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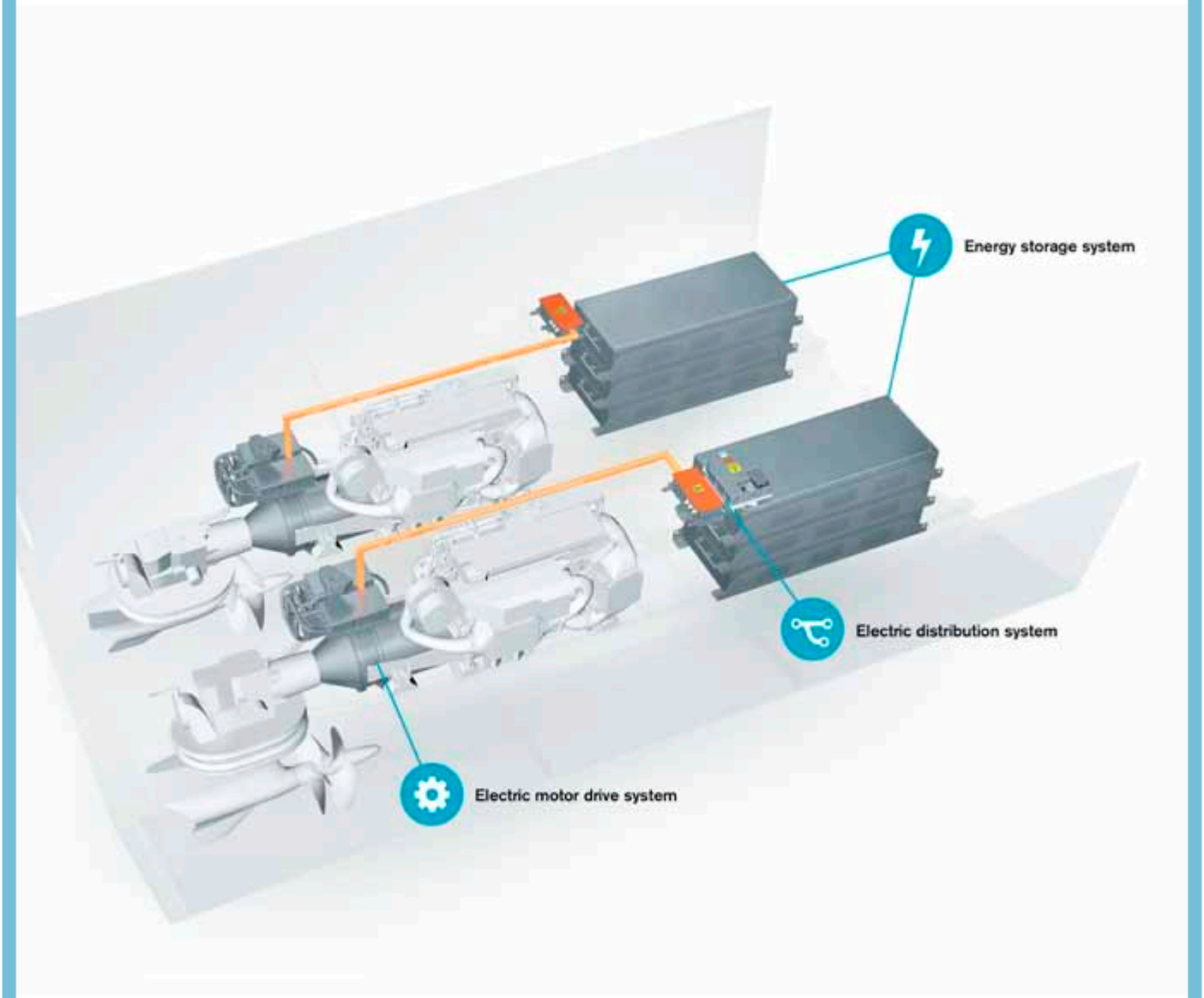
Volvo Penta goes full charge into hybrid and all-electric drivelines

At the most recent edition of the TOC Europe trade fair, Volvo Penta, part of the Volvo Group responsible for delivering complete power systems for boats, vessels, and other industrial applications, announced that it will be offering electrified solutions for both its land- and sea-based business segments by 2021. “Volvo Penta is embracing the electric transformation and will be at the forefront in delivering compelling business cases to customers using this new technology,” Björn Ingemanson, President, Volvo Penta, commented. He then furthered, “We will take a full systems supplier approach helping our customers in the transition to the new technology. This will happen application-by-application, on the basis that the business case for switching to electric will differ across our many customer segments.” Johan Inden, the company’s Chief Technology Officer, added, “Volvo Penta is already several years into its electrification journey. We have spent this time building competencies, experience and establishing the technologies required to deliver a sustainable power solutions road map. The advanced engineering projects we are currently running, and the performance data received gives us confidence that we are on the right technology path to offer customers a compelling business case for electrification.” Recently, the company established an electromobility development-and-test laboratory at its Swedish headquarters. “These solutions will not just be more sustainable, they will also be high performance – delivering a no compromise win-win offering for customers and the environment,” Inden concluded.


Photos: Volvo Penta

Volvo Penta develops a hybrid IPS

As part of its 2021 commitment to help the maritime industry switch to electromobility, the Swedish company has unveiled a new Inboard Performance System (IPS). The concept is initially planned for the 8-13 litre engine range, powering vessels like ferries, pilot and supply boats, as well as yachts. It will feature the electric-only mode that will allow the vessels entry into environmentally sensitive zones, such as the Norwegian world heritage fjords which are to be turned into no-emission areas from 2026. The hybrid IPS is currently under development, and the first test boat is scheduled to undergo sea trails in early 2020. The machinery will be available to commercial customers in 2021. According to Volvo Penta, this system will over time evolve into more hybrid technologies and all-electric drive variants. "A hybrid provides a flexible solution, one that maintains the high efficiency offered by the IPS system and adds the ability to run in zero emission environments. With full torque from the electric motor available instantly, the boat will maintain the responsiveness and controllability that IPS is famous for in electric-only mode, as well as offering the ability to run at 10 to 12 knots," Niklas Thulin, Director of Electromobility, Volvo Penta, commented.



A clutch and electric motor are added between the engine and the IPS pod. The electric motor is supported by scalable (depending on application needs) li-ion battery packs that can be charged externally using AC or DC chargers; or recharged using the primary diesel engine. Opening of the clutch allows the boat to run in electric-only mode, and with the clutch closed both diesel and electric power can be used in parallel. In terms of operation, the captain will use the familiar control interfaces of the IPS system, with the addition of new drive modes to choose from.

The modular nature of the battery packs allows customers to tailor the design and performance of both commercial and leisure boats. More battery capacity offers extended electric-only cruising and – with frequent external charging – the use of smaller diesel engines and lower fuel costs. With the electric motor and batteries maintenance-free – and the diesel engine operating for fewer hours – the cost of servicing should also be noticeably lower.

New short sea service Ghent-Hull

The newly established I-MOTION Shipping from Ghent has kicked off a container service between the two ports in question. The service includes three weekly calls to Hull Container Terminal and to Interface Terminal Gent. The first sailing was made by the 100 m-long *Cartagena*. Some 30k TEU/year is expected to be shipped via the route. “In 2017 ABP took the decision to invest £50 million in our container terminals in the Humber which influenced I-MOTION’s decision to come to Hull Container Terminal,” Simon Bird, Director, Associated British Ports (ABP) Humber Ports, said.

LNG terminal in Hamina gets the go-ahead

The facility will be built by Wärtsilä under a turnkey contract, as the project recently reached financial close along with receiving the necessary building permits. The 100m investment will feature a 30k m^3-big LNG storage tank to be erected in the first stage; facilities are also being prepared for a second 20k m^3 tank to be added at a later date. Meanwhile, earthwork has been completed on schedule and the construction work has already commenced. The terminal is set to be fully operational in 2020. In addition to supplying the engineering, procurement, and construction of the terminal, Wärtsilä is also joining the Hamina LNG project through a minority investment by WDFS (Wärtsilä Development and Financial Services; the terminal’s main shareholders are Hamina Energy and the Estonian energy company Alexela). “The new Hamina LNG terminal will be an important addition to the gas infrastructure as it will not only supply businesses and the shipping sector, but will also feed into Hamina Energy’s distribution gas grid and can be connected to Finland’s gas grid,” Markku Tommiska, CEO, Hamina Energy, commented.

New kombi shuttle between Baltic Germany and the Czech Republic

ECL and DSV Road have set up a new rail service for containers and trailers that runs between the Port of Lübeck’s Baltic Rail Gate intermodal terminal and Zaječí in the South Moravian Region. ECL expects to transport some 7,000 units during the first 12 months of operating the Moravia Shuttle. According to the company’s press release, these Scandinavia-Germany-Central Europe volumes were up-to-date mostly routed via Poland.

Nor Lines adds Rotterdam to its Norwegian network

The shipping company, part of Samskip, started calling with its LNG-powered multipurpose vessels to the Rotterdam-located terminal of SCA Logistics on 1 June. The 14-day loop is served by *Kvitnos* and *Kvitbjorn*, each of them offering 550 lane metres for wheeled cargo, space for 122 TEUs, as well as 1.5kt of reefer capacity in the lower holds. The two vessels are equipped with their own cranes. The service starts in Eemshaven and then goes to Rotterdam, Sandnes/Tananger, Bergen/Ålesund, Molde/Kristiansund/Trondheim, Bodø/Svolvær, Harstad, Tromsø/Hammerfest, Tromsø, Kristiansund, Ålesund, and Tananger. “Nor Lines provides the only scheduled service offering RoRo capacity and heavy lift capacity to handle 80-ton loads that connects to ports north of Trondheim. We see major potential for growth in oil and gas project cargoes, breakbulk, and industrial rolling cargo loads whilst also extending Samskip’s commercial containerized network directly to North Norway,” Caesar Luikenaar, Samskip Trade Director Norway, said. He added, “In terms of the seafood cluster Nor Lines will be serving the main reefer ports in the North West of Europe with the main liner service with the LNG vessels and then complemented with the reefer tonnage that Samskip is operating currently already in the Baltic Sea. A more flexible approach will be taken to serve current and new ports better for seafood like Cuxhaven, Eemshaven and Velsen. This will allow Nor lines to take more advantage of the seasonal peaks but also create a better reach in the North of Norway able to serve most fish ports and factories.”

Warrenpoint Port invests in a mobile harbour crane

The Northern Irish port has bought a Konecranes Gottwald Model 3 Mobile Harbor Crane. The machinery, due to come online in September this year, is of the in the G HMK 3405 two-rope variant, capable of lifting up to 100t and having a max outreach of 46 m. “The new crane will ensure we continue to deliver high standards of customer service and help us attract new business to grow annual throughput to over 4 million tons. This is the first part of a new significant investment plan at the Port, following the publishing of our Masterplan as we gear up for trade in the post-Brexit era,” Clare Guinness, CEO, Warrenpoint Port, commented. Neil Griffiths, Regional Sales & Service Director, Konecranes Port Solutions, added, “Warrenpoint currently operates five Konecranes Gottwald Mobile Harbor Cranes, and we are proud that they have again opted for our eco-efficient technology to support their long-term growth.”

CMA CGM to take over Containerships

The Marseille-based container shipping major has entered into agreement with Containerships’ parent company Container Finance to acquire the Finnish short sea operator. The deal also covers Container Finance’s stake in Multi-Link Terminals which operates two container terminals in the Finnish ports of Helsinki (Vuosaari) and Kotka, and CD Holding, a company from Helsinki dealing with container depot and terminal services, sales, as well as search and track. Containerships’ Baltic-North Seas and southeast Mediterranean networks are currently served by a fleet of 15 container carriers. The company will receive four brand-new LNG-powered ships between August 2018 and January 2019. The transaction is subject to approval by the relevant authorities.

Fure Vinga bunkered with LBG

Furetank's tanker, which usually runs on liquefied natural gas (LNG), was filled with 40 m^3 of Liquefied Biogas (LBG) by Skangas at the Port of Gothenburg during a truck-to-ship operation. The fuelling made it possible to operate *Fure Vinga* for about a week. "This is the first time we are supplying LBG to a marine customer. However, it will not be the last," Tommy Mattila, Sales and Marketing Director, Skangas, said. He furthered, "To be increasingly greener with the renewable biogas is possible because we use the same infrastructure that we've built throughout northern Europe. This means that LNG and LBG will continue to walk hand in hand as the availability of LBG on the market is on the rise." Lars Höglund, CEO, Furetank, also commented, "Running vessels on liquefied natural gas is our contribution to a more environmentally friendly environment. We will, however, contribute by increasing the sustainability. Using liquefied biogas was a natural step in this direction. No doubt LBG will be a clear option for us. It is proven by this operation that it can be available from our existing LNG supplier and not at least with the same quality as our current LNG fuel." Because LBG and LNG mainly consist of methane (on average 94% and 80-92%, respectively), they can be used interchangeably on board of vessels with gas-powered engines. The supplies came from a biogas facility located in Lidköping and owned by Gasum, Skangas' parent company. Firstly, biogas is produced through the processing of various types of organic waste, which is 100% local feedstock. Secondly, the gas is purified and upgraded to contain even as much as 97% methane. Third, biogas is liquefied by cooling it down to -160°C which makes it possible to transport it by tank trucks.

Kalmar and Navis to automate Qube's MLP

The €80m-worth deal covers hard- and software that will make the Moorebank Logistics Park (MLP), located in southwestern Sydney, a fully automated intermodal terminal in 2022. The OneTerminal solution provided by Kalmar and Navis, which both are part of the Finnish Cargotec, will comprise yard crane and horizontal transportation equipment, including four automated stacking cranes, eight automated rail-mounted gantry cranes, as well as eight hybrid fastcharge autoshuttles and their charging stations. Kalmar and Navis will also supply the necessary automation hardware and software for the terminal. The manual operations at the Moorebank facility are due to commence in Q1 2019. Kalmar deliveries will start during the second half of 2019, and the solution will be extended step by step with the complete setup estimated to be operational in 2022. Thanks to automating its operations, which will be taken care of with the use of electrical container handling equipment, MLP wants to cut its CO_2 emissions as well as reduce heavy duty truck traffic around Sydney. Once fully completed, the 243 ha-big MLP will offer 850k m^2 of warehousing space, direct access to the M7 motorway and the Hume highway, and a dedicated rail link to the Port of Botany and to the national railroad system.

Tarros upgrades its Med.-Atlantic loop

The La Spezia-based shipping company has added the Portuguese Leixões to the Great Pendulum Service (GPS), which now will be also served by five instead of four container ships. The rotation in question covers the following ports – Genoa, La Spezia, and Salerno in Italy; the Greek Piraeus; Istanbul, Gebze, and Mersin in Turkey; the Syrian Latakia; the Lebanese Beirut; the Egyptian Alexandria; Casablanca in Morocco; and Leixões and Setubal in Portugal. Each of the container carriers serving the route offers around 1,650 TEU of capacity.

Fjord Line to build a brand-new terminal in Sandefjord

The ferry company has entered into an agreement with Jotun, owner of the Vindal brownfield in the Norwegian Port of Sandefjord, to turn the area into a terminal. After obtaining the necessary permits and removing the waste currently deposited over Vindal, the new facility, set to come online in 2025, will comprise a new quay wall, a terminal building, manoeuvring areas for passenger vehicles and trucks, as well as other necessary amenities. In addition, new green areas in and around the property will be established. "We're growing with more than 15 percent annually and from January 1st 2020 we'll expand further by moving from operating one into two vessels on the route between Sandefjord (Norway) and Strömstad (Sweden). We deem Sandefjord to be the best place in Vestfold county to operate a ferry business from," Rickard Ternblom, CEO, Fjord Line, commented. He furthered, "It's a privileged starting point building a port from scratch […] It gives us the possibility to make use of the latest and most modern technology in all stages and thus implementing the most sustainable and customer friendly solutions available." Ternblom also promised that the new facility will be open access, "The port at Vindal will be available for other operators as well, and we would gladly welcome Color Line to use this port, should they want to make use of this facility for their Sandefjord-Strömstad operation."

Maersk connects the Med. with the east coast of Canada

The Med/Montreal Express links the ports of Salerno, La Spezia, Fos-sur-Mer, Algeciras, and Valencia with Montreal and Halifax. The new rotation is a weekly five-vessel service. It started on 2 July, departing from Salerno, and arriving in Montreal on July 19. In its press release, Maersk Line says that EU is Canada's second-biggest trading partner after the United States, accounting for 9.6% of its overall trade in goods in 2016. At the same time, Canada accounted for almost 2% of the EU's total external trade in goods. The value of trade in goods between the EU and Canada was €64.3b in 2016.

First ARMGs arrive at Vado Ligure

APM Terminals Vado Ligure, scheduled to kick off in 2019, has received its first batch of automated rail-mounted gantry cranes, the first such machinery to be used in Italy. The gantries will be mounted lengthways along 600 m-long rails. They'll be able to handle up to six stacked containers. These six cranes, out of 21 to be delivered in total, were shipped out of China in January. The new equipment will be remotely operated and monitored from a control room. "This is another key step towards the completion of the new Vado Ligure Terminal, a facility where human resources and the latest technology combine to ensure an effective, safe and environmentally friendly service for international markets," Paolo Cornetto, Managing Director, APM Terminals S.p.A., said.

Stena's E-Flexers chartered by Britanny Ferries

The two ro-paxes, to be built for Stena RoRo at the Chinese Avic International Weihai shipyard, will be chartered for 10 years to Britanny Ferries for its England-Spain traffic. Each of the gas-ready vessels will be 214.5 m-long and 27.8 m-wide, offering space for 1,000 passengers as well as some 3,100 lane metres of cargo capacity. The first cruise ferry is to arrive before the 2021 holiday season. The new ships will be based in Portsmouth. "Spain is by far the most popular foreign destination for UK holidaymakers, and we have seen significant growth in demand. Post-Brexit, we expect this to continue and today's announcement is a clear statement of intent. As well as passenger traffic, we believe that an increase in freight capacity will open the door to more hauliers seeking direct access between Britain and the Iberian peninsula," Jean-Marc Roué, President, Brittany Ferries, commented. Stena RoRo has ordered several E-Flexers, of which three will sail across the company's network in the Irish Sea and two will be chartered by DFDS Seaways to serve its traffic across the English Channel.

Zeebrugge-Teesport sea link to be combined with a rail service

The shipping company P&O Ferries, together with PD Ports, operator of the port in Teesport, and ECS & 2XL, a rail company, will extend the sea service in question with a railroad to Scotland. The rail service will connect Teesport with Mossend. The timetables of the sea and rail services will be synchronised. "The most reliable way for exporters to or from Scotland to transport their goods is via Teesport. The 15 hour sailing is more cost efficient than more northerly routes and by integrating our timetable with PD Ports' new rail service to Scotland we can guarantee customers an unrivalled service to and from northern Britain," Janette Bell, Chief Executive, P&O Ferries, said. Frans Calje, Chief Executive, PD Ports, added, "PD Ports has extensive rail capacity with direct intermodal links across the UK and with a new, second planned daily service to Scotland imminent, we will shortly see further opportunities for cargo movements to and from Scotland." Recently, in order to capture the volumes of the discontinued DFDS Seaways' short sea service between Zeebrugge and the Scottish Rosyth, and to serve trade between Scotland and the continent, P&O Ferries upsized its Zeebrugge-Teesport service by swapping the 1,625 lane metres of cargo capacity ro-ro vessel *Mistral* for the 2,300 lm *Estraden*. P&O Ferries' service in question is now served by *Estraden* and the 2,863 lm *Bore Song*.

Another Chinese investment in Zeebrugge

The Shanghai Lingang Economic Development Group will put €85.3m into a 30 ha-big logistics park to be erected in the Port of Zeebrugge's Maritime Logistics Zone. The service and distribution facility, to be named "One park, two centres China/Europe", is aimed at facilitating trade between the two economies, specifically in the transportation of components and refrigerated cargo. It will be also used in serving e-commerce. Lingan will closely cooperate on this project with COSCO, which recently took over APM's container terminal in the Zeebrugge port.

Kalmar launches an AGV

The Finnish company has introduced a fully electric automated guided vehicle (AVG) for transporting containers between the quay- and landside. The Kalmar FastCharge AGV is constructed on a steel platform and is able to carry one or two TEUs, one FEU, or one 45-foot container – altogether loads up to 70t. The vehicle's electric power system is based on lithium-ion battery technology. The machines can be opportunity charged at charging stations along their working routes. In addition, the AGVs are equipped with a regenerative energy system that stores energy from breaking and makes it available for reuse. "The Kalmar FastCharge AGV offers both greenfield and brownfield terminals an alternative solution to reduce the environmental impact of their operations while maximising equipment availability. It complements our existing offering for horizontal transportation and is based on our proven Terminal Logistics System automation platform, which includes AGV support for terminals using the Navis N4 Terminal Operating System," Mikko Mononen, Vice President, Intelligent Horizontal Transportation, Kalmar, said. He furthered, "Launching the Kalmar FastCharge AGV was the natural next step after the successful project with PSA Singapore, where we delivered a fleet of 18 customised electric AGVs at the end of June 2017."

PORT OF HAMINAKOTKA

All over the world – HaminaKotka

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THE PORT OF DUBLIN:

9.03mt handled in Q1 2018 (+3.4% yoy)

Imports rose by 4.3% year-on-year up to 5.36mt in the reported period, while exports by 2.1% yoy to 3.67mt.

The Port of Dublin's volumes

	Q1 2018	Yoy
General cargo		
Wheeled (ro-ro)	2,697.7kt	+2.5%
Containerised	761.0kt	+5.3%
Other	2.0kt	-0.8%
Total	**3,460.7kt**	**+3.2%**
Liquids		
Oil products	1,055.9kt	+12.1%
Other	30.3kt	+71.8%
Gas & gas products	13.6kt	-9.1%
Total	**1,099.8kt**	**+12.8%**
Dry bulk		
Foodstuff/fodder/oil seeds	154.4kt	-2.2%
Ores/cement/lime/plasters	131.9kt	-32.9%
Other	129.9kt	+30.3%
Grains	60.8kt	-22.3%
Total	**477.1kt**	**-10.4%**
GRAND TOTAL	**9,032.3kt**	**+3.4%**
Unitised freight		
Ro-ro cargo units	246,765	+3.3%
TEU	174,723	+7.1%
Finished vehicle logistics	37,077	+14.2%
Passenger traffic		
Ferry	293,438	+8.6%
Cruise	485	-74.8%
Total	**293,923**	**+8.0%**
Pax cars in ferry traffic	83,941	+6.4%

THE PORT OF UST-LUGA:

41.48mt handled in I-V 2018 (-1.4% yoy)

The biggest Baltic seaport, in terms of handled tonnage, saw a decline in its throughput of both liquids (-6.9% year-on-year to 25.50mt) and general cargo (-13.9% yoy to 1.20mt). At the same time, the Russian port's dry bulk turnover rose by 11.5% yoy to a total of 14.78mt. Ust-Luga's container traffic also noted an uptick of +9.5% yoy to 32,862 TEUs.

THE PORT OF GIJÓN:

6.43mt handled in I-IV 2018 (-13.2% yoy)

All major cargo groups noted a decrease in the reported period – dry bulk by 13.4% year-on-year to 5.67mt, general cargo by 8.9% yoy to 502.9kt, and liquids by 16.7% yoy to 258.2kt.

The Port of Gijón's volumes

	I-IV 2018	Yoy
Dry bulk		
Ores/cement/lime/plasters	2,935.1kt	+3.1%
Coal & lignite	2,472.9kt	-30.2%
Grains	155.5kt	+117%
Other	101.8kt	+20.0%
Foodstuff/fodder/oil seeds	3.1kt	–[1]
Total	**5,668.4kt**	**-13.4%**
General cargo		
Containerised	281.6kt	-13.1%
Other	221.4kt	-3.0%
Total	**502.9kt**	**-8.9%**
Liquids		
Oil products	258.2kt	-16.2%
GRAND TOTAL	**6,429.6kt**	**-13.2%**
Containers		
TEU	23,529	-5.9%
Finished vehicle logistics		
Cars & other vehicles	642	+693%
Cruise traffic		
Travellers	5,929	+442%

[1] *No handlings in I-IV 2017*

BREMENPORTS:

18.18mt handled in Q1 2018 (-0.3% yoy)

The two German ports in Bremen and Bremerhaven took care of over 9.3mt (+0.4% year-on-year) of exports and nearly 8.9mt (-1.1% yoy) of imports in the reported period. With 16.36mt (+2.7% yoy), general cargo accounted for 90% of all freight traffic. Out of this figure, containerised goods rose by 2.4% yoy to 14.35mt. However, container traffic lost 3.2% yoy to altogether 1,345,482 TEUs handled over 2018's first quarter. A total of 539,772 vehicles were handled, too, more by 1.8% yoy. Bremenports' dry bulk throughput contracted by 19.9% yoy – down to 1.62mt. Handlings of liquids decreased by 29.7% yoy to 206kt of oil products.

THE PORT OF OSLO:
1.47mt handled in Q1 2018 (+3.1% yoy)

Ferry pax traffic also rose in the reported period – up by 12.4% year-on-year to a total of 534,445 travellers.

The Port of Oslo's volumes

	Q1 2018	Yoy
General cargo		
Containerised	318.2kt	-2.3%
Wheeled (ro-ro)	176.3kt	+1.0%
Other	69.7kt	+33.2%
Total	**564.2kt**	**+2.1%**
Liquids		
Oil products	450.1kt	+7.0%
Other	16.0kt	-51.6%
Total	**466.1kt**	**+2.7%**
Dry bulk		
Metallurgical products	244.4kt	+22.2%
Ores/cement/plasters	120.3kt	-17.0%
Grains	36.3kt	+75.1%
Other	33.7kt	-14.3%
Foodstuff/fodder/oil seeds	7.1kt	-57.5%
Total	**441.8kt**	**+4.8%**
GRAND TOTAL	**1,472.1kt**	**+3.1%**
Container		
TEU	54,916	+2.1%
Finished vehicle logistics		
New cars & vehicles	12,715	-11.7%
Passenger traffic		
Ferry	534,445	+12.4%
Local	688,367	-5.0%
Total	**1,222,812**	**+1.9%**

THE PORT OF LISBON:
12.24mt handled in 2017 (+19.3% yoy)

With 5.37mt handled last year (+17.3% year-on-year), dry bulk continues to dominate the port's freight throughput.

The Port of Lisbon's volumes

	2017	Yoy
Dry bulk	5,372.8kt	+17.3%
Containerised, of which Containers' tare	3,950.4kt 1,092.7kt	+25.2%
Liquids	1,637.3kt	+15.1%
Break-bulk	177.7kt	-23.5%
Wheeled (ro-ro)	10.2kt	+98.6%
Total	**12,241.0kt**	**+19.3%**
Container traffic [TEU]		
Total, of which Exports Imports	495,525 249,396 246,129	+26.6% +27.3% +26.0%
Passenger traffic		
Total, of which Local river Seaborne	17,302,080 16,781,042 521,038	+4.4% +4.5% -0.3%

THE PORT OF RAVENNA:
6.29mt handled in Q1 2018 (+1.2% yoy)

A total of almost 5.46mt (+4.0% year-on-year) was imported in the reported period, while 835.5kt (-14.3% yoy) was exported out of the Italian seaport.

The Port of Ravenna's volumes

	Q1 2018	Yoy
General cargo		
Other	1,654.3kt	+9.0%
Containerised	597.4kt	-5.1%
Wheeled (ro-ro)	394.8kt	-15.1%
Total	**2,646.5kt**	**+1.3%**
Dry bulk		
Ores/cement/lime/plasters	1,100.6kt	+9.0%
Grains	552.2kt	+36.2%
Other	466.2kt	-16.4%
Foodstuff/fodder/oil seeds	352.9kt	-19.0%
Coal & lignite	55.8kt	+0.4%
Metallurgical products	13.2kt	-66.9%
Chemicals	10.0kt	–[1]
Total	**2,550.9kt**	**+1.9%**
Liquids		
Oil products	349.9kt	-17.8%
Other	347.3kt	+31.8%
Chemicals	234.7kt	+5.3%
Gas & gas products	162.4kt	+9.0%
Crude oil	0.0kt	-100%
Total	**1,094.3kt**	**-0.8%**
GRAND TOTAL	**6,291.8kt**	**+1.2%**
Unitised freight		
TEU	51,396	-5.9%
Ro-ro cargo units	16,030	-3.6%
Finished vehicle logistics	4,729	-37.2%
Cruise traffic		
Passengers	1,310	+248%

[1] *No handlings in Q1 2017*

THE PORT OF SZCZECIN-ŚWINOUJŚCIE:
6.81mt handled in Q1 2018 (+6.2% yoy)

The turnover of coal rose the most over 2018's first quarter, up by 32.7% year-on-year to 709.2kt.

The Port of Szczecin-Świnoujście

	Q1 2018	Yoy
General cargo, of which Ferry	3,312.9kt 2,379.9kt	+6.9% +7.2%
Liquids (incl. LNG)	906.7kt	+0.2%
Other dry bulk	844.6kt	+15.5%
Ores	753.5kt	+25.4%
Coal	709.2kt	+32.7%
Grains	278.7kt	-48.1%
Timber	2.2kt	-47.6%
Total	**6,807.8kt**	**+6.2%**
Container traffic		
TEU	22,460	+0.4%

THE PORT OF ALGECIRAS:
1.13m TEU handled in Q1 2018 (+13% yoy)

In total, the Spanish port's freight throughput for the first quarter of this year totalled 26.5mt, more by 12% on the Q1 2017 result.

The Port of Algeciras' volumes

	Q1 2018	Yoy
General cargo, of which Containerised	16,987.9kt 14,699.9kt	+13.1% +15.5%
Liquids	8,049.7kt	+17.4%
Supplies	559.8kt	-22.1%
Local traffic	558.3kt	-11.2%
Dry bulk	346.3kt	-21.1%
Total	**26,502.1kt**	**+12.0%**
Unitised freight traffic		
TEU	1,125,981	+13.0%
Ro-ro cargo units	90,407	-1.0%
Pax traffic		
Passengers	949,290	+1.3%
Pax cars	187,117	-3.3%


Photo: Port of Algeciras

The Port of Gothenburg: 188k TEU handled in Q1 2018 (+2.2% yoy)

The number of rail-handled boxes totalled 100k TEU, a decline of 5.7% year-on-year. Gothenburg's ro-ro traffic increased in the reported period by 4.1% yoy to 152k cargo units. The port's finished vehicle logistics noted a double-digit growth of 17.6% yoy, totalling 80k new cars. Turnover of liquids also rose – by 3.5% yoy to 5.9mt. Passenger traffic, on the other hand, lost 15.5% yoy. Altogether 223k ferry and cruise passengers went through the quays of the Port of Gothenburg during this year's first quarter.

THE PORT OF DUNKIRK:
12.47mt handled in Q1 2018 (+4.5% yoy)

Owing to the brand-new LNG terminal, the French port handled almost one-fifth more liquids than in Q1 2017 (+19.7% year-on-year to 1.37mt).

The Port of Dunkirk's volumes

	Q1 2018	Yoy
Dry bulk		
Ores/cement/lime/plasters	3,630kt	+0.2%
Coal & lignite	1,685kt	+17.3%
Other	646kt	+23.0%
Grains	337kt	+12.7%
Total	**6,298kt**	**+7.1%**
General cargo		
Wheeled (ro-ro)	3,774kt	-1.1%
Containerised	799kt	-1.1%
Other	227kt	-18.9%
Total	**4,800kt**	**-2.1%**
Liquids		
Oil products	844kt	+0.2%
Gas	439kt	+108%
Other	91kt	-4.2%
Total	**1,374kt**	**+19.7%**
GRAND TOTAL	**12,472kt**	**+4.5%**
Containers		
TEU	98,907	+19.1%
Pax traffic		
Passengers	446,529	+2.7%

THE PORT OF GDAŃSK:
479,045 TEU handled in Q1 2018 (+47.4% yoy)

Measured in tonnes, containerised freight totalled nearly 5.10mt in the reported period, more by 49.2% on the Q1 2017 result.

The Port of Gdańsk's volumes

	Q1 2018	Yoy
General cargo (incl. timber), of which Containerised	5,474.1kt 5,095.6kt	+44.1% +49.2%
Liquids	4,555.3kt	+41.0%
Coal	1,748.7kt	+154%
Other dry bulk	852.6kt	+8.0%
Grains	116.1kt	-67.6%
Total	**12,746.8kt**	**+43.8%**
Passenger traffic		
Ferry	16,086	-1.0%

FINNLINES:
187k ro-ro cargo units carried in Q1 2018 (+13.3% yoy)

The company's ships also transported more vehicles in the reported period – up by 25% year-on-year to a total of 40k units. However, Finnlines carried less non-unitised freight over 2018's first quarter – down by 1.9% yoy to 304kt. At the same time, more passengers (incl. truck drivers) boarded the shipping line's vessels – a total of 125k travellers, that's an increase by 8.7% on the Q1 2017 result.

THE NORTH TYRRHENIAN SEA PORT SYSTEM:
41.07mt handled in 2017 (-0.2% yoy)

The joint port authority comprises the harbours of Livorno, Piombino, Portoferraio, Rio Marina, Cavo, and Capraia Isola.

The North Tyrrhenian Sea Port System's volumes

	2017	Yoy
Wheeled (ro-ro)	20,409.2kt	+7.4%
Liquids	8,893.7kt	+5.8%
Containerised	8,027.3kt	-12.7%
Dry bulk	2,033.9kt	-18.6%
Break-bulk	1,706.0kt	-15.9%
Total	**41,070.2kt**	**-0.2%**
Unitised freight traffic		
TEU	734,085	-8.3%
Ro-ro cargo units	680,226	+8.6%
Finished vehicle logistics	658,051	+10.3%
Passenger traffic		
Ferry	8,989,352	+2.8%
Cruise	734,499	-13.9%
Total	**9,723,851**	**+1.3%**


Photo: GAINN4MOS

THE PORT OF ZEEBRUGGE:
9.36mt handled in Q1 2018 (+7.2% yoy)

Ro-ro and container traffic both totalled 3.9mt in the reported period, noting increases by 9.7% and 14%, respectively, on the Q1 2017 results. The finished vehicle logistics segment also rose – by 0.7% year-on-year to 719,250 new cars. Other cargo groups, however, marked downticks. The turnover of liquids decreased by 6.2% yoy to 985kt. Dry bulk lost 5.8% yoy to 311kt. Break-bulk contracted by 29.8% yoy to 261kt.

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Baltic Tank www.baltictank.fi

REVISOL

BALTIC BULK

voices

Photo: www.pexels.com

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!

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.

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.

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.

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.

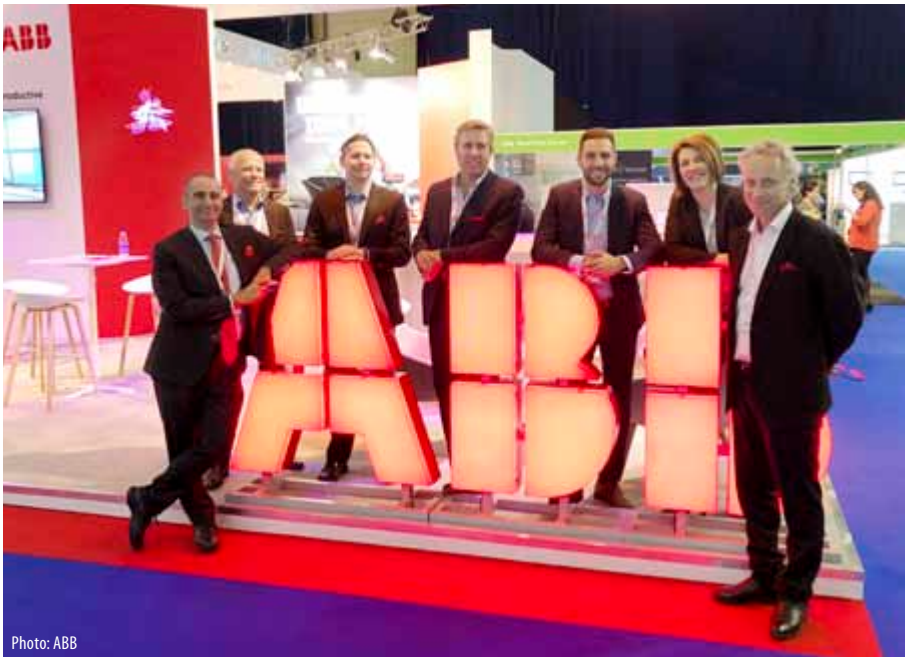

Photo: ABB

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.

Karri Lehtonen

COO, Youredi

I 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.

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!

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Darwin was right (even about IT)

by **Przemysław Myszka**

Chris Mason, Director of Sales – EMEA, Rajant Corporation

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.

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Interview with Philipp Helberg, Marketing Manager Maritime Cranes, Liebherr-MCCtec Rostock

Photo: Liebherr

From manufacturing to digital optimisation consulting

by **Przemysław Myszka**

YouTube

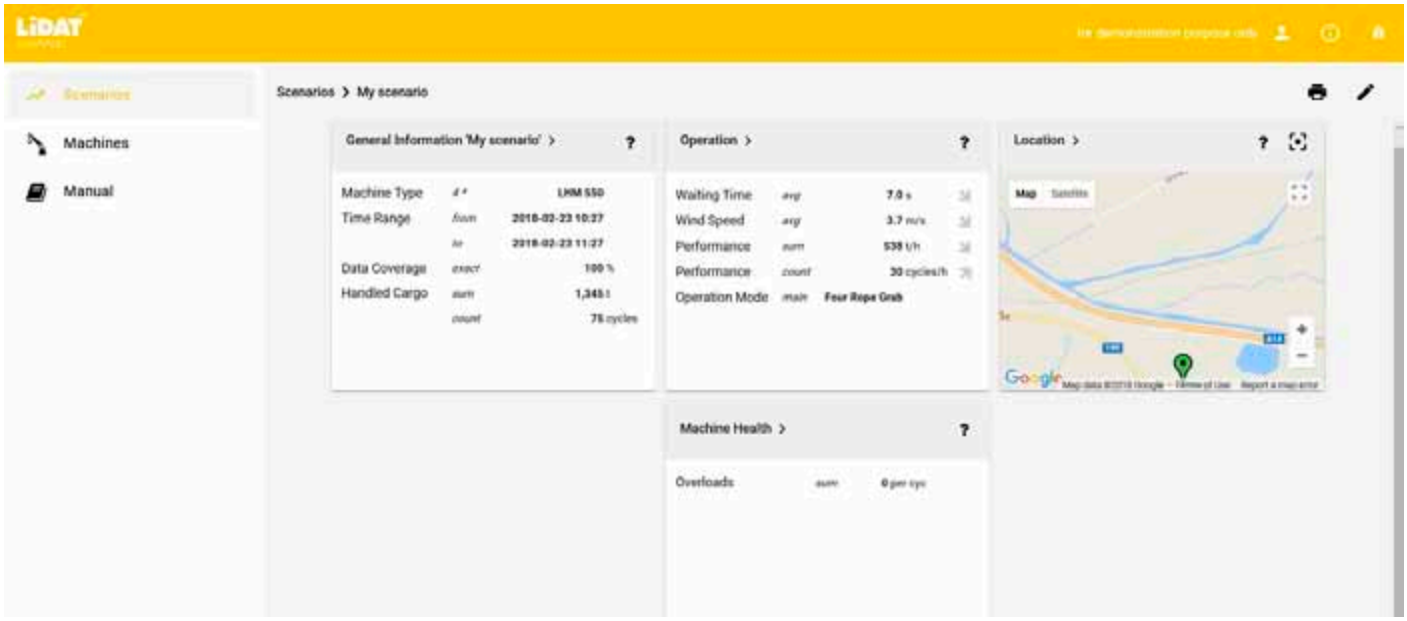
Click the logo or scan the QR code to access Liebherr's channel on YouTube

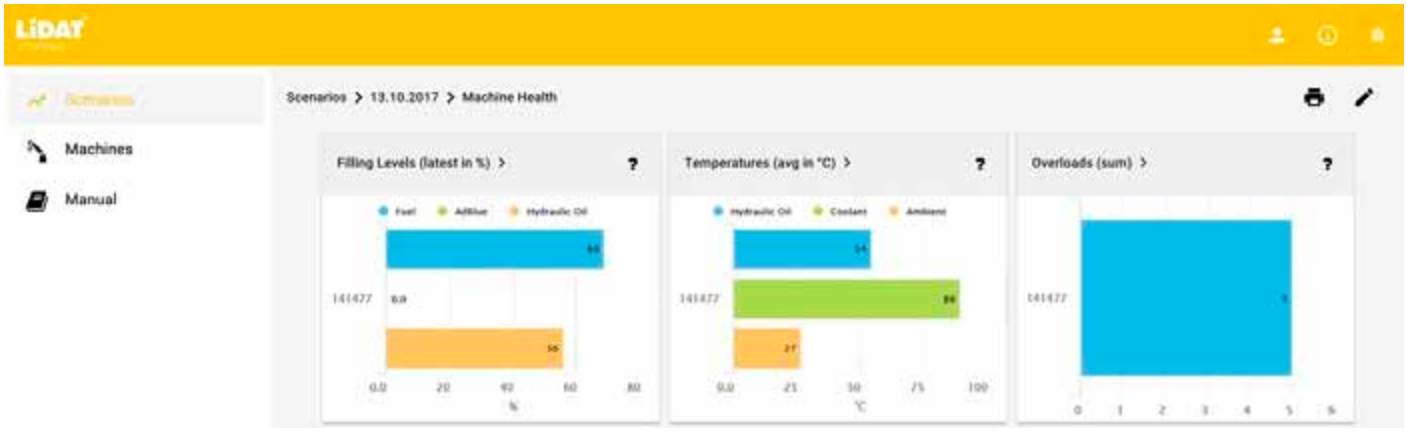
In hindsight, manufacturing port cargo handling equipment was pretty straightforward – it was all about big steel machines lifting dozens of tonnes from one place and placing them onto another. We're talking with Liebherr's Philipp Helberg about the fact that while the core of the business remained unchanged,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

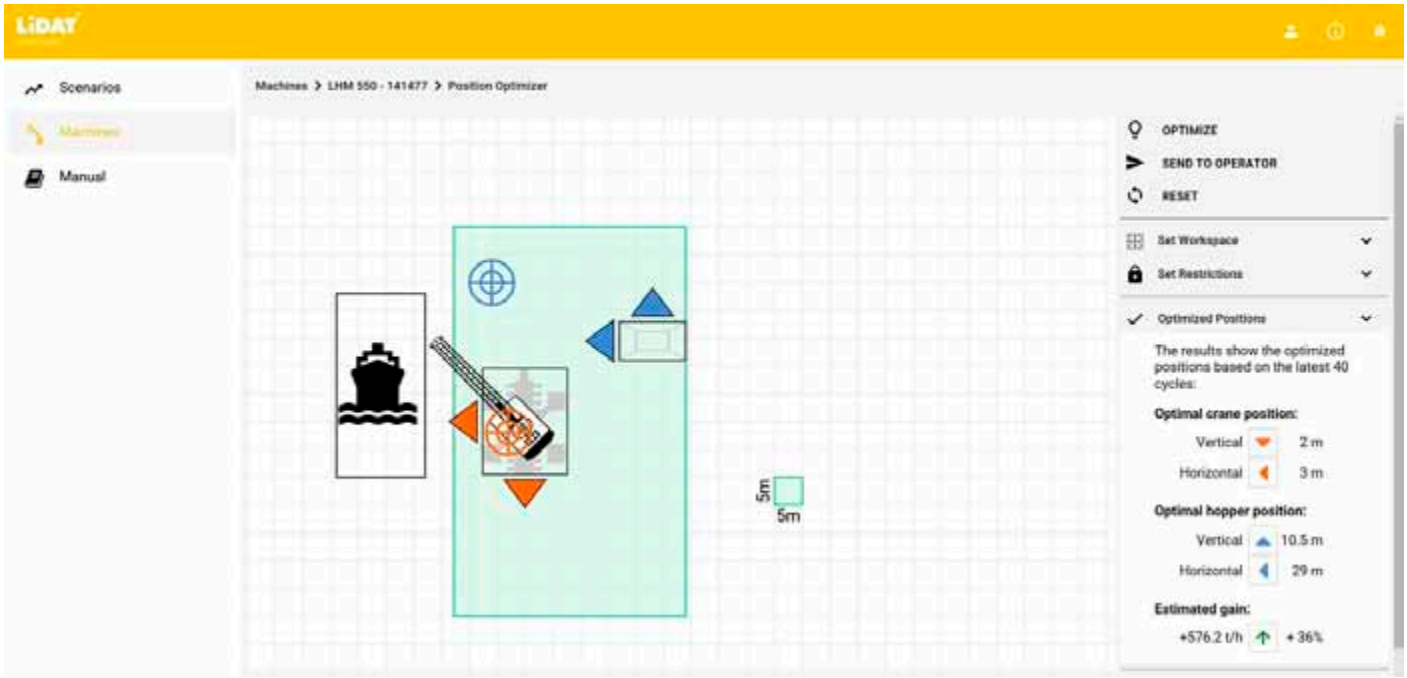
■ **Your company is about to launch its first purely electric port crane. What stands behind the decision to swap diesel for electricity?**

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 whinches 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 then 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 whinch 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 transhipment. 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.

ACTEMIUM

Onshore Power Supply (OPS)
Shore connection in a box

With a many years' experience in building the world's largest shore connections, Actemium Sweden now offers a complete **turnkey container solution**.

We can set up the container for you at your site, after which you can simply connect it in any harbour in the world within about a week from delivery.

Should your needs change, you just move your container. With cold ironing the ship's auxiliary engine can be turned off at shore, thereby reducing both noise and emissions.

Actemium Sweden has so far equipped seven harbours in Sweden and one in Norway with this innovative container solution. Will you be next?

Added value

- Less polution
- Less noise
- Less energy use
- More flexibility

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VINCI ENERGIES

Interview with Shirley Salzman, Marketing Director, Percepto

Photos: Percepto

As free as a bird

by **Przemysław Myszka**

Shirley Salzman, Marketing Director, Percepto

We've all heard stories about military drones undertaking missions, piloted by someone sitting in a control room thousands of kilometres away from the battlefield, or drones that take videos and photos at events from a bird's-eye view. We're talking with Shirley Salzman about using drones in industrial environments, and how companies are using drones for everything from security to maintenance and safety checks. Leveraging computer vision and artificial intelligence technologies, autonomous drones offer numerous advantages to organizations that positively impact their business.

■ **What's the story behind Percepto? Why use drones for security in general, and port security in particular?**

Percepto was founded in Israel in 2014 as a software company. At that time, we developed a small module that enabled computer vision on drones, as well as made it possible to use Artificial Intelligence onboard. This, in turn, transformed drones into tools that can be used to collect and transmit valuable data in real-time with increased precision. We marketed this solution to the defense industry first, enabling them to use it with their drones. Once we received positive feedback on the military applications, we decided to offer the full solution to industrial clients as well. Our unique concept is about having an on-site system – managed remotely and operated autonomously. The system performs dozens of missions per day and can serve multiple customers at each port or terminal. Percepto's drone is made out of three components. First, Our Cloud Management System (CMS) which makes it possible to plan, schedule, supervise and if needed, conduct real-time operations with the drone. The drone can be operated from virtually any place in the world that is Internet-connected, and the drone feed can be shared with multiple users. Thanks to the CMS, one can plan a mission with a single or multiple drones, respond to an alert or use the data for post-processing and investigation missions. Missions can be scheduled in advance so aerial missions will be conducted automatically. In addition, our solution offers real-time operations providing aerial data and insights during unexpected events. The CMS stores the drones' mission histories, along with the data collected available for post-processing and investigation.

YouTube

Click the logo or scan the QR code to access Percepto's channel on YouTube

WHO WE ARE

Percepto provides fully autonomous drone systems which automate security and inspection missions in industrial sites.

Our goal is to deploy drones that operate and conduct tasks throughout sites with no human intervention.

THESE ARE OUR FOCUS AREAS GUIDING US
TO MAKE THE BEST SOLUTION OUT THERE:

AUTONOMY - KEY FOR SUCCESS

Percepto's autonomous technologies allow our drones to be deployed on-site, automating inspection, safety and security routines.

VALUE ↑ COST ↓

Autonomous drones execute multiple tasks 24/7 while reducing site costs and increasing site productivity.

SAFETY FIRST

When it comes to safety - we make no compromises. The Percepto system meets the highest safety and regulation standards for commercial drones.

INDUSTRIAL GRADE SYSTEM

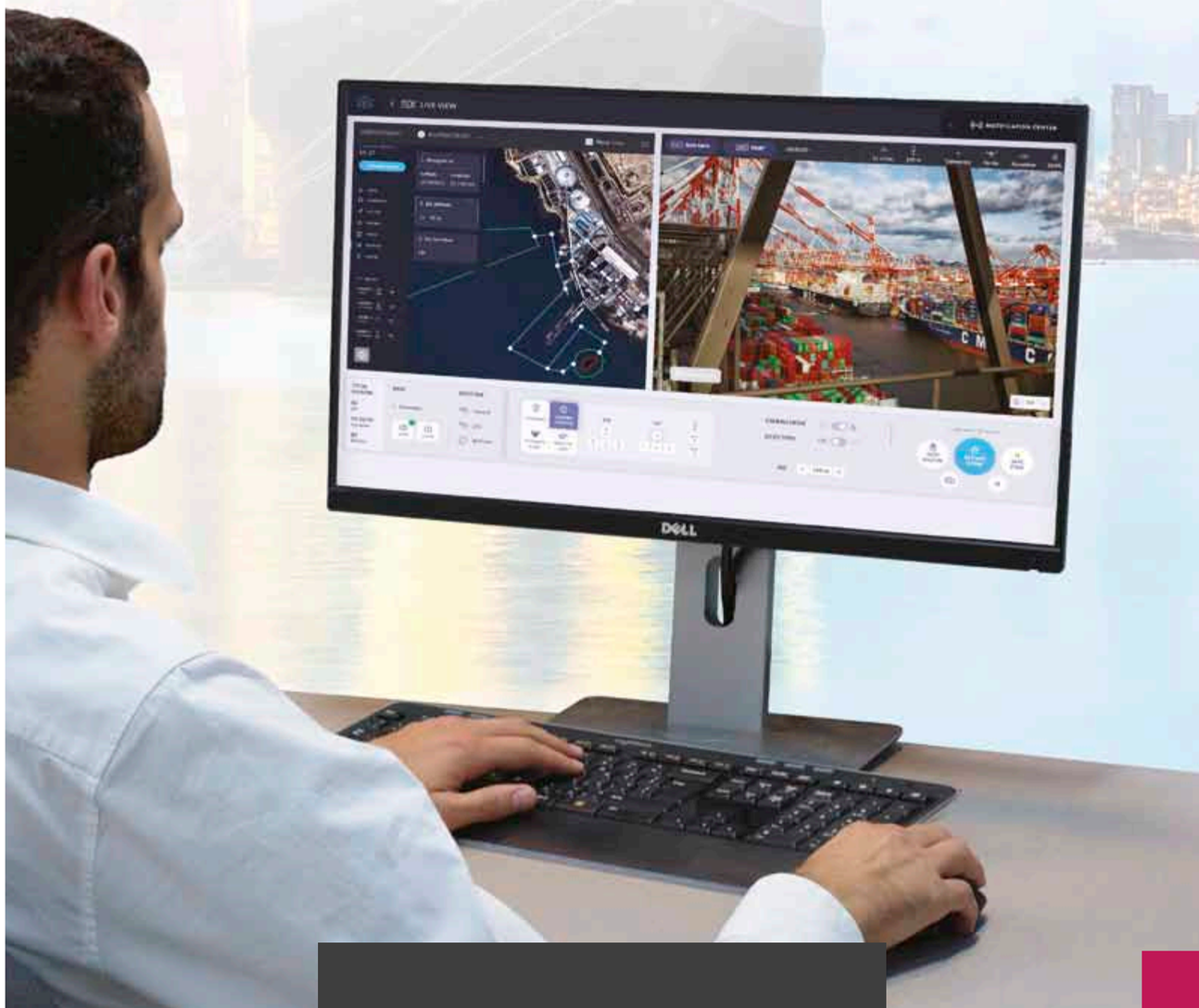
We develop high performance, rugged, systems to support outdoor deployment and continuous operation.

PERCEPTO

WWW.PERCEPTO.CO

PERCEPTO

CLOUD MANAGEMENT SYSTEM (CMS)



CLOUD MANAGEMENT SYSTEM

MAIN FEATURES AND CAPABILITIES

DATA MANAGEMENT

The CMS collects and archives all drone data in a central location available for future investigation analysis and site management improvements.

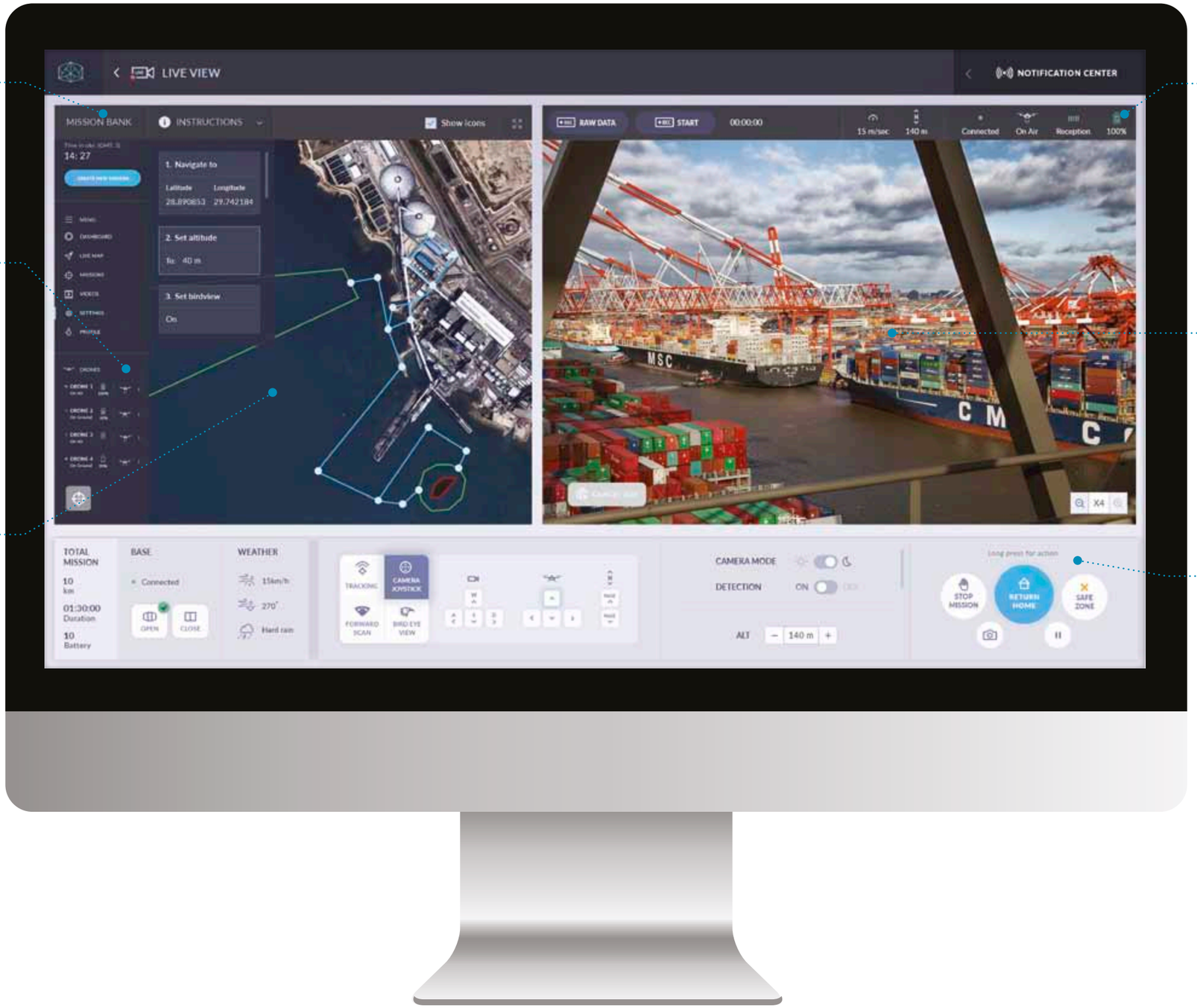
MULTI DRONE/SITES

Corporations and global organizations manage a large number of sites and operate multiple drones from a centralized command room.

The Percepto system is available for around the clock operation (day and night) even without a team on the ground.

LIVE SITE AWARENESS

Oversees the drone's operational landscape including free-fly zones, no-fly zones and flight paths. During a mission, accurate information on the various flight phases is reflected. An operator can amend existing missions or launch new missions at any given moment, simply by pressing on the map.



DRONE STATUS

Provides live status of drone's health, whereabouts, reception, speed and battery.

Notification center records all main system activities, sending an alert when abnormalities or suspicious activity is detected.

INTERACTIVE VIDEO STREAM

User friendly real-time and post-event analysis. Shared with an unlimited number of users and viewers over a secured communications channel. Percepto video stream delivers intuitive navigation either by "click on screen" or keyboard navigation.

REAL-TIME OPERATIONS

From a control room, the operator is capable of deploying a drone at any given time. Live commands allow for switching between various sensors and analytics based on changing operational requirements.

PERCEPTO

AUTONOMOUS DRONE CYCLE

Second, The Percepto base houses the drone when it's not in use and serves as a launch and landing pad for the drone. Percepto's base is stationary currently, however in the future, we'll offer a more compact version that can be mounted on a vehicle and provide flexibility for our customers. The Percepto base is designed to withstand harsh environmental conditions. Last but not least, The drone itself. Sparrow, is equipped with dual payload of high resolution

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day and thermal (night) cameras - a very useful capability allowing planned or real-time switch between the two types of feeds. The Sparrow flies according to predefined map of a site (incl. free flight areas, alternative landing zones). The drone is programmed to omit no-fly zones, a very important safety measure of the software itself, preventing an operator from mistakenly sending the drone to places or heights where it could be a potential hazard.

The Sparrow onboard computer vision capabilities allow the drone to detect and track humans and vehicles for security purposes, an application that works great for containers yards, for instance. In addition, the Sparrow conducts maintenance missions such as day, and thermal inspection of dangerous areas, such as cranes, rooftops, high voltage towers, and more. This is a key application the can easily reduce risks for the teams operating terminals. Nowadays there's a great popularity of installing dozens of cameras on the cranes. These cameras require maintenance cycle and clean ups. A drone can easily replace both the sensors and the risk for the team that is required to climb the cranes. Depending on the conditions, a single mission can last up to 30-40 minutes. The drone is weatherproof, able to fly in rain and snow and can easily confront wind, within terminals wind operational standards. The entire system can be integrated with other solutions as well. For instance, a drone automatically responds to a situation when an intelligent fence sends out a signal - instead of having a security team rush off to find out that an animal tried to "trespass" on the site, a drone can do the same at a fraction of the cost. From a business perspective, it means that timely, expensive, and sometimes inaccurate human checks can be avoided. When it comes to ports, we developed our product to undergo specific missions, like container yard security or checking the cargo handling equipment for possible maintenance issues. The autonomy of intelligent operations is what distinguishes Sparrow from other drones on the market. Sure, it's still more effective and ultimately cost-effective to deploy drones for security and maintenance, but if you have a drone that can inspect a given site and inform you on its own that something is happening, that's what makes the difference at the end of the day.

■ **How does one deploy an autonomous drone across a facility? In what way do you approach your customers?**

First, we sit down with a client and look at which areas can be covered by drone operations, what is the value we can provide them and what are the savings and efficiencies that can be delivered. Take for instance risk reduction. Some of our customers were intrigued by our system after painful and risky situations; such as climbing on a stack of barrels to see whether all is OK with the lid, or a situation where a man went around sniffing for gas leaks, a human version of a canary in a mine! Another example can be reduction of CAPEX and OPEX. Think about how much civil work would be saved if we reduced the amount of sensors on site and have the drone provide flexible visual stream capabilities. Environmental and regulatory affairs are another possible application. Ports and Terminals are required to meet a variety of rules relating to environmental protection.

The thermal camera function can be used in other ways, too. Imagine that you're running a photovoltaic solar field , you can check the panels' sun profile and see if a given panel is operating at its most efficient. When there's a difference between the panels, you can dispatch your team to improve the overall energy generation. We're also striving to make our solutions as user-friendly as possible. Managing the drones needs to be a simple and streamlined process, while also being scalable. The bottom line is that Percepto enables companies to minimize inefficiencies while optimising their operations, all with next-generation hardware and software autonomous aerial solution.

Interview with Peter Lundgren, Business Development Executive for Ports, JLT Mobile Computers

Photos: JLT Mobile Computers

Solid as a computer

by **Przemysław Myszka**

JLT Peter Lundgren, Business Development Executive for Ports, JLT Mobile Computers

Computers have been our daily companions for more or less three decades now, to the point that in today's smart era it's presumably harder to find a device without a chip inside than one that's (over) packed with them. We're talking with Peter Lundgren from JLT Mobile Computers about why a shiny, slim, and delicate consumer tablet isn't the best computer choice for the port environment, what the latest trends in computerizing cargo handling equipment are, as well as ask how rugged a computer must be to run in extreme temperatures or when shrouded in corrosive sulphur.

■ **Computers, as computers, aren't anything new. However, how have these devices, the way we use them, and the software that powers them, changed since their introduction to the transport and logistics business?**

Compared to where we were when we started the business years ago, we've encased both communications, and not only Wi-Fi but also 4G, and positioning in a single device. Also, the screen quality has improved over the years; today's brightness levels and the way it adjusts itself, e.g. when a forklift is moving back and forth between a dim warehouse and a sunny yard, are far more user-friendly than in the past.

Cyber security is a hot topic lately, so our products have been tweaked in this regard, too. For instance, the JLT6012™ computer comes with an integrated RFID reader, meaning that machinery users need a security-cleared RFID card to log into the system. Furthermore, we've also included the Trusted Mobile Platform (TMP) chip, which enables encrypted communications on Windows 10. Originally, we were asked about TMP by a client from the pharmaceutical industry, but we now see that people from transport and logistics also want to have secure computers. It's hard to tell whether it's prevention or they've suffered from security breaches; whichever the case, there's a clear demand for heightened security.

Once you reach a certain volume of containers in your operations then you simply must implement a Terminal Operating System (TOS) to manage the flow. You also need to equip your staff and fleet of container handling equipment with mobile computers. The two simply go together. With mobile computers to access

your TOS, the same workforce can do more. At the same time, it also opens up new possibilities, like offering clients the visibility of where in the flow their containers are.

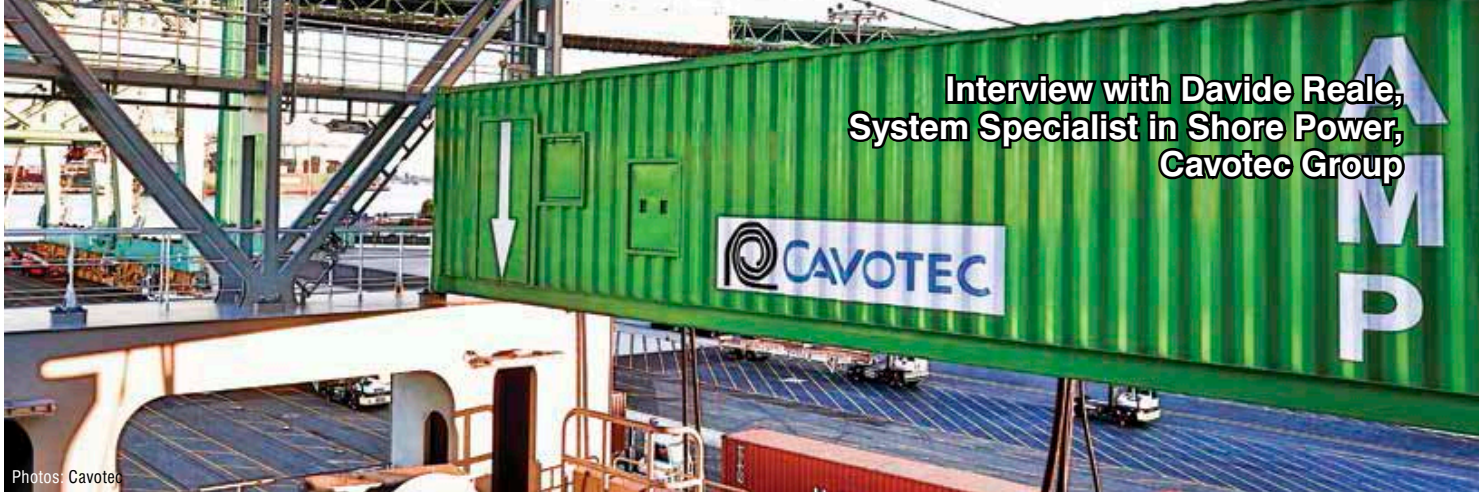
There's the question of user-friendliness, too. While much depends on the actual TOS and how its interface is arranged, there are also computer technicalities. For instance, some find it better to have separate keyboards while others prefer on-screen typing. The latter also changed over the years as the screen technology developed. In the past, you had multi-layered resistive touch screens where it was more difficult to sense what pressure is exactly needed to point and click. Now with JLT PowerTouch™ based on projected capacitive touch screen technology, which is similar to the technology used in our smartphones, it's far easier. As such, modern screens are not only much more precise, but also more durable because users do not press them as hard as the older ones.

During the latest TOC Europe 2018 we saw yet another interesting development. There's this trend to equip the cabins of container handling equipment with less screens to aggregate data from various subsystems on one screen. So, it's no longer about computers just showing data from a TOS; we'll see more and more different system interfaces or functionalities being built in, be it security, wear and tear, performance, etc. Who knows what the future will bring; maybe it will be headset computers with head-up display with a TOS that has an artificial intelligence installed in it. For the time being, however, we're aligning our products with acute customer demands, like offering different screen sizes or the option to run not only Windows, but also Android on our devices.

■ **JLT has specialized itself in delivering rugged mobile computers. But what does "rugged" actually mean? What's the benefit of paying more to have a hard-wearing device?**

When it comes to computer ruggedness, there's a number of environmental factors that must be taken into account – vibrations, shock, temperature and temperature variations, humidity, dust, reflective light conditions, quality of communications, stability of power supply, and so on and so forth. If a client comes to us and says that he or she needs a rugged computer, we then go through the list and specify what kind of ruggedness is actually needed. The environment defines the details of the workmanship, even to the point how the buttons are made. For instance, we've done measurements and found out that if you drive a forklift with massive plastic wheels in a warehouse and you pass over a poor surface or cross a joint between buildings, the shock can be up to 10G. Repeat this multiple times per day, bearing in mind all those semiconductors and chips inside the computer, and you'll see why one needs an "armoured" computer, not a delicate tablet.

A sulphur mine is the harshest environment I can recall us supplying rugged computers for. Sulphur is extremely aggressive, so the paint had to be extremely durable, while the external parts had to be fitted together absolutely perfectly. Another example is from the US, from a company dealing with food freezing. They use a technology called blast freezing, with temperatures as low as -40°C, an environment with which our design had to cope. On the flip side, our computers withstood the ultimate test during, it seems, never-ending days with a constant temperature of +50°C in the container terminal of ICTSI that's located in the Iraqi Basra.



Photos: Cavotec

Interview with Davide Reale, System Specialist in Shore Power, Cavotec Group

Putting a plug in OPS

by **Przemysław Myszka**

YouTube

Click the logo or scan the QR code to access Cavotec's channel on YouTube

Ports and shipping companies have been investing in onshore power supply (OPS) for a few years now, using it as a tool for lowering harmful ship-related pollution, including noise. We're talking with Davide Reale from Cavotec about the latest developments in cold ironing, how one tunes an OPS design to the actual needs, and what are the various reasons, benefits, as well as tricky issues behind this solution in the first place.

■ **What have been the latest developments in regards to onshore power supply?**

Scandinavia is continuing to drive the uptake of OPS in Europe, chiefly for the ro-ro & ferry business. California is also very keen on incorporating this solution into daily port operations; however, they're targeting more the industries of container shipping and cruise.

Upscaling is another trend. While in the past OPS was used by smaller vessels and for shorter port stays, nowadays the aim is to cater to the needs of larger ships, which like cruisers have to stay in a port for many hours, effectively functioning at that time as anchored hotels that of course consume a lot of electricity. So, more and more newbuilds are OPS-ready while delivered.

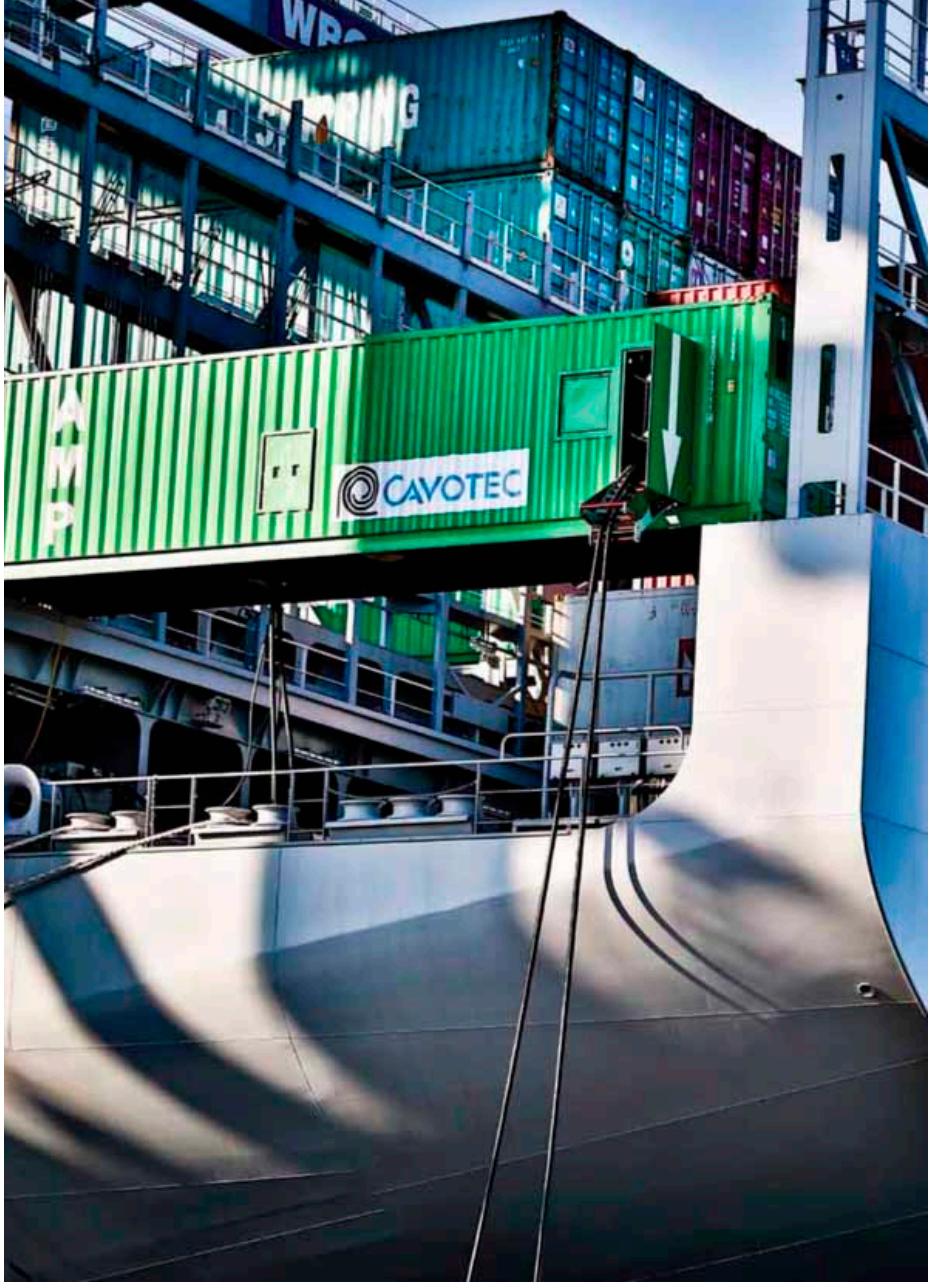
At Cavotec we've engaged in a number of OPS projects; for instance, one for container vessels in the Italian Genova. We've also noticed a clear interest in OPS from the side of numerous port authorities in Europe, especially in Spain, southern France, and Sweden, who are investigating whether cold ironing is a viable investment for them, their clients, and the wider society in port cities, as OPS promises to lower ship pollution and noise. The European Union is also looking into whether cold ironing can contribute to the aspirations for better air quality. However, a lot depends on the EU Member States and their power generation mix. In case a country relies heavily on polluting sources of energy, like coal, it's hard to see how OPS could make things better. In the US, on the other hand, one can get fined for not connecting to OPS.

Standardisation concerning connectivity and interoperability is topical, too. While we can travel all around the world with an adapter thanks to which we can charge our phones in different countries, we unfortunately cannot do the same with a ship. A lot of good work has been already done by defining the standards for particular vessel types, e.g., the OPS design for a cruise or ferry is pretty much the same whether we're talking about California

or Europe. After all, the OPS feature shouldn't be a disadvantage or some useless gadget when selling a vessel or planning an international itinerary.

- **What do you make of the different ways OPS can be delivered? We've got fixed stations, portable cold ironing in a box, or even an LNG-powered barge in Hamburg that feed's electricity-from-gas to cruise ships.**

The barge solution is a smart one in a situation where otherwise you'd have issues with grid access. There's another pilot project currently tested in Hamburg as well, namely connecting a container vessel to a grid via an LNG generator. This isn't the most eco-friendly setup out there; still, it's far better than having engines running on traditional bunkers.



The end decision depends on the needs. One has to answer a few questions: How intense of a traffic will my OPS have to serve? Will these be smaller or bigger vessels? How long their port stays will take? Are the system integrator and utility company capable of delivering the needed amount of power and at what price? Is the project eligible for co-funding from public sources? What will be the return-on-investment (ROI)? Once we know what we want, the OPS provider can deliver the right design.
Unfortunately, in Europe the shore voltage frequency is different (50 Hz) than the one (60 Hz) used by the bulk of the ships employed in international cargo and cruise traffic. As such, there's the necessity of installing a frequency converter to adapt the grid voltage to the ship, something that drives up the investment cost.

■ **What is the rationale behind investing in cold ironing?**

Reducing environmental pollution is the main reason why somebody is investing in this solution, especially if we're dealing with an in-city port. A container terminal full of ships can generate significant amounts of particular matter, which, in turn, has adverse effects on human health. For comparison, plugging in a container or cruise vessel equals to taking around 300 cars off the road. Ship-generated noise is eliminated completely.
At the same time, shipping lines register savings on maintenance, because they don't have the run the auxiliary engines to power the generators. Whether these companies save money by swapping bunker for electricity is a tricky issue. It's a moving target because the price of fuel changes all the time, same as how it actually corresponds to the end cost of using electricity.
Nevertheless, the ROI from a port side can be quite fast, even five years. We had a project in Rotterdam, where both the terminal and shipping businesses were within one company. According to their initial forecast, it'd take about seven years to get an ROI. This evaluation was then corrected down to five years. But as mentioned earlier, it very much depends on the fuel price. Today, when their OPS is, for whatever reason, out of order, e.g. due to maintenance, one can immediately smell the difference in the air. There can be other gains. We had the opportunity to be working on the *Vision of the Fjords* e-ferry project. Getting rid of the noise and smell of combusted

bunker makes a trip in the Norwegian fjords all the more pleasant.

■ **How about other next-gen developments, like automation?**

We are leading the development of integrated automated mooring and charging systems for a growing number of frequent-use passenger ferry applications. Our innovative automated mooring technology, MoorMaster, cuts the amount time it takes to moor vessels, and the system is integrated with our fast-charging interface technologies that charge ferry batteries sufficiently for the next sailing. A number of these systems are already in operation in Finland and Norway, and there is considerable interest in the technology elsewhere in Europe and beyond.

Photo: www.pexels.com

How the Maritime Module tackles Slow Steaming Strategy

by **Roberto Accardi** and **Chiara D'Ambrosio**

Synchro-NET

Co-funded by the Horizon 2020 programme of the European Union

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.

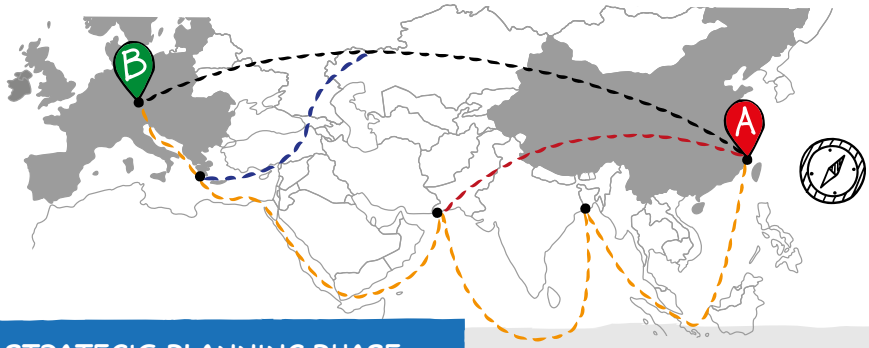
This module is an assembly of several sub-modules working together and includes a weather routing module, a "real-time speed pilot" module which consists mainly in a cost assessment tool, and a route management module. The main issue tackled by Maritime Module is the Slow Steaming Strategy, a premiere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

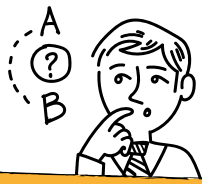
To optimize a route in terms of speed and trajectory regarding the required propulsion power (proportional to fuel consumption), Crain Technologies developed a weather routing algorithm that includes an advanced energy model of the considered ships developed by Bureau Veritas. This module can operate 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





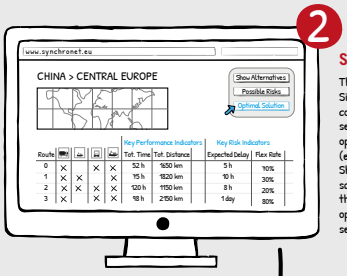
A major shipping line is planning its own deep sea services plus hinterland connections for connections between **China** and **central Europe**, analysing slow/smart steaming options that offer the best solutions for their customers.

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

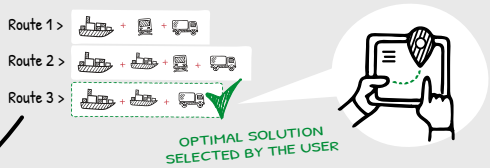
Using the Maritime Module, the shipping line can simulate all the different parameters associated with each route.

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 soultion 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 Synchromodal 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 Synchromodal 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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next topics

IT solutions

Alternative fuels

Offshore wind

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PL/Szczecin

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17-21 September 2018
DK/Copenhagen

Trans Expo Odessa 2018
26-28 September 2018
UA/Odessa

The 6th Annual Arctic Exchange
27-28 September 2018
NL/Amsterdam

SIBCON 2018
2-5 October 2018
SG/Resorts World Sentosa

Small-Mid Scale LNG Summit
3 October 2018
NL/Amsterdam

Bulk Liquid Storage
3-4 October 2018
ES/Cartagena

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9-11 October 2018
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China International Logistics and Transportation Fair
11-13 October 2018
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