and emissions limitations. Further, there are some old power stations which need to be closed, mainly for technical reasons. We also cooperate with furniture manufacturers, who are very much into LNG source of energy, due to a considerable heat and electricity consumption. It is a very profitable solution in their case.



■ **What is the biggest challenge for the global and regional LNG market in the coming decade?**

Well, I am not that much strategic strong. We are very practical people and can look at the Polish solutions. From our point of view, it can be said that independent sources of energy are enormously important for the mid-sized industries in Poland. ASE serves more than a thousand of firms in the country. We supply them with solutions for automation and integration. At the moment, we see a visible shift towards the topic of energy supply. The companies are interested in their own power source, which is of course partly resulted from the price increase of energy in Poland. LNG creates new possibilities for them. About ten years ago we could only dream about our own gas. When the gas from pipe was not available, there was no other solution. And now we've got it!

■ **Which clients are the most important in the LNG sector?**

Usually, not the very small ones, since the investment is really high. However, not the biggest ones either, because they are generally quite slow in making decisions.

Thus, the most effective are the medium-sized factories. They look at business with economical attitude and are, at the same time, very brave in taking decisions. Such customers employ around 1k people and deal with various activities, usually consuming a lot of heat in their production process. The price of LNG is not the critical factor, even if it is a little more expensive than the pipeline gas. Independence and possibility of easy transportation and storage makes it a real advantage for such companies.

■ **Do you agree with the sentence: *LNG is the future*?**

I'm quite sure that it will become like this. Yes, LNG is the future. There are actually not too many technical obstacles now to use LNG and it's more available than it used to be. Undoubtedly, it can change the market to a high degree. And it's a pretty short way, much shorter than it was with electricity. Of course, there will also be the hydrogen technology, where the road can be very long, as well as renewables will be present as a mix. This is a nice combination, from my point of view. And we are ready for this.

The ASE GROUP specializes in industrial safety, offering comprehensive solutions for industry and infrastructure, including marine applications. The Group comprises entities whose business areas complement each other, which is why the Group can provide its partners with a comprehensive offer. The group includes the following entities:
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PROJMORS Design Office for Maritime Structures – a design office specialising in designing ports, shipyards, quays and breakwaters. It prepares assessments, statements, investment programmes and studies as regards general, industrial and hydrotechnical engineering.
SQUADRON – UAV, Drones applications and simulations of emergency scenarios and security simulators.
<http://ase.com.pl>



partnership events

Photo: Pixels



Maritime Information Warfare Conference 2018
26-27 November 2018
UK/London

As data and information drive operational advantage there is now a need for improved leadership and ownership across maritime information exploitation. Therefore, collection, dissemination, and optimisation of maritime data is driving change and improvement across an array of naval systems. The conference will enable attendees to meet senior Navy Leaders and Maritime Defence Agencies from around the world.



LNG Summit Asia
27 November 2018
SG/Singapore

The event will be held at the Singapore Marriott Tang Plaza Hotel. The agenda is filled with panel sessions, insightful presentations from industry experts, networking activities, and the Awards Ceremony. The speaker lineup includes LNG professionals from such companies as Japan Oil, Gas and Metals National Corporation, JXTG Nippon Oil & Energy Corporation, Singapore LNG Corporation, Diamond Gas International, Shell, Black & Veatch, and other leading companies in Asia and the world.



RailTech Intelligent Rail Summit 2018
27-29 November 2018
SE/Malmö

The Intelligent Rail Summit 2018 covers the measurement, analyses, storage and application of data within railway infrastructures. The conference takes place on 27-29 November in Malmö, Sweden. At the conference 150 railway professionals and IT experts will meet each other. Over 25 high level speakers will share their knowledge and expertise.



Maritime2020 Asia Summit
28 November 2018
SG/Singapore

Key shipping industry professionals representing top companies, associations, and government bodies, will discuss upcoming regulations and ways to future-proof maritime businesses across the whole value chain. Along with insightful presentations, attendees will be able to network with decision-makers during breaks and social events such as the Cocktail Reception and Industry Awards Ceremony.



International Security Expo (ISE) 2018
28-29 November 2018
UK/London

Evolving security through innovation, uniting Government and industry by sharing knowledge, innovative homeland and commercial security technologies, integrated solutions and intelligence to create a safer world.



Fourth Annual Stakeholders' Conference 2018
29 November 2018
BE/Brussels

This year's topic is "How can multimodal connectivity and digital platforms turn trade into a growth engine?" The idea is to exchange about current challenges and opportunities for different actors of the logistics chain and, in the framework of this edition, to debate on how multimodal transport networks and digital platforms can help EU economic actors to overcome uncertainties weighing on regional and global trade.



Tank Storage Germany 2018
5-6 December 2018
DE/Hamburg

The two day conference runs alongside the exhibition every year and brings together local and international experts from across the supply chain to give their insight into the latest trends, new developments, regulations and market analysis within the German tank storage industry.



Maritime Reconnaissance & Surveillance Technology 2019
6-7 February 2019
IT/Rome

The Ferry Shipping Summit is a new and exciting ferry shipping conference concept that is committed to meeting the needs of today's time pressured industry leaders. The event is being organised by a team of knowledgeable Ferry Industry Experts with many years of commercial and operational experience at executive level within the Ferry operating and ferry port industry.



7th International Railway Summit
20-22 February 2019
DE/Frankfurt

International Railway Summit is an exclusive meeting of the world's key rail operators, national and local governments, and leading technical experts. Rail sector leaders receive free bespoke consultation from innovative experts, relevant to their future projects. The summit also offers a full conference programme, technical visits, and evening dinners, designed to forge lasting relationships between participants. The 7th edition is supported by the International Union of Railways (UIC).

We invite you to cooperate with us! If you wish to comment on any key port issue, share your feedback or have information for us, do not hesitate to contact us at: editorial@baltic-press.com, +48 58 627 2320/ 2321.

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