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## red-hot port matters

Photo: Burak Kostak/Pexels

### Karlshamn gets the expansion green light

The Swedish seaport has received clearance from the regional environmental court, following which a brand-new ro-ro & ferry berth no. 3 will be erected, equipped with an adjustable ramp, to serve ships up to 230 m-long. In addition, the port's main gate will be relocated, the truck line-up areas will be enlarged, and the existing ro-ro & ferry berth no. 2 will be widened. Necessary dredging works will be carried as well. The investment of around €20m is to be completed in 2021.

### Birka Cruises shuts down

Because of the impact of the coronavirus pandemic (COVID-19) on the cruise industry, the Ålandian shipping company, running since 1971, has decided to terminate its operations. "It is the uncertainty around COVID-19 which has hit the nail on the coffin. We cannot hide that we've had economic difficulties and weak results for the past couple of years, and with this here situation we're just unable to see how could we start operating a cruise ship again," **Tomas Karlsson**, CEO, **Birka Cruises**, said in a comment to *Sjöfartstidningen*. He furthered, "We can only sit and try to guess when the opportunity re-emerges. As things stand today, the present situation will last, but we cannot operate without being profitable." Karlsson also said, "It's extremely unfortunate to realize that such a reputable company as Birka Cruises has fallen victim to COVID-19, but the saddest thing has been to inform our engaged and capable personnel, who have over the years developed the offer and taken care of our guests in the best way possible." In total, 509 people will be affected, 43 on- and 466 offshore. The company's *Birka Stockholm*, which used to ply between the ports of **Stockholm** and **Mariehamn** with room for up to 1,800 passengers, will return to the parent holding **Eckerö**. What will happen to the cruise ship hasn't been decided yet. Birka Cruises will contact its customers and fully reimburse them for their bookings.

### Sweden's support of the shipping business

After receiving a green light from the **European Commission**, the Swedish government has introduced a temporary support programme for the country's shipping industry. The assistance also includes aid to seafarers working on ferries that have been taken out of traffic because of the coronavirus pandemic. The retroactive programme covers the period from 13 March till end-year. Shipping lines can seek aid through the **Swedish Transport Administration**. "The government has gone to great efforts to protect Swedish jobs and companies, both when it comes to support and easing regulations. The support is important for Swedish shipping and should naturally be present during a crisis. When the crisis is over we'll have a green re-start and then a strong Swedish-flagged shipping sector will be crucial," **Tomas Eneroth**, Infrastructure Minister, said. **Anders Hermansson**, Deputy CEO, the **Swedish Shipowners' Association**, added, "The **Swedish Shipowners' Association** welcomes the decision on the temporary regulation. The Swedish government's resolution has been both much awaited and important for Swedish shipowners, not to mention the ferries that have been hit hard by COVID-19. During, for example, April 2020 the number of passengers decreased by ca. 90% vs. the corresponding period last year, and sea shipping turnover went down by almost 50%. The temporary support programme gives the shipping lines, similar to what has happened in other EU states, the possibility to temporarily adjust the traffic network. The measure is enormously important for the shipowners who in times of an unprecedented crisis that lacks an earlier equivalent were in principle forced to close large parts of their businesses because of the crisis."

### Wagenborg links Oxelösund and Riga

The Swedish arm of the Dutch shipping line has launched a new ro-ro service between the two seaports, offering three departures/week. The connection is served by the 108 m-long and 17 m-wide *Midas*, owned by **Godby Shipping**, that has a total cargo carrying capacity of 1,032 lane metres across three decks. "[...] the base cargo on this ro-ro line are concrete elements and building equipment loaded on trailers," **David von Platen**, Line Manager, **Wagenborg Shipping Sweden**, said. He furthered, "In addition, the liner offers possibilities to transport various cargo between Riga and Oxelösund, such as trailers, both accompanied as well as unaccompanied, but also general cargo loaded on mafs such as boards, pallets, forest products, containers, coils and project cargo. Also, other types of ro-ro cargo such as vehicles, mobile cranes, caravans, campers, and excavators can be loaded and easily shipped both ways."

## Viking Line certified according to DNV GL's My Care

The ferry line has become the first shipping company in the world to have its capability to manage and prevent infection risks verified in line with the My Care methodology. With My Care, **DNV GL** assesses companies' risk management systems, i.e., whether hospital quality standards and systems are applied, in the case of **Viking Line** – on-board seven vessels and throughout operations across six terminals. "The safety of our passengers and employees is always Viking Line's top priority, and that is also the case during this pandemic. Everyone must be able to travel safely with us. We have long carried out infection risk preventive work and have now chosen to be assessed by a third party to quality-assure our work in conjunction with COVID-19. Our employees' considerable efforts are impressive. We have achieved this thanks to their skills and engagement," **Jan Hanses**, President and CEO, Viking Line, underlined. **Luca Crisciotti**, CEO, **DNV GL Business Assurance**, added, "[...] The application of My Care creates trust since the focus is to prevent infectious diseases. It also demonstrates Viking Line's strong engagement in further developing its [...] Health, Security & Environment [...] processes. A third-party assessment provides assurance that the right measures have been taken to protect people, work transparently and increase the trust of passengers and other stakeholders."

## Gasum opens a gas bunkering station in Nynäshamn

The facility is located within the port and five kilometres from the company's liquefied natural gas terminal from which tank trucks source the bunker. The new station makes it possible to bunker a ship from two trucks simultaneously instead of one as was the case in the past as well as while passenger and freight operation are taking place. "The station's fit-for-purpose high speed pumps allow the bunkering operation to take just 45 minutes. Passengers disembark and embark and goods are unloaded and loaded while bunkering. High precision and prompt deliveries from our side are needed in order to keep to the vessels' ordinary schedule," **Jonas Åkermark**, Sales Manager, **Gasum**, explained. **Christer Bruzelius**, CEO, **Destination Gotland** (whose two ferries use the new station), also noted, "Being able to bunker fuel from the new station is a big step forward for our operations. We fuel faster, more efficiently and during our normal operation hours. This in turn leads to a better service experience for our customers." **Fredrik Lindstål**, Board Director, the **Ports of Stockholm** (which **Nynäshamn** is part of), remarked, "The Ports of Stockholm have high environmental ambitions. An important aspect is to support our customers in their work towards a more sustainable and efficient shipping. Vessels powered by liquefied natural gas (LNG) including a biogas blend, are showing us how to reduce the environmental impact. This example could also encourage the shipping industry to change to more sustainable fuel."

## Kiel Canal dues – suspended

The **German Federal Government** has decided to waive traffic dues till end-2020. "Caused by the Corona crisis, the maritime economy is under massive cost pressure and traffic on the Kiel Canal is experiencing an unprecedented decline," **Jens Broder Knudsen**, Chairman, **Initiative Kiel-Canal**, a campaign for maintaining the function and future viability of the canal, commented. "This decline is mainly based on the currently historically low bunker prices, which would lead to a considerable competitive disadvantage for the Kiel Canal compared to the detour around Skagen. The route around Denmark is longer and less environmentally friendly, but is free of traffic dues," Initiative Kiel-Canal wrote in a press release. The organization also said, "[...] it would now be necessary to check whether the temporary suspension of the levies is sufficient or whether a permanent suspension would be the better solution for the economy as a whole."

## First external use of Liebherr's TCC 78000

**EEW Special Pipe Constructions** and **Vattenfall** have become the first parties to use the 1,600t of lifting capacity crane, otherwise employed by **Liebherr** for its internal logistics in the **Port of Rostock**. Specifically, the crane has been used for floating the first out of 72 monopiles for Vattenfall's 600 MW **Kriegers Flak** offshore wind farm currently under construction some 15 km off the Danish coast (scheduled to come online by end-2021, providing electricity for around 600k Danish households/year). Once watertight-sealed and lowered into water, the 65 m-tall and 800t-heavy monopiles have been tugged to the construction site. Landing on water of the monopiles will take place until late summer 2020.

## First commercial port call to as well as freight train handling at Stockholm Norvik

**Unifeeder's** container feeder ship **Tunadal** berthed at the brand-new **Hutchison**-operated container terminal on 26 May, around 11pm. The 152 m-long, 1,018 TEUs of carrying capacity vessel unloaded 119 TEUs, taking on-board 32 TEUs before heading to **Helsinki**. At present, up to 250k TEUs/year can be handled at **Stockholm Norvik**, a figure that'll double once everything is in place. Next, the Swedish state-owned rail cargo haulier **Green Cargo** arrived at the brand-new harbour on 9 June to pick up the very first batch of containers. The line that links Stockholm Norvik to the country's trunk network is 4.4 km-long, plus 360 m of tracks within the port area. The facility's yard comprises three tracks, each 750 m-long, and a 100 m-long siding. "It feels great that the very first train arrived at Stockholm Norvik. The industrial railway joins Stockholm Norvik with Sweden's rail network and is an important condition for providing our clients with sustainable and good services," **Johan Wallén**, Marketing and Sales Manager, the **Ports of Stockholm**, commented. **Robert Vintander**, Branch Sales Manager, **Green Cargo**, added, "[...] Stockholm Norvik is a modern port with infrastructure that can meet the market's demand for increased frequency and capacity on the rail network. Above all, it's the industries and customers from Mälardalen, the Stockholm region, and the middle of Sweden which will experience an increased need for robust and reliable logistics solutions in the coming years." Later this year, in September, Stockholm Norvik's ro-ro terminal will come online. The Ports of Stockholm will be in charge of running it.



## Deltamarin wins design contract for Finnlines' new Superstars

The company has signed a contract with the **China Merchants Jinling** shipyard (CMJL) for the approval and detail design of **Finnlines'** brand-new hybrid ferries. **Deltamarin** has already provided CMJL with consultancy and contract design services on the project. "We at Deltamarin are extremely happy and thankful to get this contract during this very abnormal global business environment caused by COVID-19. This proves that Deltamarin's expertise in the ro-pax segment is highly valued from the client side," **Janne Uotila**, Managing Director, Deltamarin, commented. He also said, "These new ro-pax vessels will be among the most environmentally friendly vessels of their type. Finnlines is at the forefront when it comes to sustainable shipping operations that also perfectly fit the values of our company." Once delivered in 2023, the 235 m-long and 33 m-wide Superstars (5,100 lane metres of cargo capacity and room for up to 1,200 passengers), each worth approx. \$135m, will serve the **Naantali-Långnäs-Kapellskär** crossing.

## Up to DKK1.0b/€130m of green investments in Esbjerg

**Infranode**, a Nordic €750m+ under management infrastructure fund, has partnered with the **Port of Esbjerg** to invest up to one billion Danish crowns into new infrastructure for the wind energy industry. Investments will be made available gradually as manufacturers of wind turbine components and offshore wind service providers, including storage and preassembly, expand their businesses. As many as 2,000 new jobs are expected to be created. "There are currently prospective projects of up to 100 GW being installed in the North Sea by 2030 – a fivefold increase compared to today. This will require wind turbines of even larger sizes than the ones in operation today. And in this context, the new facilities in the Port of Esbjerg will contribute to the sustainable development by reducing the costs of transportation between production sites and installation sites," Infranode wrote in a press release. To this **Flemming N. Enevoldsen**, Chairman, the Port Esbjerg, added, "With this new partnership, the City of Esbjerg, the Port of Esbjerg, and Denmark will be even better prepared to seize opportunities to create green growth and new jobs in the massive expansion of offshore wind power in the North Sea as we approach 2030." **Joel Löfroth**, who's in charge of Infranode's activities in Denmark, also said, "This investment is part of our strategy of being a long-term partner to the public sector in the green transition currently unfolding in Denmark and throughout the Nordic region, and we look forward to investing in more Danish infrastructure projects." About 80% of the offshore wind capacity installed in Europe today was shipped from Esbjerg. In the record year of 2019, more than 1,500 MW of offshore wind turbine components were shipped from the Danish seaport. "We have a really strong platform in Esbjerg and in all of Denmark in terms of the green energy potential. The physical settings are in place at the Port of Esbjerg, and this agreement will set the base for the necessary financial capabilities for unlocking the huge potential, so we can establish the necessary production capacity," **Dennis Jul Pedersen**, CEO, the Port Esbjerg, summed up.

## ICA, Volvo, Green Cargo, and Scanlog vs. COVID-19

The parties have agreed to re-establish **Volvo's** train, that in the past connected the company's facilities in Sweden with its factory in the Belgian **Ghent**, but which has come to a halt because of the coronavirus pandemic. The service has been also used in the past by **ICA** who through the Swedish logistics company **Scanlog** booked slots on the train's northbound leg. The link, two 19-railcar-long trains/week (equivalent to 80 trucks/week), was re-opened during the Easter week, carrying goods from ICA's warehouse in Ghent to Sweden. In their joint press release, the companies underlined that it's not only about reducing the risk of supply shortages, but also minimising the danger of contracting and spreading the virus by lorry drivers, a shortage of whom, should they fall-ill, will be even more felt by European trucking companies and may result in delivery delays. "We at ICA are constantly working towards reducing the climate impact of our transports and will continue doing so, even in these difficult times. We have a responsibility towards the society - to secure the supply of essential goods as well as lower the emissions. We're still getting the majority of the deliveries that we need, but in order to make sure that's also the case in the future we're glad that we have set up this solution to reintroduce train traffic from Ghent," **Magnus Stadig**, Head of Logistics, ICA, said. **Fredrik Vråmo**, VP Logistics Purchasing, Volvo, added, "To deliver food, medicine, and other necessities is the transport system's most fundamental function. While waiting for southbound volumes to flow again, it feels good to be able to take part in bringing large quantities of provisions into the country." **Ted Söderholm**, CEO, **Green Cargo**, also commented, "I'm proud that through this partnership we've quickly managed to find a solution, even during these hard corona-times, thanks to which goods can reach their recipients on time and both domestic- and internationally. Railways play a critical role in the functioning of a society during normal times and it only shows in the time of a crisis how important is uninterrupted rail freight transportation for securing the flow of goods and industrial supplies." **Mattias Ljungberg**, CEO, Scanlog, summed up, "Sweden's functioning is dependent upon unbroken transport flows. Reduced exports have lowered northbound trucking availability. More and more ferry lines are being halted, resulting in lorry traffic having now to go overland and cross many country borders. It's feels both good and extremely important that large volumes of consumables can be transported by rail."

## Taicang added to Nippon Express' Japan-Europe service

The multimodal route connects the ports of **Tokyo, Yokohama, Nagoya, Osaka, and Kobe** with **Hamburg and Duisburg** via the Chinese **Port of Taicang** and then along the New Silk Road through **Xi'an, Alashankou, Nur-Sultan, and Brest/Małaszewicze**. Journey time amounts to 26-28 days. According to **Nippon Express**, the new set-up, when compared to a similar service going via **Dalian**, is one week shorter and offers 40% better price on transportation costs.

## WALLENIUS SOL cuts steel for its first newbuild

The steel cutting ceremony – for the 242 m-long and 35.2 m-wide ro-ro vessel – took place at the Chinese **CIMC Raffles** shipyard in **Yantai** on 30 March. According to the company, it'll be the world's first ro-ro ship that runs on liquefied natural gas and has the highest 1A Super ice class. The newbuilding is scheduled for delivery in August 2021. Once put into operation later in autumn the same year, it'll offer 5,800 lane metres of cargo capacity across **WALLENIUS SOL's** Baltic-North Sea trade lane. The ro-ro ship has been designed by **Wallenius Marine** in collaboration with **Knud E. Hansen**. In mid-March, Wallenius Marine opened a local office at the Yantai shipyard (fully manned by June), allowing the company to closely monitor the shipbuilding process and collaborate with CIMC Raffles. Also in June, the construction began on a sister ship. **WALLENIUS SOL** cites a research carried out by the **Swedish Environmental Research Institute**, according to which the newbuild will consume 50% less fuel as well as emit 60% less greenhouse gases per transported unit (as compared to the vessels currently serving the company's traffic). "I'm absolutely thrilled that construction has begun. We set the bar high in terms of reliable ocean freight with low environmental impact, and a ship with both the highest ice class and environmental performance shows how we live up to this. As a state-of-the-art vessel, it's very important for us," **Ragnar Johansson**, Managing Director, **WALLENIUS SOL**, commented.

## Maersk's AE19 sea-rail-sea goes east

The combined service, launched in August 2019 in partnership with **Modul** and **Global Ports**, saw its first eastbound train dispatched from **St. Petersburg** on 28 March. The set – consolidated with shipments that came from the ports of **Rotterdam**, **Bremerhaven**, and **Gdańsk** – carried containers with plywood and chemical products from Global Ports' **First Container Terminal** in St. Petersburg to the group's **Vostochnaya Stevedoring Company** operating in the Russian Far East **Port of Vostochniy**, from which, in turn, the goods headed to a number of Chinese as well as South Korean and Japanese ports (**Dalian**, **Xingang**, **Qingdao**, **Shanghai/Ningbo**, **Busan**, and **Yokohama**). The service is provided on a fortnightly basis. "AE19 service provides our customers not only with a faster delivery solution, but also at a lower cost than airfreight. So far, the service has been used for westbound shipments from Asia to Europe only, however as the service has been experiencing a steady growth since the beginning of 2020, it has further enabled shipments in the opposite direction from Europe to Asia as well. The customer demand to develop the Eastbound service, especially within the automotive, technology, chemicals and industrial verticals, has further led to the launch of this service," **Kasper Krog**, Head of Intercontinental Rail, **A.P. Møller – Mærsk**, commented.

## UECC trialled biobunkering

The shipping line had partnered with **GoodFuels**, a supplier of sustainable marine biofuel, to test the use of the company's Bio-Fuel Oil (MR1-100 or BFO) on the *Autosky* car carrier. A total of some 3,000t was bunkered at the **Port of Rotterdam** during the three-month-long March-May 2020 trial, with *Autosky* continuing to serve the **Zeebrugge-Santander** route. According to the parties' estimations before the trial, switching standard bunker to biofuel will slash the vessel's CO<sub>2</sub> well-to-wake emissions by more than 6,500t. Following the trial period **UECC** and **GoodFuels** will explore further options for continuing marine biofuel uptake. "GoodFuels' BFO is the first ever residual fuel-equivalent biofuel, requiring no changes to marine engines. The biofuel 'drops in' to normal fuel tanks, virtually eliminating CO<sub>2</sub> and substantially reducing SO<sub>x</sub>. Due to the absence of sulphur, the Bio-Fuel Oil can also be used to replace distillate fuels," **UECC** wrote in a press release. "At **UECC**, we pride ourselves on supporting sustainable solutions to the issues that our planet faces. We are excited to play a leading role in accelerating sustainable biofuel uptake for the ro-ro segment. This agreement demonstrates our commitment to reducing the carbon footprint of our existing tonnage and further complements the emissions reductions on our existing LNG fleet, as well as our LNG battery hybrid newbuilds," **Daniel Gent**, Energy & Sustainability Manager, **UECC**, commented. **Isabel Welten**, CCO, **GoodFuels**, added, "This trial will help **UECC** to further prove the applicability and technical suitability of biofuels for the ro-ro segment. Importantly, we also want to prove to leading car manufacturers that biofuels are a great way to immediately decarbonise their cargo and help change the sector for the better."



Photo: GoodFuels



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# market sms

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## THE PORT OF SZCZECIN-ŚWINOUJŚCIE:

15.25mt handled in H1 2020 (-8% yoy)

Despite the overall drop, certain cargo groups noted significant increases, including grains (+99.8% year-on-year to 1.01mt) and liquid bulk (+17.2% yoy to 2.56mt, out of which the turnover of LNG went up by 34.3% yoy to 1.61mt).

### The Port of Szczecin-Świnoujście's volumes

	H1 2020	Yoy
General cargo (excl. timber), out of which	8.18mt	-8.9%
Ferry cargo	6.48mt	-8.8%
Liquid bulk, out of which	2.56mt	+17.2%
LNG	1.61mt	+34.3%
Other dry bulk	1.54mt	-14.0%
Coal	1.20mt	-28.1%
Grains	1.01mt	+99.8%
Ores	701.3kt	-46.5%
Timber	64.7kt	-53.4%
<b>Total</b>	<b>15.25mt</b>	<b>-8.0%</b>
<b>Container traffic</b>		
TEUs	38,855	+19.9%

## THE PORT OF TRELLEBORG:

3.09mt handled in Q1 2020 (+0.7% yoy)

With 3.06mt, the handling of general cargo stayed at the same level as in Q1 2019; dry bulk advanced from 3.0kt to 24kt, whereas liquid bulk went from 12kt down to 10kt. The Swedish port took care of 202,056 ro-ro cargo units over this year's first three months (-1.9% year-on-year), including 196,885 trucks & trailers (-2.5% yoy) and 5,171 railcars (+25.4% yoy). Fewer passengers went through Trelleborg's quays, a decrease of 1.4% yoy to 277,598 ferry travellers. Also, a lower number of pax cars was carried on-board ferries, down by 1.8% yoy to 43,907 vehicles.

## HAPAG-LLOYD:

3,053k TEUs carried in Q1 2020 (+4.2% yoy)

"Although we were able to pick up a bit of tailwind at the beginning of the year, we anticipate that the coronavirus pandemic will have very significant impacts in 2020, beginning in the second quarter," Rolf Habben Jansen, CEO, Hapag-Lloyd, commented. He furthered, "Our main focuses will continue to be the safety and well-being of our employees as well as the supply chains of our customers. We have taken a wide range of measures designed to save an amount in the mid-triple-digit million range to safeguard our profitability and liquidity. We adjust our service network to the lower demand and seek savings in all cost categories, from terminal, transport, equipment and network costs to overhead."

## UTLC ERA:

223k TEUs carried in H1 2020 (+65% yoy)

With 52.5k TEUs carried in May alone, twice as much as in the corresponding month last year, the JV between Belarusian, Kazakh, and Russian railways marked its new monthly record. Additionally, the company transported a total of 34k laden TEUs to Europe in June (+120% year-on-year), while in the opposite direction, to China, some 15k laden TEUs, i.e., double the volume seen in June 2019.

## RUSSIAN SEAPORTS:

410.4mt handled in H1 2020 (+0.1% yoy)

Exports totalled 324.1mt (+0.8% year-on-year), cabotage – 36.2mt (-3.5% yoy), transit – 32.2mt (-0.6% yoy), and imports – 17.9mt (-4.1% yoy). Some 224.7mt of liquid bulk were taken care of (-2.1% yoy), including 128.8mt of crude oil (-6.8% yoy), 75.8mt of oil products (+5.0% yoy), 16.7mt of liquefied gas (+1.6% yoy), and 2.5mt of liquid food (+31.3% yoy). A total of 185.7mt of dry bulk and general cargo was handled (+2.8% yoy), out of which coal accounted for 86mt (-1.7% yoy), in addition to 28.5mt of containerized freight (+1.9% yoy), 17.5mt of grains (+30.5% yoy), 9.4mt of mineral fertilizers (+6.1% yoy), and 6.1mt of ores (+60% yoy). With 127.9mt (-1.7% yoy) the Russian Baltic seaports handled the most cargo, followed by ports in the Azov-Black Sea (+2.9% yoy to 122.8mt), Far East (+3.0% yoy to 108.7mt), Arctic (-9.3% yoy to 46.8mt), and Caspian (+17.8% yoy to 4.2mt).

## FINNLINES:

186k ro-ro cargo units carried in Q1 2020 (-1.1% yoy)

The company's ships also carried 41k vehicles (excl. pax cars), a decrease of 4.7% year-on-year, and 247k of non-units freight, 13.9% less than in Q1 2019. Some 121k passengers (incl. lorry drivers) were carried as well, a downtick of 0.8% yoy.



## TALLINK & SILJA LINE:

186,372 ro-ro cargo units carried in H1 2020 (-3.3% yoy)

Because of the coronavirus pandemic the Estonian ferry line carried considerably fewer passengers, a decrease of 56.6% year-on-year to 1.95m, as well as pax cars, down by 43% yoy to 292,771.

### Tallink & Silja Line's volumes

Route	Q1 2020	Yoy	Q2 2020	Yoy	H1 2020	Yoy
<b>Ro-ro cargo units</b>						
Estonia-Finland	64,739	+8.3%	59,580	-6.9%	<b>124,319</b>	<b>+0.5%</b>
Finland-Sweden	20,574	+4.6%	18,097	-8.7%	<b>38,671</b>	<b>-2.0%</b>
Estonia-Sweden	11,078	+14.9%	8,631	-25.1%	<b>19,709</b>	<b>-6.9%</b>
Latvia-Sweden	3,226	-20.3%	447	-89.4%	<b>3,673</b>	<b>-55.6%</b>
<b>Total</b>	<b>99,617</b>	<b>+7.0%</b>	<b>86,755</b>	<b>-12.8%</b>	<b>186,372</b>	<b>-3.3%</b>
<b>Passengers</b>						
Estonia-Finland	847,818	-15.0%	322,590	-76.7%	<b>1,170,408</b>	<b>-50.9%</b>
Finland-Sweden	469,607	-16.9%	53,984	-93.0%	<b>523,591</b>	<b>-60.8%</b>
Estonia-Sweden	140,544	-9.6%	8,337	-96.9%	<b>148,881</b>	<b>-65.1%</b>
Latvia-Sweden	108,761	-21.3%	3,301	-98.5%	<b>112,062</b>	<b>-69.0%</b>
<b>Total</b>	<b>1,566,730</b>	<b>-15.6%</b>	<b>388,212</b>	<b>-85.4%</b>	<b>1,954,942</b>	<b>-56.6%</b>
<b>Pax cars</b>						
Estonia-Finland	151,492	-11.7%	94,427	-57.7%	<b>245,919</b>	<b>-37.7%</b>
Finland-Sweden	20,000	+2.9%	6,937	-83.9%	<b>26,937</b>	<b>-56.9%</b>
Latvia-Sweden	9,956	-22.0%	900	-94.4%	<b>10,856</b>	<b>-62.3%</b>
Estonia-Sweden	8,844	-14.7%	215	-98.7%	<b>9,059</b>	<b>-66.8%</b>
<b>Total</b>	<b>190,292</b>	<b>-11.1%</b>	<b>102,479</b>	<b>-65.8%</b>	<b>292,771</b>	<b>-43.0%</b>

## DFDS' RO-RO & FERRY DIVISION:

10,079k lane metres filled in Q1 2020 (-4.9% yoy)

Counting 18 metres per truck, the Danish shipping line's vessels carried 559,944 ro-ro cargo units over the first quarter of 2020.

### DFDS' volumes

Business area	Q1 2020	Yoy
<b>Ro-ro &amp; ferry division</b>		
Channel	4,404k lane metres 244,667 ro-ro cargo units 367k passengers	-10.2% -21.6%
North Sea	3,335k lm 194kt freight	+0.7% +11.5%
Baltic Sea	1,140k lm 39k pax	-4.0% -9.3%
Mediterranean	1,087k lm 99k lm	+1.5% -6.6%
Passenger	176k pax	-22.1%
<b>Total</b>	<b>10,079k lm</b> <b>194kt freight</b> <b>579k pax</b>	<b>-4.9%</b> <b>+11.5%</b> <b>-20.9%</b>
<b>Logistics division</b>		
Continent	60.5k ro-ro cargo units	-3.0%
UK & Ireland	46.0k	+8.7%
Nordic	27.7k	-1.8%
<b>Total</b>	<b>134.2k</b>	<b>-0.7%</b>



## HHLA:

1,796k TEUs handled by the company's sea terminals in Q1 2020 (-3.7% yoy)

A total of 1,652k TEUs (-4.1% year-on-year) was taken care of by HHLA's three container terminals in the Port of Hamburg, while the remaining 144k TEUs (+0.1% yoy) were added by the facilities in Tallinn and Odessa. At the same time, the company's intermodal segment contracted by 5.1% yoy to altogether 378k TEUs, out of which the rail division handled 300k TEUs (-3.3% yoy) and the road one 78k TEUs (-11.4% yoy). Angela Titzrath, Chairwoman, HHLA's Executive Board, commented on the results, "Our expectations for the current financial year were marked by optimism; however, we are aware that external conditions for our business have been changing for some time due to a range of factors. The effects of the storms in the spring and the rapid spread of the coronavirus pandemic have nevertheless left a mark on our performance figures." She added, "We have to adapt to a situation that we have never experienced in our company's history and that we cannot influence. 2020 will be one of the most challenging years in the history of HHLA. However, we will use our experience to find ways out of this crisis and continue to successfully develop HHLA."

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## short stories

Photo: Pexels

### Remote Service App

**Liebherr** has expanded its digital product portfolio for crawler cranes, deep foundation equipment, and maritime cranes with the development of a remote service tool, set to improve assistance through visual information, hence lead to faster and easier troubleshooting. Audio and video calls, a chat function, screen sharing, image and document exchange, as well as whiteboarding functions are some of the features that have been integrated in the tool. These enable real-time, fast and effective customer support from Liebherr experts worldwide. Throughout the last 12 months, the company has tested the tool in remote locations and challenging situations in order to meet and adapt to customer requirements. External factors, such as the current pandemic have proven how indispensable the Remote Service App can be. In April this year, Liebherr's customer **Adani Murmugao Port Terminal** required immediate assistance for one of their Liebherr machines; however, on-site attendance wasn't permissible. Using the Remote Service App, Liebherr engineers instructed the Adani staff how to remove the defect pump, inspected the condition of the gearbox remotely, and then guided them through the installation of the new pump. **Manguesh Sangodkar**, Head of Engineering, Adani Murmugao Port Terminal, commented, "The way you plan the job through Remote Service, communicate and execute with your highly professional and technically efficient engineering team is great. In light of your impeccable services,

we would like to continue our association with you for the years to come." Due to the current pandemic situation worldwide, Liebherr has decided to accelerate the market launch of the Remote Service App in terms of an extended test phase. This means all Liebherr customers now have the opportunity to use the solution free of charge until the end of 2020. A laptop, tablet or smartphone, and an Internet connection are all that's needed.



Photo: Liebherr

### Cyber Wellness at Sea Training Programme

**Seagull** and **Videotel** have launched a video aimed at helping seafarers achieve a healthy balance between the virtual and real world, outlined by three principles: respect for self and others; safe and responsible use; and managing non-work screen time. With Internet connectivity at sea growing rapidly amongst the world's fleet, there are many advantages for seafarers being able to keep in close contact with family and friends, as well as using the Web during rest periods for entertainment in the form of games, TV, and access to social media. However, it is important that seafarers carefully manage their screen time as too much can lead to increased fatigue and lower concentration levels when on duty which may adversely affect performance. Equally, excessive use of the Internet may also result in less socialising with colleagues which can heighten feelings of isolation and loneliness. The Cyber Wellness at Sea Training Programme follows the latest industry guidance and gives tips on how to achieve each of these principles and identifies the risks that can occur through overuse of smart phones, tablets, laptops, and social media. At a little under eight minutes running time, it has been produced with a millennial audience in mind using production techniques designed to engage this target audience.

"This new programme is very timely as Internet use at sea is increasing exponentially especially during these uncertain times. Whilst connectivity is clearly a big positive, it is important that online use is managed properly and that personal devices don't become addictive and detrimental to mental wellbeing. By following the key principles outlined in this programme, seafarers will achieve a healthy balance between their on-device and real-world interactions," **Raal Harris**, MD, Videotel, and Creative Director, **Ocean Technologies Group**, said. The video is available to order and will be listed on the Seagull and Videotel training libraries.

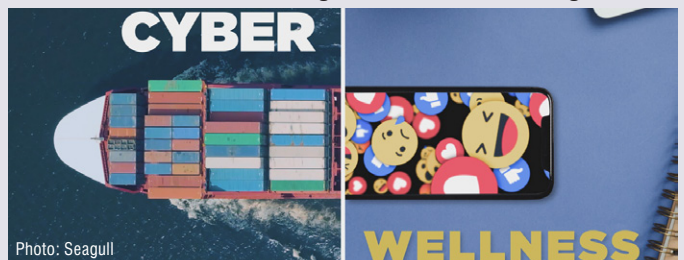


Photo: Seagull

## HHLA's CTB uses machine learning for container dwell time prediction

**Hamburg Port Consulting (HPC)** and **INFORM** have implemented an innovative solution for predicting the container dwell time at the **Container Terminal Burchardkai (CTB)**. Based on machine-learning technology, the new terminal operation systems (TOS) add-on solution assists in improving container stacking and optimizing the pick-up handling. The "dwell time" term is used to measure the period during which a container remains at the terminal covering the interval from its seaside arrival up until leaving the terminal on truck, rail, or vessel. So far, for the so-called import containers there is no specific information available on the pick-up time by truck upon stack-in slot selection. This can lead to an inefficient container yard storage location. This, in turn, results in a high risk for additional shuffle moves requiring extra resources, maintenance, and energy. To mitigate this operational inefficiency, the project partners have utilized machine learning technology to predict the individual container dwell time, so as to reduce import container re-handling. Basing on historical data of container moves at **HHLA CTB** over a period of two years, HPC has used a deep learning approach to identify hidden patterns and process this information into high quality data sets. Assessed by the Syncrotess Machine Learning Module from **INFORM** and validated by the HPC simulation tool, the results show a significant reduction of shuffle moves resulting in a reduced truck turn time. "Utilizing machine learning and Artificial Intelligence and integrating these technologies in existing IT infrastructure are the success factors for reaching the next level of optimizations," **Jens Hansen**, Executive Board Member responsible for IT at **HHLA**, commented. He furthered, "A detailed analysis, and a smooth interconnectivity between all different systems enable the value of the improved safety while reducing costs and greenhouse gas emissions." To this **Alexis Pangalos**, Head of Software Engineering, HPC,

added, "Data availability and data processing is an important key when it comes to utilising AI technology. It requires a detailed domain knowledge of terminal operations to unlock greater productivity of the terminal equipment and connected processes." The integration into the slot allocation of the existing TOS system, Integrated Terminal Control System (ITS), ensures its user-friendly usability. The algorithm works in the background and further optimises its prediction, based on the running operational data. "INFORM's Machine Learning Module allows CTB to leverage insights generated from algorithms that continuously learn from historical data," **Dr. Eva Savelsberg**, Senior Vice President of **INFORM's Logistic Division**, highlighted. The Dwell Time Prediction TOS-add on solution is terminal-specific and can be adopted to other facilities as well.



## EU-electrification of the Valencia port

The **European Commission's Connecting Europe Facility Committee** has approved aid for two projects in the **Port of Valencia** that will facilitate connecting ships to the electricity grid. The first of these, the **Global EALING Project (European Flagship Action for Cold Ironing in Ports)** expresses the need to accelerate efforts to tackle climate change, improve the security and performance of ports, contribute to the transition to cleaner energy for maritime transport services provided in port areas, and meet the new conditions arising from the technological

breakthrough towards electrification. The project will focus on carrying out the necessary studies on building new or upgrading existing onshore power supply (OPS) infrastructure in order to prepare the final tender documentation. The objective of the second project, **EALINGWorks Valenciaport: Preparation of the Electrical Grid of the Port of Valencia for Onshore Power Supply**, is to prepare the port's electrical grid for the secure supply of increased energy demand coming from container vessels, ferries, and cruise ships that will call to the Port of Valencia's new terminals.

## CSL to construct 2+2 autonomous e-ferries

The Norwegians from **ASKO Maritime** have commissioned the Indian **Cochin Shipyard (CSL)** with the delivery of two electric ferries that will operate on their own, plus an option to build two more sister ships. The project is partially funded by Norway's government, as it'll help to provide emission-free cargo transportation across the Oslo Fjord. Each of the 67 m-long vessels, powered by 1,846 kWh-strong batteries, will be able to transport up to 16 fully-loaded trailers in one go. The ships have been designed by **Naval Dynamics Norway** using **Kongsberg Maritime** systems, with detailed engineering to be carried out by **CSL**. They will be built under **DNV GL** classification and fly the Norwegian flag. The vessels will be managed by **Massterly**, a JV between **Wilhelmsen** and **Kongsberg**, said to be the world's first company set up to take care of the operational and technical management of autonomous ships.





## PortXL & Rotterdam port join the Québec Laurentia project

The **Port of Québec** has announced the signing of new memorandums of understanding with seven partners from across the maritime, transport, and research sectors – including the Rotterdam-based marine-tech accelerator **PortXL** and the **Port of Rotterdam** – with the goal of creating a worldwide ecosystem of maritime and port intelligence and innovation in Québec, along with making its seaport the smartest on North American shores. To that end, an innovation zone will be created with the help of PortXL.



## The Coalition

Eleven international companies – **Amazon Web Services**, the **Carrefour Group**, the **CMA CGM Group**, **Cluster Maritime Français**, **Crédit Agricole Corporate and Investment Bank**, **Engie**, **Faurecia**, **Michelin**, **Schneider Electric**, **Total**, and **Wärtsilä** – have joined forces to accelerate a sustainable energy transition in transport and logistics, thus help in fighting global warming and protecting biodiversity. The Coalition members are pooling their expertise in pursuit of three key goals to achieve technological breakthroughs with tangible results by 2030, including unlocking a more extensive

portfolio of clean energy sources; lowering energy consumption per kilometer-equivalent of goods transported; and eliminating a substantial proportion of emissions linked to transport and logistics. The Coalition has established nine working groups to devise concrete projects that will help shape the energy sources of the future, revolving around alternative low- or zero-carbon fuels (hydrogen and bio), climate-friendly vehicles, a digital door-to-door lowest environmental impact route planning system, or increasing the eco-performance and market competitiveness of multimodal transports.

## Post-COVID-19 cyber security

The **World Port Sustainability Program (WPSP)** has released the *Port Community Cyber Security* white paper – prepared in cooperation with **ICHCA International** and **TT Club**, and assembled together with **Next Level Info** and **Maritime Street** – as part of its efforts to encourage ports to digitalize in the post-COVID-19 era. One major outcome of the intensive work in recent weeks by the **International Association of Ports and Harbors' (IAPH)** WPSP's Covid19 Task Force has been the very urgent need for ports to digitalize processes and data exchanges as the industry moves toward a post-corona modus operandi. This conclusion has led to IAPH organizing an industry call to action in the first week of June which has culminated in a joint communiqué by various maritime industry associations to the **International Maritime Organization (IMO)**. This is also now being matched in practice with the publication of the white paper in question, which serves as a guide to those ports now gearing up for digitalization. “With the world’s attention now focused on exiting from lockdowns and preparing for a ‘new normal,’ there is an urgent need for inter-governmental organisations, governments and industry stakeholders concerned with maritime trade and logistics to come together and accelerate the pace of digitalization so that port communities across the world can at least offer a basic package of electronic commerce and data exchange,” **Patrick Verhoeven**, Managing Director, IAPH, said in the paper’s foreword. He also underlined, “Increased digitalization of port communities means ports will need to pay increased attention to cyber security risks.” Each chapter in the paper explores a different dimension of the cyber conundrum, with practical recommendations, advice, and examples. These include: why cyber security is such a vital issue for port communities looking at trade, regulatory, geopolitical and defense dimensions; the importance of ‘speaking the same language’ around cyber security; what is commonly missing in port community cyber security and practical

suggestions on steps to increase cyber resilience; the essential building blocks for a cyber resilient port community; as well as current cyber security provisions in the IMO rules and the potential evolution of the Port Facility Security Officer role for the future. The report also contains a Glossary of Cyber Terms in order for the document to reach beyond IT-articulate professionals in the port industry. “We began by creating and publishing our now bi-weekly Port Economic Impact Barometer report for the wider maritime community. We then developed the WPSP COVID-19 Guidance document for ports with the accumulated work of the WPSP-IAPH Task Force. We now offer this Cyber Security white paper, again by port experts for ports. We sincerely hope that this practical, pragmatic approach towards assisting our membership and the world’s ports communities overall will help us overcome the challenges all of us face in the post-COVID-19 era. Digitalization will be key to future port safety and efficiency,” Verhoeven concluded.



## Autonomous guard vessels

The works of a project group facilitated by **LISA**, a community for maritime professionals, have led to the establishment of a consortium (incl. **C-Job Naval Architects**, **SeaZip Offshore Service**, **Sea Machines**, **MARIN**, and **eL-Tec elektrotechniek**) that has recently unveiled a concept design of an autonomous guard vessel (AGV). The AGV, smaller and lighter than most current guard vessels, is specifically designed for surveillance of offshore structures throughout their life cycle, ranging from wind farms to substation platforms and cable routes. With any area that needs to be secured, the AGV can continuously monitor nearby marine traffic visually as well as via radar and AIS data. With any vessel that approaches the area, measures will be taken to secure the area in order to avoid collisions and damage to the offshore infrastructure. An intruding vessel can be communicated with and will receive information on how to safely navigate the area as well as being physically escorted away from the site by the AGV. Additionally, the encounter will be recorded to provide video footage in case of any violation or accident. "Guard vessels perform an essential job, however, it is not the most exciting one for crew. Combined with the fact that conventional guard vessels are mostly outdated and thus aren't necessarily the most comfortable let alone sustainable, it can be difficult to find well-trained crew willing to do the job," **Pelle de Jong**, Founding Partner, LISA, explained. He furthered, "The group set out to improve upon the overall process of securing an offshore area while incorporating sustainable solutions and reducing overall cost. By utilizing the knowledge we have as a group as well as the technology already available, we succeeded in creating a design which does this and more." **Rolph Hijdra**, Autonomous Research Lead, C-Job Naval Architects, also said, "We are pleased we were able to develop a battery-powered design, ensuring the Autonomous Guard Vessel is free of harmful emissions. Additionally, the ship has solar panels across the top which allows for the continuation of navigation and communications in case the batteries run out of power. Contrary to current guard vessels, the AGV will continue to be operational

even with rough sea conditions and have minimal underwater noise owing to the smaller size, reduced propulsion requirements and absence of a diesel engine." The AGV will recharge its batteries via a charging station, which can be moored independently or connected to existing equipment on-site. Depending on the situation, charging could either be via a cable connection to the on-site equipment, such as an offshore transformer platform, or locally generated using renewable fuels. The consortium envisions an offshore site will need a number of AGVs. **Harm Mulder**, Operations Manager, SeaZip Offshore Service, commented in this regard, "The Autonomous Guard Vessels will be constantly patrolling the area and take turns recharging. One fully charged AGV will remain on stand-by supporting operations if a situation arises. For example, when an intrusion is detected – one of the AGVs will monitor, warn, and escort the intruding ship to safety, while the others continue normal operations. Alternatively, it could take over from a monitoring vessel in case the battery runs out of power." The consortium partners have also considered human intervention for the unmanned vessel. Conventional guard vessels patrolling offshore structures, from installation through to decommissioning, have few incidents that require intervention from the crew. In those exceptional circumstances the AGV, if human intervention would be required, will be connected to a command center, which could control the AGV remotely to ensure correct action is taken. In addition, all data collected by the AGV will be sent to the command center (either a standalone on a mother ship or a shore-based station). **Frank Relou**, Business Development Manager, Sea Machines, summed up, "Smart vessel technology will have the most significant initial impact on small workboats, such as this guard vessel. The development of autonomous technology for vessel operations are occurring on an international level but namely in niche segments, such as the guard vessel and other examples, currently operating in (with supervised autonomy), marine survey, fire, patrol, aquaculture and offshore wind operations."

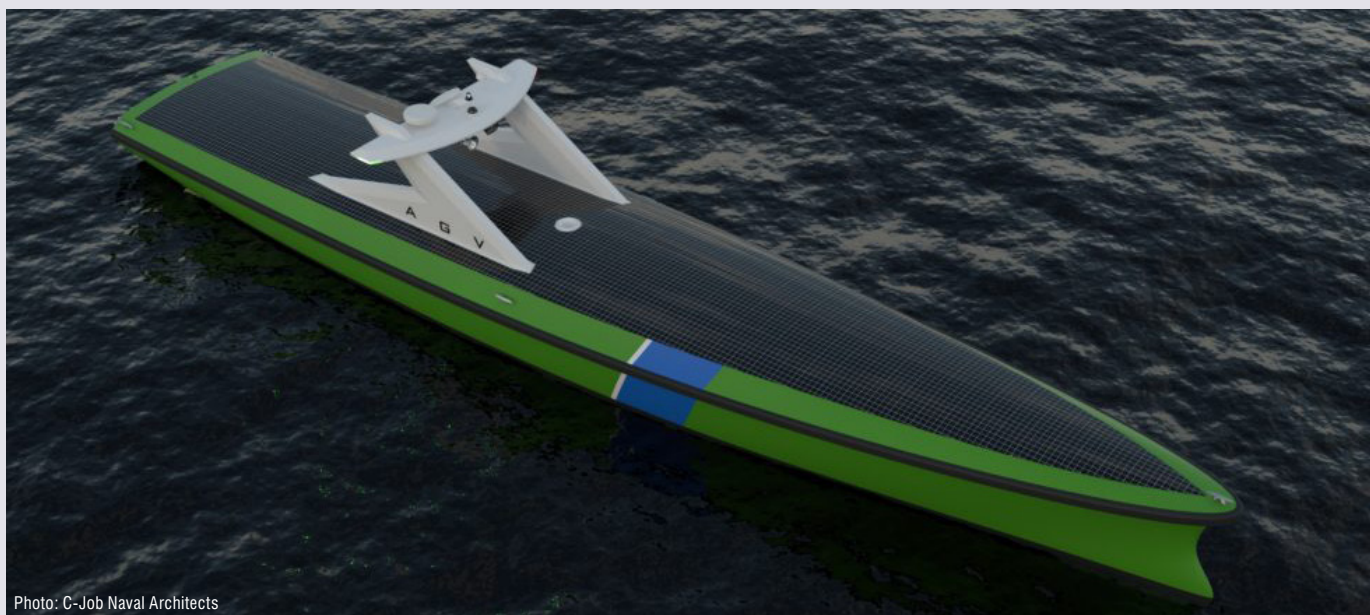


Photo: C-Job Naval Architects

## Drones in Szczecin-Świnoujście

The port authority, together with the specialists from **c5studio**, will implement an unmanned aerial vehicle system to aid the ports' security and environmental protection. The drones will be used not only for surveillance (i.a. driving other drones from port areas), but

also as an aid in firefighting and search & rescue actions as well as monitor the air & water quality (incl. possible methane or oil leakages). In addition, the drones will be able to image underwater structures and the seabed, inspecting, e.g., whether quays are in good condition.



## World's first tiltable rotor sail

**Norsepower** together with **SEA-CARGO** has developed a tiltable version of its rotor sail, two of which will be installed on the latter's side door ro-ro SC *Connector*. The 35 m-tall machinery is scheduled for mounting in Q4 2020. According to the parties, using wind power will reduce GT 12,251-big SC *Connector*'s emissions by 25%. Developing an almost horizontal tiltable solutions has been necessary as the vessel plies across a route that requires navigating under multiple bridges and power lines. "We are delighted to be working with SEA-CARGO, not only as they are keen to demonstrate their commitment to maximising the propulsive power of wind to reduce emissions, but also for their cooperation and innovation in making tilting Rotor Sails a realisation," **Tuomas Riski**, CEO, Norsepower, said. He further explained, "Rotor sails are particularly well suited to ro-ro vessels and working with SEA-CARGO to deliver a tilting Rotor Sail ensures we are providing an adaptable solution which fits with particular vessel requirements, specifically demonstrating vessels with height restrictions to benefit from the Rotor Sail solution." **Ole Sævil**, Managing Director, SEA-CARGO, also said, "With a

growing international focus on reducing CO<sub>2</sub> emissions and other gases/particles – the ability to harness wind to generate energy, reduce fuel consumption and emissions is a natural next step for the maritime transport industry." Sævil also highlighted, "In good wind conditions, the sailing hybrid vessel will maintain regular service speed by sail alone."



Photo: Norsepower

## Molslinjen's e-ferry to be fitted with Corvus Energy's ESS

**Hvide Sande Shipyard, Steeland Service** has commissioned the Bergen-based tech-company to supply its energy storage system (ESS) for the fully electric ferry. The newbuild (designed by **JJohannesson Maritime Engineering** and **OSK-ShipTech**) – able to take on-board up to 396 passengers and 35 cars – is scheduled to come online between **Esbjerg** and **Fanø** in September 2021, replacing the 1962-built *Sonderho*. **Corvus Energy** will deliver the ESS in the first half of 2021. "We

commend the Danish team in this project for showing that environmentally friendly solutions and good business go hand-in-hand. Denmark maintains a strong position in the maritime industry for innovation and environmental stewardship. It is a pleasure to take part in this project and support emissions reductions by increasing the number of hybrid and full-electric propelled ships in our waters," **Kim Strate Kiegstad**, VP Sales Denmark, Germany and Benelux, Corvus Energy, commented.

## Hydrogen and e-fuels co-op established in Denmark

**Copenhagen Airports, Maersk, DSV Panalpina, DFDS, SAS, and Ørsted** have partnered to develop an industrial-scaled hydrogen and e-fuel production facility in the Greater Copenhagen Area. Should the parties give the investment a final green light after conducting a feasibility study, most likely in 2021, the plant will be erected in three stages. First, a 10 MW electrolyser will be put into operation by 2023, producing hydrogen that can be used by busses and trucks as fuel. Second, the electrolyser will be scaled up to 250 MW by 2027, powered by electricity coming from the **Rønne Banke** offshore wind farm. Besides producing hydrogen, the facility will also capture carbon from point-sources to produce methanol, to be used as bunker, and jet-fuel (e-kerosene). Third, the electrolyser will be upgraded to 1.3 GW as a result of the Rønne Banke coming fully online. Ultimately, a total of up to 250kt/year of sustainable fuels is planned to be produced at the plant. "To become competitive with fossil fuels, the production of sustainable fuels will need to be matured, built at industrial scale, and go through a cost-out journey similar to what has been seen over the past decade in other renewable energy technologies, such as offshore wind, onshore wind and solar PV. As an example, the cost of offshore wind has declined by approx 70% in Northwest Europe since 2012. For this to happen, governments and industry must come together to create a framework that incentivizes private investments in large-scale sustainable fuel production," the parties underlined in a press release. The partnership will now engage in dialogue with the regulatory authorities on the framework and policies needed to support the development

of using sustainable fuels at scale in the transport sector in Denmark, and to seek public co-funding to conduct a full feasibility study. If the analysis confirms the viability of the project vision, a final investment decision for the first stage of the project could likely be taken next year. "This project gives Denmark a unique opportunity to spearhead the green transition in the transportation sector: We get to utilise Danish strongholds in, e.g., wind energy, and join forces in the electricity, district heating and transportation sectors. Cooperating across sectors and fostering partnerships among cities, companies and universities is exactly how we create real value and new sustainable solutions," **Lars-Peter Søbye**, CEO, **COWI** (a consultancy that alongside **BCG** will act as knowledge partner for the project), said.



## Cat commissions Yaskawa Environmental Energy/The Switch

**Caterpillar** (Cat) has entrusted the Japanese-Finnish duo with the delivery of an innovative package of electric drive train technology for a series of bulk carriers. **The Switch** will deliver two permanent magnet (PM) propulsion machines and four PM generators, which capture mechanical energy and convert it into electric power, as well as two DC-Hubs, two Electronic Bus Links (EBL), and 20 Electronic DC Breakers (EDCB) for each vessel. "The Switch DC-Hubs [...] offer a flexible choice of power generation, energy storage, charging, propulsion and clean power, while the EBL links and protects them. Its unique ability to detect, cut and isolate any potential system error within just 10 microseconds greatly increases vessel redundancy. EDCBs are installed to protect the individual frequency converters within the DC-Hubs," the companies highlighted in a press release. "The [Cat Marine's] Twin Fin concept is a game-changer within the industry, delivering enhanced power and manoeuvrability, but with decreased energy consumption and emissions. Our innovative drive train technology has been selected to facilitate peak performance and reliability. We see this as a milestone win and huge endorsement

of our flexible, economical and environmentally friendly solutions," **Ville Parpala**, Director, Product Marketing, Marine, **Yaskawa Environmental Energy/The Switch**, commented.

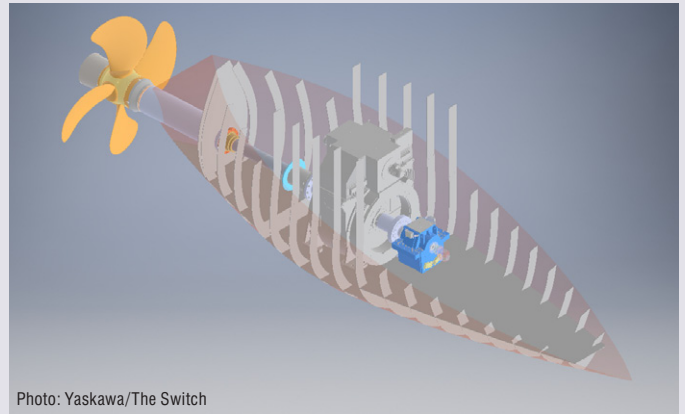


Photo: Yaskawa/The Switch

## Copenhagen fitted with a rotor sail

After a few months of preparations, **Scandlines'** ferry was equipped, within a couple of hours, with **Norsepower's** Rotor Sail during a scheduled overnight stop in the **Port of Rostock**. The cylindrical sail is 30 m-tall and has 5 m in diameter. The solution is fully automated and detects whenever the wind is strong enough to deliver emission savings – in the case of *Copenhagen* an estimated 4-5% – at which point the Rotor Sail starts on its own. "We are delighted to announce this latest successful installation of the Rotor Sail [the fourth completed by Norsepower], which demonstrates that retrofitting can be achieved without any interruption and downtime to day-to-day commercial operations," **Tuomas Riski**, CEO, Norsepower, said. He added, "With increasing international regulatory and public pressure on the maritime industry to decarbonise, it is essential for the industry to recognise the value of one of the oldest forms of propulsion – wind. The market for wind propulsion is increasing, and this installation demonstrates how combining all methods of vessel optimisation is key to broader progress." **Søren Poulsen Jensen**, CEO, Scandlines, highlighted, "We see huge value in investing in technology with the ultimate goal of reducing emissions. Working with Norsepower on this innovative solution was a perfect fit with our values and ambitions regarding sustainable shipping. On our modern, hybrid ferry, this solution will sit alongside hydrodynamic hull optimisation, and a hybrid electric propulsion system with a battery powered

energy storage system, improving not only our efficiency but also profitability. We look forward to seeing the instant benefits of this technology." Riski added to this, "Scandlines has a strong track record of investing in new clean technologies that save emissions on-board its fleet. The addition of Norsepower's Rotor Sail makes *Copenhagen* one of the world's most energy-efficient ferries."



Photo: Norsepower

## Hydrogen co-op in Gävle

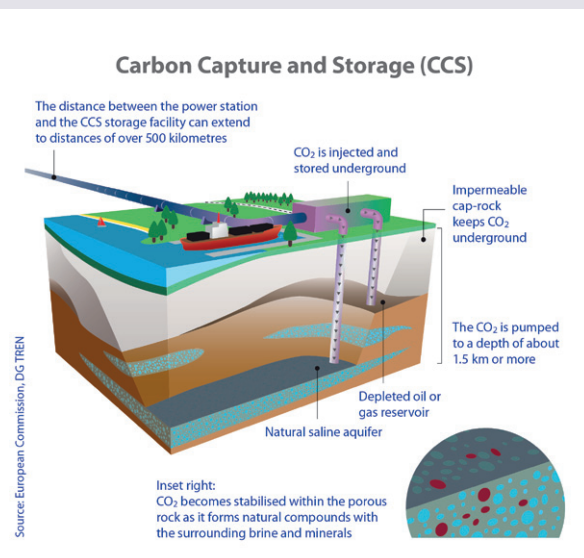
The **Port of Gävle**, **Gävle Energi**, and **Statkraft** have partnered to investigate the opportunities to produce, store, use, and sell hydrogen as an energy source. The parties will now carry out a preliminary study, to be ready by this summer, in which they'll specify the practical, commercial, and legal conditions necessary for making the investment decision. As such, they'll probe the location of the production facility, storage, and a fuelling station; the availability of and demand for electricity and water; as well as try to forecast the future hydrogen fuel cell demand or even in what ways excess heat from the production process can be utilised. "This is one of the many opportunities for the Port of Gävle to offer its operators and clients long-term sustainable port operations. It also makes it possible to set up infrastructure to make

transportation, to-and-from the port as well as across the region, more sustainable in the future," **Fredrik Svanbom**, CEO, the Port of Gävle, commented. **Malin Eriksson**, Head of Marketing, Gävle Energi, also said, "It's encouraging to see this type of cooperation taking place in the Port of Gävle. It feels both good and natural to be jointly contributing to a green transition of the transport industry, among others." **Per Rosenqvist**, responsible for developing the hydrogen part of Statkraft's business, added, "Statkraft is Europe's biggest supplier of renewable energy and we believe that renewable hydrogen will be absolutely essential in making future transport carbon-free. This project increases the possibility for such a development taking place thanks to contributing to transitioning towards a fossil-free transport sector."



## Liquefied CO<sub>2</sub> to be shipped through Gothenburg

Göteborg Energi, Nordion Energi, Preem, St1, Renova, and the Gothenburg Port Authority (GPA) have established the CinfraCap venture tasked with investigating the logistics of transporting and storing captured carbon dioxide for onward shipping. The parties have commissioned the consulting company COWI to carry out a prestudy – half of which will be financed by the Swedish Energy Agency's Industrial Evolution climate initiative – focused on finding the optimal means of collecting captured CO<sub>2</sub> and then transporting it to the Port of Gothenburg for storing and shipping out, as well as assessing the risks, identifying what permits will be needed, and presenting a business model. The prestudy is due for completion in Q1 2021. The CO<sub>2</sub> will ultimately be injected into a repository site. As such, CinfraCap is also working on the Northern Lights project, a full-scale CO<sub>2</sub> storage location off Norway's west coast, scheduled to be operational in 2023/2024. "We must speed up the process if we are to achieve our climate goals and collaboration is the best way forward. We expect to be able to transport two million tonnes of captured carbon dioxide per year from our quayside facility and to do so we must have an efficient infrastructure," Elvir Dzanic, Chief Executive, GPA, commented. Karin Lundqvist, Business Developer, Preem, added, "We are starting up CinfraCap in western Sweden although the ultimate aim is to share our experience and the business model behind the carbon capture infrastructure with the rest of Sweden and the world. We are joining forces with other partners to ensure the requisite resources are in place to rapidly reduce the climate impact of companies and contribute to a sustainable future."



## ABP implements drone & cloud asset management

Following an 18-month-long programme, Associated British Ports (ABP) have embedded drone technology into its asset management practices and policies. The port company utilised PwC's specialist drone digital transformation team to support drone adoption and transformation in asset management, while Aerodyne Group, a DT3 (drone tech, data tech, and digital transformation) solutions provider, was selected as ABP's drone service provider. Development in the past six months has been focused on extensive site testing with Aerodyne across eight locations in the UK. "Analysis and data collection from the flights has demonstrated considerable cost saving and benefits; operations were safer, 25% more cost effective; and took 55% less time compared to traditional methods for selected assets," ABP said in a press release. In parallel, ABP worked with Aerodyne and PwC to build a drone visual asset management system which enables its teams to view asset condition dashboards, asset management information and build inspection reports, with only a browser required to access. Mike McCartney, ABP's Group Director Safety, Engineering and Marine, said, "After an initial proof of concept with PwC, we realised drones could offer significant value to our asset and property inspections, using drone and data

technology integrated with a secure cloud platform. They are safer, faster and more cost-effective, enabling us to optimise operations and reduce risks." He furthered, "The cloud platform we've built with our partners gives our teams simple and intuitive access to the drone information, including the ability to build inspection reports in the browser, aligned to our existing asset management systems. Without a doubt, this is a big step forward in ABP's digital transformation and safety journey using the latest available technology." To this Steve Russell, Partner at PwC, added, "It can be complex to implement drone technology and our team of digital transformation experts have supported ABP through the drone case for change, vendor selection and implementation, ensuring a systematic and low risk approach to making technology work for their business. ABP chose Aerodyne Group after our work with them on vendor selection and we are pleased to work with Aerodyne, noting their leading cloud software platform, local capability and significant global scale, with more than 300,000 infrastructure assets inspected across 25 countries." ABP's next project is the development of an in-house drone capability to complement the Aerodyne solutions and it has just retained PwC's specialist drone team to assist with this critical implementation.

## Wärtsilä-DNV GL digital co-op

The two parties have signed a memorandum of understanding aimed at tightening their cooperation so as to contribute to the marine industry's ongoing digital transformation. Specifically, Wärtsilä and DNV GL will jointly work in the areas of collaborative (big) data sharing and standardisation, autonomous ships, advanced remote services, new bridge technologies, and cyber security. "The marine industry stands to benefit enormously from our rapidly expanding and unprecedented capabilities in collecting, compiling, processing, analysing, and distributing data digitally. Wärtsilä is committed to leading this digital transformation that will undoubtedly lead to greater efficiencies, better safety, and sustainability. We look forward to working with DNV GL to accelerate this transformation," Roger Holm, President, Wärtsilä Marine, underlined. Knut Ørbeck-Nielsen, CEO, DNV GL – Maritime, added, "At DNV GL, we are committed to using digitalization to

help our customers extract the maximum value from their data. Working together with Wärtsilä, we can identify and minimize the barriers to data sharing, provide innovative class and assurance services, and find ways to capitalize on the new possibilities this opens up for shipping. Enabling greater sharing requires building trust, and DNV GL has worked to enable this, for example with our independent platform Veracity which provides seamless sharing, while ensuring the quality of data and algorithms our customers rely on." Andrea Morgante, Vice President, Strategy & Business Development, Wärtsilä Marine, summed up, "This important collaboration between a marine industry technology leader and the world's leading classification society will help to standardise and shape the regulatory environment, and will also enable the innovations needed for the sector to achieve the decarbonisation goals set out by the IMO [International Maritime Organization]."

## featured articles



Photo: Volvo

# Charge!

by **Gabrielè Vilemo Gotkovič**

**Rechargeable lithium-ion batteries could become the ‘new gold’ in the carbon-neutral future. In fact, the decarbonisation of cars, trucks, and power grids depends on this fast-improving technology. Batteries are expected to become one of the 21<sup>st</sup> century’s key developments, and the market looks forward to being worth tens of billions of euros by the middle of the 2020s. One million plug-in cars are needed to be sold in 2020 to meet the EU’s car CO<sub>2</sub> standards, and achieving the bloc’s 2030 goals requires sales to go up by 40%. As a result, the European Commission has launched the EU Battery Alliance, championed by 16 gigafactories, to support the creation of a green battery value chain catering to Europe’s demand.**

**U**nlike combustion engines that literally burn oil, batteries do not combust lithium or other minerals such as cobalt and nickel, which can be fully recovered and used again. As such, battery-powered vehicles are already, from a life-cycle perspective, better than traditional ones. However, they still have an environmental impact, which should (and can) be minimised in order to achieve the EU’s climate and environmental objectives. Successful policy design has to consider sustainable battery production, reuse and recycling, as well as responsible sourcing of raw materials globally to maximise industrial, climate, and societal benefits.

### **A market-driven by regulations towards sustainability**

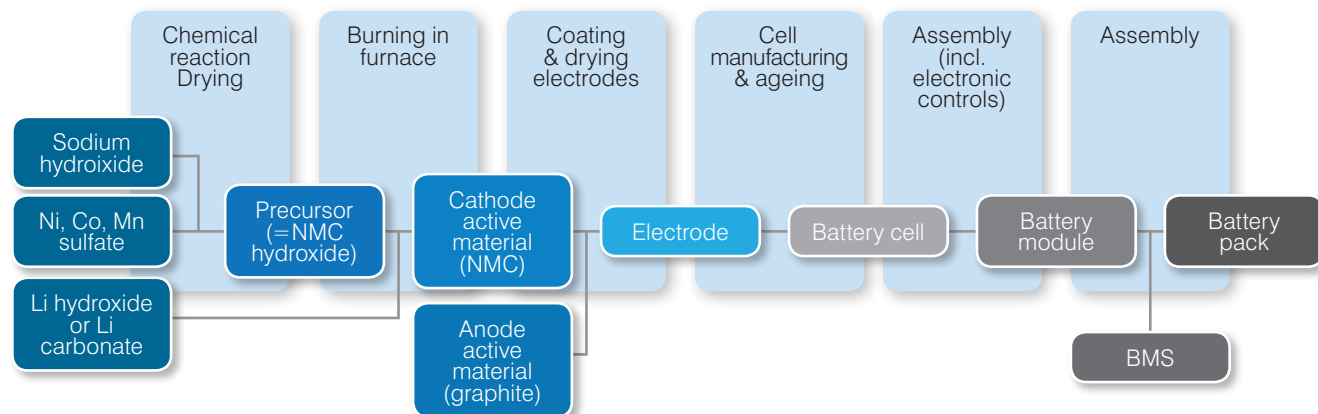
Just as for conventional cars, upstream emissions in electric vehicles (EVs) are associated with their production phase, notably of lithium-ion batteries (LIB). Unfortunately, little robust, primary up-to-date data is available on the 20 odd materials, as well as complex and fast-evolving

processes used in LIB cell, module, and pack manufacturing. The recent report by Circular Energy Storage, commissioned by the Brussels-based NGO Transport & Environment (T&E), highlights the current climate impact range of LIB batteries to be between 39 kg CO<sub>2e</sub>/kWh and 196 kg CO<sub>2e</sub>/kWh, roughly the same as driving a diesel car 11,800-to-89,400 km.

The T&E’s policy brief on battery regulations in Europe outlines the following reasons for this wide spectrum. First, there is a significant absence of current primary data, with much modelling based on studies dating back as far as 1999. While the earlier pilots have a higher per kWh energy input, the new gigafactories demonstrate a significantly lower energy use due to economies of scale and process efficiency gains. Secondly, the lack of a consistent calculation methodology often completely ignores the reuse and recycling potential. At the moment, industrial LIB recycling is mainly limited to portable batteries, excluding the volumes of batteries from end-of-life EV vehicles. Consequently, this makes



**Fig. 1. Key chemistry phases in Nickel-Manganese-Cobalt 111 (NMC) battery manufacturing**



Source for figs. 1-2: T&E's GREEN POWERHOUSE. T&E blueprint for battery regulation in Europe (2019)

it significantly more challenging to accurately account for the real-life impact of different recycling processes.

On this account, the urgent first step for the EU battery regulations needs to be put in place to maintain a robust and up-to-date database of emission factors for different battery materials and processes which are at the cell level and are factory-, process-, and location-specific.

The production of battery cells is the most energy and carbon-intensive part of making LIB, responsible for as much as 75% of energy consumption. Figure 2 shows an exemplary breakdown of different steps for Nickel-Manganese-Cobalt 111 cell chemistry (currently on the market but getting fast outdated). The detailed data on the latest chemistries, such as NMC811 (eight parts nickel, one-part manganese, and one-part cobalt), is not readily available, yet these are expected to have lower carbon footprints. Nonetheless, the figure pinpoints the general battery emissions 'hot spots' that should be taken into account when legislating future EU battery regulation.

To reduce carbon and environmental footprint of battery production, the EU sustainable performance requirements should incentivize, support, and foster deploying waste heat recovery processes, along with technologies to green the preparation of precursors. Huge improvements can come from better cathode coating techniques that would make the cathode powder mixing and coating processes more efficient. The design of the future EU regulations should also seek to incentivize the set-up of vertically-integrated local supply chains in order to drastically reduce transport emissions as well as stimulate the future battery production facilities to be located near low-carbon energy sources.

It is important to speed up this process so as to lower the overall carbon footprint of batteries. This much-needed acceleration can gain momentum via a comprehensive

regulatory strategy. Mandatory requirements on all battery manufacturers whose products are found on the EU market are necessary to measure and report each battery's carbon and energy footprint. Next, once accurate data have been collected and data verification process established, a mandatory CO<sub>2</sub> threshold should be considered in order to ensure that all future batteries follow manufacturing best practise. Finally, EU research & innovation funding should focus on improving battery manufacturing processes, e.g., better coating techniques, industrial waste heat recovery processes, and environmentally-friendly and efficient recycling.

It is as equally important to ensure a sustainable battery design strategy. For instance, the use of hazardous materials in manufacturing should be phased-out and tightly controlled to spur innovation into better methods, materials, and toxic-free battery value chains. Batteries should also be durable and have a long lifecycle, where the design of battery cells and packs incorporates circularity from the outset to facilitate disassembly, repair, and recycling.

Ultimately, innovative technologies should be incorporated into battery management systems to provide standardised access to key battery parameters and usage data. A 'battery passport' would enable innovative and smart services by providing comprehensive and extensive information on the product. Both static (i.e. battery production date & location, carbon footprint) and dynamic data (remaining capacity & fade and voltage drop, charging history, etc.) could be used to make the most of batteries, especially if we consider their multifunctionality, when, e.g., EVs could serve as energy storage points for the power grid.

### The circular battery

When battery performance is no longer good enough for a car or a truck (less

range, worse acceleration, etc.), it should be reused in less demanding applications like in forklifts or as a stationary energy storage/buffer in high power charging stations (to reduce peaks). Such second-life batteries will provide extra storage flexibility on the grid, allowing for higher penetration of renewables across Europe. It is therefore important to incentivize longer lifetime and remove any barriers for reuse applications.

The ultimate goal is, however, to fully recover all the valuable materials (lithium, nickel, cobalt) found in batteries at the end of their lives. While few people today question the benefits of recycling, as it helps to secure critical materials in Europe, currently the market for LIB recycling is in China where EU batteries are usually sent. An important finding from one of the studies conducted by Element Energy indicates that Europe has inadequate recycling capacity, estimated today at 33kt/year, deemed insufficient should currently in use EVs reach the end of their lifecycles in 2030 onwards. Similarly, there is almost no commercial-scale LIB recycling in Europe as things stand today, the majority of "recycling" companies providing low-value collection or shredding only. Europe should perceive battery recycling as an asset, not a burden, and an opportunity to create local industries and jobs.

### Batteries made responsibly

The growing battery demand for mobile and grid applications has put into spotlight the key metals used in lithium-ion technology, namely cobalt, lithium, and nickel. The attention has especially turned to the implications of the EV boom has had on cobalt, particularly the working conditions in the mines of the Democratic Republic of Congo (DRC), where around two-thirds of the global cobalt production are situated at present.

The transition to a zero-emission economy in Europe should not come at the expense of others. On the contrary, if done responsibly, increased demand for

Fig. 2. Energy used in MJ per kWh of Nickel-Manganese-Cobalt 111 (NMC) battery cell (excl. casting)

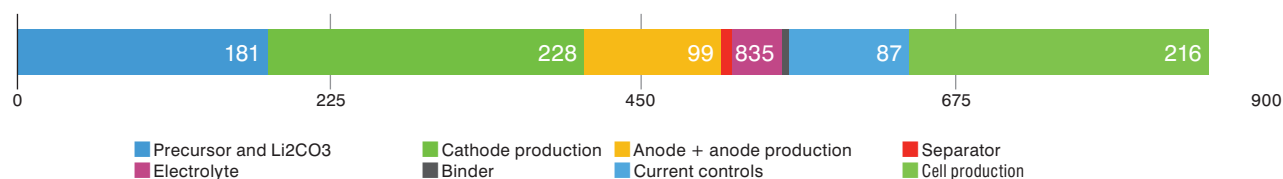


Photo: Tesla

minerals mined in countries such as the DRC could help support much-needed development. Nonetheless, this necessitates socially- and environmentally-responsible ways of sourcing materials. It is important to acknowledge that mining challenges in places like the DRC are much deeper and older, which makes them no better than widely criticised practises in oil and gas industries. Instead of bashing electric cars, the European community should use their increasing market share as a leverage to put pressure on downstream companies to clean up their supply chains as well as on governments, to put solid governance

structures in place to solve problems in both large-scale and artisanal mining in a comprehensive and pan-industry manner.

Various certification schemes have sought to improve sourcing of materials (copper, tin, gold, and cobalt), e.g., the voluntary OECD Due Diligence Guidance for responsible supply chains, supported by the Responsible Business Conduct guidelines, acknowledged by many as the best practice example in the field. T&E's comparative analysis of the six largest global supply chain certification schemes applicable to the industrial cobalt production in the DRC shows that while most schemes are comprehensive in their design and sustainability criteria, they nonetheless lack rigorous and independent enforcement. Crucially, traceability on where cobalt is extracted and access to transparent information on mining conditions remain most schemes' Achilles heel.

The focus, therefore, should be on better enforcing of what is already in place. Fortunately, the previous OECD guidelines on responsible supply chains have already been integrated into national or supranational legislation on conflict minerals (tin, tantalum, tungsten, gold), such as the US Dodd-Frank Act or the EU Conflicts Minerals Regulation – but do not currently apply to cobalt, nickel, or lithium.

A single, reliable, and enforceable mechanism on which to base supply

chain due diligence, and the choice of suppliers across all the materials, will also benefit the EU battery industry, which often gets lost in the myriad voluntary schemes applicable to individual metals. Companies should not be pulling out of, e.g., the DRC completely or blankly refusing to buy from small-scale miners; instead, downstream companies should work with and require their suppliers to improve mining conditions and refining practices. In other words, the EU trade and development policy should help European companies source materials sustainably via smart investment to improve safety, health, and working conditions in developing economies.

#### 'round the corner

Batteries – whether in vehicles or, at the end of their life, as second life storage applications – offer a readily-available distributed energy resource and can store electricity cheaply, facilitating far greater integration of renewables into Europe's energy market. The EU has the chance to ensure responsible corporate behaviour across the supply chain by making green objectives mandatory instead of voluntary.

The e-mobility revolution is just 'round the corner, and Europe is rightly prioritising battery value chain development in its industrial strategy. ■

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# Data-driven sustainability

by **Dario Zingariello**, *Marketing and PR, myclimate*

**A new tool provides the commercial vehicle sector with new means to fight climate change. Companies can track the amount of greenhouse gases (GHG) emitted by their vehicle fleet and then offset these emissions through the Swiss foundation myclimate.**



myclimate, a science-based and business-orientated foundation, is a partner for effective climate protection – both locally and globally. The Swiss non-profit organisation wants to shape the future together with its partners through consultation, education, and climate protection projects. Click [www.myclimate.org](http://www.myclimate.org) for more info.

**C**limate change concerns all players, economy- and society-wise, not least the transport sector. The CO<sub>2</sub> emissions of a transport vehicle over its entire service life depend on fuel consumption, mileage, and a plethora of other factors. In the transport industry, it is still unusual for companies to offset their fleets' CO<sub>2</sub> emissions. In addition, until now there has been a lack of solutions for simply and reliably recording and calculating the GHG emissions of a transport vehicle worldwide.

## Transparent 'carbon life cycle' telematics

With the support of the Swiss foundation myclimate, the internationally active also Swiss telematics service provider LOSTnFOUND AG has developed an innovative addition to its fleet.tech solution. Now, the dashboard not only gives fleet managers an overview of the efficiency and safety of the vehicles in their fleet but also shows the CO<sub>2</sub> emissions of each vehicle, measured in tonnes. The methodology for calculating the ecological performance of a vehicle registered with fleet.tech is based on the 'life cycle' approach. This means that in calculating the vehicle's CO<sub>2</sub> footprint, the processes and their environmental impact are taken into account

proportionately from the beginning (manufacture) to the end (disposal) of its life.

Customers register their fleets in a database containing over 30k vehicle types, entering details such as year of construction, manufacturer, model, exhaust emission standard, etc. The system then records all journeys using GPS and other consumption data and automatically calculates the emissions and the necessary CO<sub>2</sub> offsetting amount in Swiss francs or euros. Customers can then voluntarily offset the amount of CO<sub>2</sub> per vehicle produced within 6, 12, or 24 months – and do it with a single mouse click. The system automatically produces an invoice and an individual myclimate offsetting certificate.

Daniel Thommen, Founder and Managing director of the LOSTnFOUND Group, underlined, "We pass on 100% of the money received from customers for CO<sub>2</sub> offsetting to the myclimate foundation. The CO<sub>2</sub> balance sheets and evaluations that we prepare are free of charge for our customers. By providing an uncomplicated CO<sub>2</sub> offsetting mechanism, we would like to make our more than 2,000 customers aware of the CO<sub>2</sub> emissions of their vehicle fleets and offer them a simple tool for charging extra for climate-neutral transport."

Stephen Neff, CEO, myclimate, added to this, "The transport and logistics industry is essential for our daily lives and our economy. The associated CO<sub>2</sub> footprint can now be offset, and the industry can make a contribution to achieving global climate targets. We are, therefore, pleased that the design of the fleet.tech solution also took the issue of CO<sub>2</sub> emissions into account. The CO<sub>2</sub> data and the possibility of offsetting through our foundation help fleet operators to act in a more climate-friendly way, immediately and without any complications." As such, it is up to the carrier to decide whether to pass on the offsetting costs to its customers or not.

### Shape of the future

Championing voluntary quality offsetting measures, myclimate promotes quantifiable climate protection and long-lasting development worldwide. The foundation engages itself in various emission reduction projects, such as when encouraging to replace fossil fuel with renewable energy sources as well as by implementing

energy-efficient technologies. Additionally, through interactive and action-oriented educational programmes, myclimate encourages everyone to make a contribution towards a climate-friendly future. With this goal over 20k pupils and more than 8k apprentices have been reached in Switzerland, and a worldwide network of 1.6k students and young professionals has been established.

Moreover, the foundation offers consultancy on integrated climate protection with tangible added value not only in Switzerland but also abroad, thanks to partner organisations. myclimate provides this through analyses, IT solutions, labels, and resource management; services range from simple carbon footprints for businesses over sophisticated product life cycle assessments to performance management. Its clients include small-to-medium-to-large businesses, public administrations, non-profit organisations, event organisers, and even private individuals. All in all, it's about actively shaping our future – a sustainable one that is. ■



**TIDEWORKS**  
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# Three steps to sustainability

by **Caroline Karlsson**, *Communication & PR, Lindholmen Science Park AB*

**Triple F, a research & innovation (R&I) programme of the Swedish Transport Administration, has been launched to aid Sweden's transport industry in its transition towards fossil-free operations. By enabling and facilitating comprehensive cooperation between the various stakeholders, it is expected to deliver actionable knowledge thanks to which in-country transport-related CO<sub>2</sub> pollution will go down in line with the nation's ambition of becoming, by 2045 at the latest, one of the world's first welfare countries with no net greenhouse gas (GHG) emissions. Changing the face of transportation is key in hitting that goal.**

## TRIPLE F

FOSSIL FREE FREIGHT

Triple F is the Swedish Transport Administration's research and innovation initiative contributing to the transition to fossil free freight transport in Sweden. Triple F's headquartered in the Lindholmen Science Park in Gothenburg, with local offices also in Stockholm, Linköping, and Lund. The project's partners are always welcome to visit us and discuss ideas. We also welcome anybody who'd like to take advantage of our facilities to meet and work. For more info on the initiative, its partners, and projects please head to <https://triplef.lindholmen.se/en>

It'll be a balancing act – to bring about a relatively fast transformation that doesn't undercut Sweden's competitive position. It'll require putting in place an all-embracing transport system in which functionality takes centre stage. Challenges will be numerous and specific for different modes and regions. A common target, cross-sectoral collaboration, science-based grit work, and strong leadership will be what it takes to turn ambition into reality.

### Two goals

The vision behind Triple F is to gather Sweden's top experts under one banner to work towards an agreed-upon goal. Their work, in turn, will serve as the basis for politicians to pass new legislation that facilitates the transition. Moreover, as the country is respected as a reliable partner, it can become a role model for others who also think conscientiously about the importance – and urgency – of reaching the global climate goals as agreed in Paris a few years ago. Exchanging experiences and sharing best practices will be instrumental in combating global warming.

As such, the programme has set two targets for itself. First, to foster, through research & development, innovative solutions – improving existing as well as helping to create entirely new ones – that will make it possible to establish a fossil-independent transport system. Second, to set up a platform for building and disseminating competence among stakeholders. To do so, Triple F will PhD-train future experts by engaging them in solving challenge-driven projects that will encourage cross-disciplinary know-how as well as personal mobility. The programme's works are divided into three focus areas: policy, technology, and logistics.

### Policy

This area is tasked with producing knowledge and tools to be used to hammer out a roadmap to reach Sweden's climate target in a cost-effective way. The country sets out from its already agreed aim of decreasing domestic CO<sub>2</sub> emissions by at least 70% in the 2010-2030 period.

It'll be of paramount importance to provide both the private and public sector with incentives in order for them to implement,

in succession, sustainable transport solutions, either by decreasing their dependence on fossil fuels or making a U-turn altogether. Measure types include administrative (regulations), economic (taxes, fees, subsidies), informative (info campaigns, support with procurement), R&I (research financing strategies), and social ones (infrastructure planning, public consultations). The tricky part will be to thoughtfully assess how these measures, taken alone as well as in combination, should be designed to help in reaching the climate goal without bringing about significant unwanted side effects, also Europe- and global-wise.

### Technology

It will be impossible to make the transport system fossil-free without eco-friendly technology, including ways that will decrease transport work, make available new fuel sources, and increase energy efficiency. This focus area will examine the possibilities, solutions, and the societal impact of new types of vehicles, infrastructure, energy carriers, all coupled with the increasing digitalisation of the transport & logistics business. That said, Triple F experts will also look into opportunities how to make better use of what is already in place, e.g., increasing infrastructure capacity by better planning transport flows, i.e., through increasing vehicle utilisation rates. The

overarching goal is to surface knowledge, thanks to which tech-solutions can be implemented faster, in a more cost-effective manner, and in a sustainable fashion.

What's important to fathom is that Triple F does not finance technological development – its task is rather to publicise the effects thereof and to put the spotlight on what technology can do in Sweden's pursuit of becoming a net-zero GHG country. In addition, the development and uptake of new technologies is heavily-reliant on what is statutory in the legal framework. As such, another task will be to ensure that well-researched solutions that deliver on their eco-promises can be legally implemented, so that private and public stakeholders won't have to make their way through a grey area – or not to advance at all out of fear of being suddenly cut short from the technology in which they invested.

### Logistics

However, sometimes completely transparent to the general public, smoothly operating logistics is one of the backbones of a functioning welfare state. If Sweden wants to become a country independent of the use of fossil fuels, then new effective and secure transport solutions, that meet the demands of both the industry and the society, need to be put in place.

Logistics is, in fact, the end result of the two aforementioned focus areas – policies that take into account the challenges and opportunities of the 21st century make it possible to develop technologies that address the former and make the most of the latter, i.e., enable the introduction of innovative logistic solutions, both on the IT and hardware operational front as well as how these two interconnect for added supply chain value. That said, the relation between the three resembles more of a spider's web instead of a strict linear line, as research into logistics can give valuable input on what is needed technology- and policy-wise. In detail, this focus area will pay particular attention to the development of sustainable transport chains and, accordingly, to the rollout of new business and employment models.

### Bringing it to the port

Triple F is a broadscale and multidisciplinary consortium that draws together expertise from all of Sweden, representing the society, industry, academia, and research institutes, all of which gives us a unique chance to tackle all the complex issues associated with making the country's transport system fossil-free. It won't be an easing task, but through cooperation, we'll – as the Swedish saying, used to describe an ultimately successful undertaking, goes – bring it to the port. ■

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The treacherous waters  
of going beyond the limits  
of classic terminal operating systems

Poto: Rawpixel

# How to spot a fake cloud TOS

by **Harry Nguyen**, *Founder and CEO, Realtime Business Solutions*

**The ongoing digital revolution is remorseless. More and more data sources and interfaces need to be integrated. More and more market participants need or want to receive information in real-time. Increasing data volume slows down terminal operating system (TOS) services and makes them sluggish. If possible, all processes should be automated. Cloud TOS – through the ability to control an entire terminal via the browser on a laptop or even a mobile device – offers operators an opportunity to future-proof their operations. In principle, this is already possible today. However, operators should pay attention to what exactly is called a “cloud solution.”**



**R**ealtime Business Solutions (RBS) is a wholly-owned Australian company formed in 1991 and specialized in the development of software applications for the terminal container handling industry as well as providing consulting services to the container shipping and rail businesses. RBS' portfolio includes installing terminal operating systems all over the world, from its home turf in Australia and nearby New Zealand to Europe (France, Germany, Italy, Lithuania, Romania), Asia (Japan, Indonesia, Taiwan, Vietnam), Africa (Egypt, Togo), and the Americas (Brazil, Panama). For more info on the company's solutions and expertise, please visit <https://rbs-tops.com>

**b**efore going “all-cloud,” TOS customers should ask themselves simple, yet vital questions: what data is located here – and exactly where? Will only hosting of the previous terminal computer be relocated and the user can only connect to the system in a different way – and how many steps does it actually take to access? Is the system flexible enough to accommodate for future upgrades?

## **Fake TOS drives out genuine?**

Technological advancements yield new opportunities for the maritime sector in transforming and innovating conventional methods of handling terminal operations. One of the latest movements established in the industry, which has induced higher efficiencies in operations and expanded its target market to terminals of virtually any size, is Cloud TOS. The benefits of having a genuine Cloud TOS are evident, which brings us to the question of why the adoption in our sector is moving so slowly?

Cloud computing is a powerful tool, requiring in-depth knowledge and specialized expertise to incorporate correctly into

a TOS. A Cloud TOS has transpired as a great concept, and while a few to none successfully curated a full TOS entirely on the cloud, others struggled to emulate it into fruition. As such, translating the technology into architecture and software posed a challenge that some early adopters integrated a fake Cloud TOS, which exposed them to a manifold of vulnerabilities. When desired results failed to emerge, all Cloud TOS on the market lost its credibility and foothold in the industry.

Shortcomings undermining real cloud technology advantages derive from terminal operators failing to differentiate a forged from a pure Cloud TOS. To remedy the situation and help terminal operators make an educated decision before spending a lot of money, let's go through four avoid-and-do steps when investigating whether we're dealing with the real thing or just a sales pitch sham.

## **Non-real-time connection**

In any TOS, either on-premise or on the cloud, a true real-time architecture is necessary for driving precision in

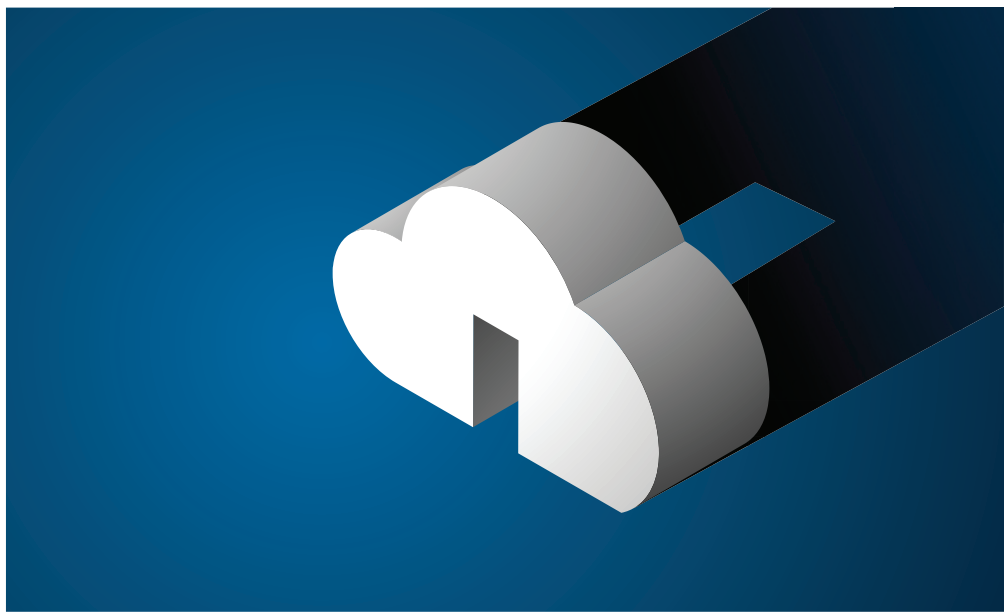
decision-making. The key is to avoid taking transaction processing for real-time. Standard TOSes are quite commonly characterized by the former, which entails a system-oriented method that ingests data statically and sequentially. Due to the inflexibility in planning, data becomes liable to redundancy, and information is no longer reliable to make accurate or optimized decisions. If system hang occurs frequently and the number of container re-handles is high, underperformance is likely linked to the TOS forging a real-time connection.

Instead, it's better to adhere to a web-based TOS that conceives instructions from data always in the most updated state. A TOS embodying a true real-time architecture devises from a centralized server infrastructure that facilitates parallel processing, in-memory start-up, and support multiple applications running in simultaneity. A genuine, real-time environment streamlines processes, optimizes resources, and makes accurate decisions so that terminals can achieve maximum efficiency.

#### **Requires virtual machines to run (inhibits instant access)**

An authentic Cloud TOS exists as a software-as-a-service (SaaS), and therefore, system start-up is warranted by login through a web browser. However, if the software is hosted on a virtual machine and requires remote desktop login before running and logging into the application, the TOS is exhibiting a fake cloud infrastructure. Not only does using a virtual machine add a layer that creates several unnecessary steps before allowing access, but it also reduces the data processing speed. Outcomes of inefficiency, slowed usability, and high cost of implementation are all tell-tales of a fake Cloud TOS. Terminals are therefore urged to recognize these red flags since a system infrastructure of this type is equally resource intensive as it is financially exhaustive, all of which are not characteristics of cloud computing.

A real cloud solution is, in contrast, transparent; data are leveraged on a real-time basis and access is granted immediately through any web-enabled device. Truth be told, any Cloud TOS that strays from core cloud principles won't deliver operational or financial benefits. As such, be diligent when selecting a TOS on the cloud from a pool of providers and take the initiative to question every aspect concerning the systems infrastructure, architecture, and functionality. A real Cloud TOS divulges true constructs of real-time architecture and drives massive cost savings from removing the responsibility of hardware and infrastructure of the terminal operator's hands.



#### **Requires upfront CAPEX/high implementation costs**

A TOS that truly manifests cloud characteristics is a cost-effective solution that can offer the full scope of capabilities as an on-premise TOS. However, this isn't very easy to accomplish if the system design of an alleged Cloud TOS requires tens of servers to function and perform efficiently. Due to the plethora of servers needed to run a TOS, it is evident that the expenses and implementation costs aggregate ridiculously. A hefty invoice indicates a poor knowledge of cloud semantics which failed to convey in software development.

Terminal operators, instead, must seek for a Cloud TOS that can sustain a centralized infrastructure with a minimal number of servers. Only then can the system achieve real-time processing and subside implementation costs to a minimum. Migrating data to the cloud creates a shared responsibility between cloud and TOS providers. As the former manages data warehouses and cloud facilities while the latter administers the software, an environment of using fewer machines and hardware implicitly frees up capital to allocate to profitable projects. Terminal operators are, in turn, able to gage tremendous visibility over their operations and use these resources to exercise their competitive strategy.

#### **Unable to easily and economically scale resources**

A fake Cloud TOS refuses to future-proof operations since its rigid architecture cannot efficiently scale or seamlessly integrate various modules to accommodate growth in container throughput. As a result of the limited expertise and knowledge of the cloud, any changes in

architecture or infrastructure will not be economical. The conception of a Cloud TOS was to eliminate barriers of entry and introduce autonomy to smaller terminals. Although a TOS with simple functionality may cater to existing business requirements, what if operations change or the terminal expands in the future? Terminal operators, therefore, must steer clear from TOS providers lacking an innovative direction or failing to articulate their product roadmap clearly. In short, terminals are already falling behind if they're only planning for now.

A TOS truly on the cloud is both data and system agnostic, so terminal operators hold a crucial responsibility in adopting a flexible Cloud TOS. A true Cloud TOS has the dynamic capacity and innovative functionality to respond efficiently to fluctuations in container throughput. Similarly, a TOS accurately portraying cloud attributes upholds the power to be cost-effective and interoperable when new modules append to the existing scope of capabilities. Neglecting diligence in selecting the correct TOS can impose many dangers, one being technologically inept in a world that is finding it challenging to survive independently.

#### **Cloud TOS reloaded**

Although advancements in technology may become disruptive, rejecting its presence may close avenues that prevent more efficient methods for running terminal operations. That not only degrades the terminal's market position, but it drives a downturn in the economy. The industry must rise from the misconceptions of the cloud and understand its incredible potential. With a newly-formed understanding of the critical detectors, it is easy to differentiate a fake from a true cloud TOS solution. ■

From business as usual to business unusual

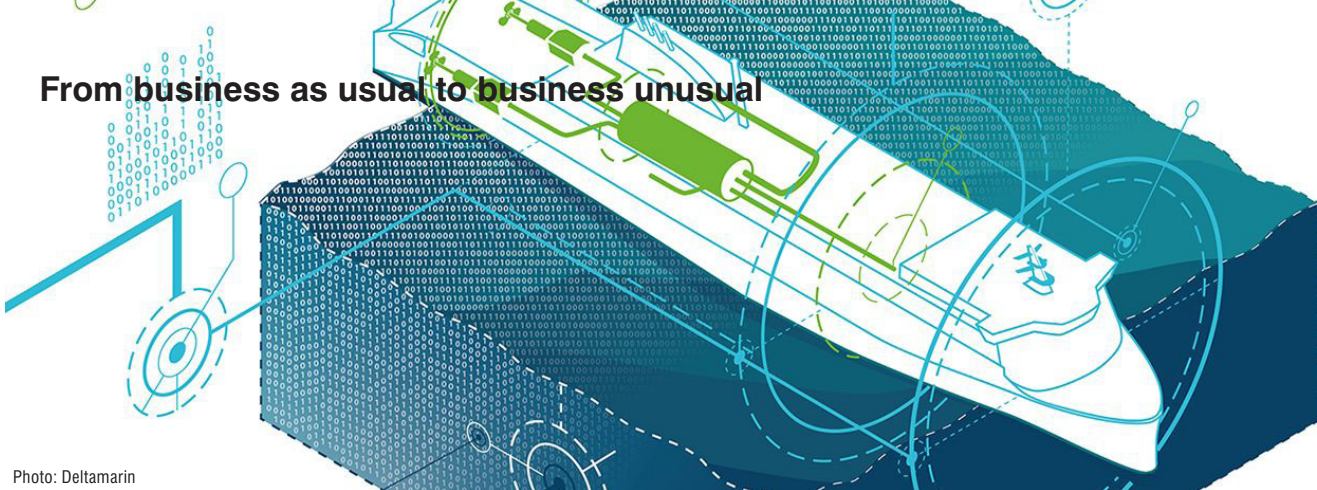


Photo: Deltamarin

# Is your ship future-proof?

by **Esa Jokioinen**, *Director, Sales & Marketing, Deltamarin*

**Traditionally in the shipping business, technology development and adaptation have been steady and incremental. The markets have preferred proven solutions and compliance at the lowest costs. As a result, the uptake of new technologies and alternative fuels has been relatively slow. That said, this status quo seems to be coming to an end in the near future.**



**D**eltamarin, part of the AVIC Group, has nearly 30 years of experience in providing ship design, offshore engineering, and construction support services for marine and offshore industries worldwide, incl. fit-for-purpose designs in all ship types and offshore vessels as well as delivering services throughout a vessel's life cycle (or even upgrading it to the next level). Deltamarin is powered by 400 experts based in Finland, Poland, China, and Croatia. For more info, please check [www.deltamarin.com](http://www.deltamarin.com)

**T**he International Maritime Organization's (IMO) ambitious greenhouse gas (GHG) strategy means massive emission reductions need to be achieved during the next few decades. This will require the industry to take more radical actions in the implementation of new technologies and alternative fuels.

Up to now, the GHG-related regulations have not been retroactive. This may also change in the future as the global fleet emission reduction targets might not be within reach without measures also aimed at the existing fleet. The ongoing discussion around the Energy Efficiency Existing Ship Index at the IMO Marine Environment Protection Committee level is one of the examples of what may lie ahead.

These uncertainties have made many shipowners both concerned about the future of their existing fleet and cautious about their investments before there is clarity on future requirements. Carbon dioxide has created risks that can relate not only to regulations but also charter contracts and the financing of new ships. Theoretically speaking, there is a risk that vessels that were built quite recently will have a lot shorter lifetime than expected, or

at least require a costly modification to remain competitive in the market. The other side of the coin is that CO<sub>2</sub> may become a differentiator in the markets and provide opportunities for those who are able to turn it into a competitive advantage.

For the shipping industry, the situation is now very challenging. It seems that no single technology available today alone seems to be the holy grail to meet the industry's long-term targets. At least not in such a way that full implementation would be fully commercially viable today across the different and already existing fleets. Consequently, it also seems likely that, in the journey towards carbon neutral shipping, the industry will largely have to rely on various bridging solutions for quite some time, e.g., fuel-flexible solutions that can facilitate the transition from the traditional bunker, via lower carbon footprint fuels, eventually to the carbon-neutral alternative.

## Rethinking technology adaptation

No matter what regulatory scenario of the future one might believe in, it is obvious that, to remain competitive, the vessels of the future need to be more flexible



to adapt to increasingly rapidly changing market conditions.

It is also important to remember that the future is not only about the challenges around GHG and fuels. With the rapid development of technologies, there will always be opportunities for those who are prepared to take advantage of what is available. For instance, developments in digitalisation and electrification are providing new opportunities at an increasing pace. Digitalisation can aid decarbonisation, e.g., by reducing a ship's energy consumption and improving utilisation by optimising the entire logistics chain. It may also bring disruption to some sectors in the future by enabling vessels to sail with a reduced crew or even without on-board manning. Many shipowners today are also implementing battery installations, and at the same time making provisions for increasing battery capacity at a later stage once the technology has matured enough for their needs.

Ideally, a vessel designed today should be "future-proofed," i.e., designed with resilience against the most probable future challenges and capable of adapting to the identified opportunities that will be enabled in the years to come. Future-proofing requires the industry to start thinking in a new way, though. Technology adaptation can no longer be seen as one-off special projects, which are mass-executed rapidly when required, in shipping typically just ahead of the entry into force of new regulation. Technology adaptation should be rather a strategic and continuous process that can adjust itself to the expected future requirements of the business. The ship should be designed in such a way that it can accommodate this process to the extent that is technically and economically feasible and seen as probable during its life cycle. This, of course, is easier said than done.

### **"Curveball" architecting for the future**

Ship design plays an important role in the GHG challenge. From a performance point of view, there has been a gradual development over the past decades where, e.g., the propulsion power requirements have decreased at about 1% per year pace merely due to more sophisticated design and analysis tools and to the industry's increased focus on these issues. However, gaining an extra percentage point in hydrodynamics is becoming increasingly difficult due to physical constraints. Also, even if the trend continues, this will not be enough to reach future targets.

This means that the industry will need to "stop copying" and incrementally

developing the existing designs. To design a vessel that will perform throughout its operational life, one must consider that the coming decades will be a transition era towards carbon-neutral shipping, and many other technological boundary conditions will also be likely to change.

Approaching the design from this angle can be called future-proofing; identification of the potential changes over the asset's lifetime and having necessary plans and preparations to deal with the most significant risks and opportunities. That said, future-proofing a ship design is a real "curveball" for the naval architect, so it requires a clear context and process to be able to manage it successfully. The designer and shipowner should first systematically evaluate the contexts of the future-proofing. While decarbonisation is the most obvious context, a holistic future-proofing exercise should not just limit itself to that. Future-proofing aspects could be examined from various contexts, including trends in business requirements, upcoming rules and regulations, and technological developments.

Including the ship lengthening option already in the initial design is one very simple and well-known example of future-proofing. This means that the vessel structure has been architected and built in a way that the jumboising process can be done easily, maybe at the vessel's mid-life. It requires little investment and compromise on the structural side, but it pays off in the form of saved money and dry-docking time if the conversion is done, for example, due to a need for higher capacity, or that of a different type altogether, during the ship's 'best before.' The question to be answered is whether investing the money already when building the vessel is justified considering the probability and time horizon of such an upgrade. The answer may be "yes" or "no," obviously, depending on the strategy of the owner. However, having a ready-calculated price tag estimate for such a provision before the vessel specification has been finalised makes decision-making a lot easier.

Future technology implementations, or fuel conversions, can in principle be approached in a similar manner. Make an estimate of the ship design implications of future modification and estimate the difference in price and vessel performance. Finally, based on the probability of the need for such a modification, decide if preparations should already be made at the design stage or not.

Another example of this could be to design the ship's control systems, automation, and connectivity to allow later upgrade for remote control from shore

for some of the on-board functions. Particularly for the offshore industry where the crew costs make for a big part of the OPEX, introducing this kind of operation might disrupt the competition one day. Unless the control architecture is designed to accommodate such an upgrade, the conversion might just be impractical and too expensive to do at a later stage.

### **Digital-driven design**

Future-proofing, like all aspects of ship design, is traditionally iterative and the level of detail increases with the number of iteration rounds. This creates a challenge because it has often been difficult to explore the practicality of interlinked design criteria variations and draw conclusions about the actual practicality before the design has sufficiently matured. Concept design is also often time- and budget-constrained, which again often leads to the examination of only a few variations, if any.

At Deltamarin, we have noticed the importance of being able to quickly examine the different options and scenarios early in the design process while maintaining reasonable technical accuracy. Consequently, we have invested a significant part of our R&D effort in developing our digital toolkit which can, among other things, facilitate "future-proofing" studies which can be used as a basis for decision-making for the fundamentals of a ship project.

Tools are an enabler, but it is obvious that a design tool makes no difference without competent personnel and seamless collaboration with the customer. The lessons learned from our recent customer projects have acted as an inspiration to develop these tools to be able to answer the difficult questions that have been asked by customers during the design and engineering processes.

We have had the privilege of working with the industry's most forward-thinking customers who have encouraged us to challenge the traditional way of approaching a design project. The focus can no longer be only on short-term gains. This still does not mean, however, that the vessel will not already be required to be competitive in all aspects today.

During the coming weeks and months, we will release articles and case studies about our experiences and approach to future-proofing ship design. This will include insights into the customer benefits of our new toolkit, inclusive of DeltaWay, DeltaSeas, and DeltaKey. The vessels designed and built today will be sailing through the techno-ecological transition era of the next decades. It's high time to start thinking in a new way. ■



## Why e-freight forwarders will claim the road market for themselves

Photo: InstaFreight

# Young (digital) blood

by Matthias Arnhold

Putting things in football terms, the complex analogous processes in European road freight should receive a red card. In the 2020s, the real-world supply chain should be augmented, from start to finish, by its digital counterpart. Luckily, more and more companies from across the transport & logistics domain, including incumbents like Shell, are starting to trust start-ups. This 'collision' between the old and new has all the potential to bring about positive development.



InstaFreight is an online B2B forwarding company that enables fast and easy processing of freight transports, both for shippers and carriers, including quoting prices; booking, managing, and controlling the status of a shipment; handling of documents; as well as optimising transport utilisation rates. For more info, please visit [www.instafreight.de/en](http://www.instafreight.de/en)

The figures are staggering: German start-ups collected €6.2b in investments last year, and according to one consulting firm, this was an increase by more than 35% on the result from 2018. While the established industries in Germany are mainly located in the South and the West, the start-up ranking paints a completely different yet very clear picture, in which the capital of the Federal Republic of Germany, which alone scooped €3.7b from the €6.2b figure, leads the chart.

### Future logistics: clever minds, more transparency, lower costs, less administrative work

One of these promising companies, which transforms the logistics industry through digital solutions, is located in one of Berlin's most well-known districts, the multicultural melting pot called Kreuzberg. The digital freight forwarding company InstaFreight, founded in 2016, focuses primarily on road freight transport on the European continent. The company is managed by Phillip Ortwein and Maximilian Schäfer, both of whom are Co-Founders and Managing Directors. "A rapidly

growing company like ours certainly does not depend on us alone," both say when asked about their role. "We rely on the know-how and the high-level commitment of all our employees – in Berlin as well as at our second location in Poland," they underline.

Shortly before the turn of the year, the number of employees at InstaFreight exceeded the level of 100. "In addition to the IT infrastructure, we invest our money in clever minds with whom we want to achieve our goal of a digitally organized supply chain more quickly," says Schäfer. The two don't want to hide the fact that Berlin, as an attractive and internationally oriented city, is an advantageous location when it comes to recruiting. "Of course, this also explains, to no small extent, the leading role of the German capital as a magnet for start-up investments in our country," the two explain.

Yet, one could wonder, why set up a forwarding agency when there are already thousands on the market? The idea behind InstaFreight is to transfer and improve functioning solutions from the analogue age of freight transport to the digital era, but they have by no means

reached their efficiency limits. “Logistics, as it is today, will no longer exist in ten years. Anyone who does not invest in digital solutions or cooperate with digital players now will not be able to survive on the market in the long term,” says Schäfer. “With our digital freight forwarding concept, we use the possibilities of information technology for more effective supply chain management. In short, it boils down to these three goals for the implementation of our claim: more transparency, lower costs and less administrative work. In this way, in particular small and medium-sized freight carriers can find a suitable business with InstaFreight, optimise their capacity utilisation and thus become more profitable,” says Schäfer, listing the core elements for successful digital freight forwarding.

### **Unnecessary effort**

Fresh figures from the company show that this business is already successful. More than 5,000 transports per month are currently running on the InstaFreight platform. In contrast to a freight exchange, the young company – like any other freight forwarder – is the contractual partner for each of these transports and, thus, the liable party for shippers and carriers. In its digital platform, InstaFreight already unites more than 10,000 carriers that make their transport capacities available on European roads. This is now done for more than 1,600 shippers who make use of the services offered by InstaFreight.

“Specialists, for example, in heavy load logistics, will continue to be successful in their niche in the future. But from our point of view, digital freight forwarders will claim the market for themselves in the long term for full truckloads in long-distance traffic,” Ortwein and Schäfer explain. The InstaFreight founders are sure of this, because they can see how much unnecessary effort is still involved in analogue price queries or paper-based document management. Last but not least, the time saved reduces the costs for the client of transport. In their view, in order to be even more efficient, it is necessary to overcome old ways of thinking in addition to one’s own efforts, “There is still a thinking along the lines of ‘our interest first’ prevailing in some areas, and everyone is trying to remain in charge in their area of the supply chain. But it is precisely transparency that allows potentials to be raised and processes to be streamlined. Here, the transport business in particular and logistics in general often lag years behind other industries. In this area, we need more cooperation and standards for procedures and data.”

### **Internationalisation but with a local touch**

Just as the optimisation of the supply chain should not fail due to a lack of data exchange, national borders must not become obstacles to the fast and error-free flow of goods. Ideally, IT solutions should also cover a large number of customer questions online. But InstaFreight is also aware that even the best platform model fails without local expert knowledge and the personal point of contact. Last but not least, the 24/7 customer service offered by InstaFreight cannot function at the same high level without the knowledge of native speakers. Contacts with shippers and carriers also benefit from the physical proximity to their business.

For this reason, the opening of the first office outside of Germany, the start of the operation in Lower Silesia in western Poland in the summer of 2019, was a logical and strategic step towards growth and relationship management of the customer base in East-Central Europe. Meanwhile, more than 20 employees are working in the branch office. “Although we are a little closer to Berlin than to Warsaw, we still have the needs of Central and Eastern European clients in mind,” explains Krzysztof Dwornik, General Manager of InstaFreight Poland. “With our local know-how we have already reliably carried out 5,000 tours and have been able to attract more than 2,000 new carriers with their cargo space to the platform for planning our transports,” he notes. From the Berlin headquarters, Schäfer adds, “In this context, the office in Poland was certainly not the last step but the first of many to follow. We are now focusing strongly on routes between Germany and Italy, Spain, France and the Benelux Union. For us, internationalisation is key to scaling up our business model and is part of our strategy for 2020.”

These ambitious plans are certainly one reason why Shell Ventures, the corporate venture capital arm of Royal Dutch Shell, decided to cooperate with InstaFreight at the beginning of the current year. Jermaine Saaltink, Venture Principal of Shell Ventures, comments, “We have been impressed by InstaFreight’s management team and the traction the company has achieved in the market in a short amount of time. We look forward to working together with them and being part of their continued success.”

In the next annual ranking on investments in German start-ups, a high proportion will again go to Berlin. These sums will include the money Shell is using to support the Kreuzberg-based InstaFreight on its way to further digitalise the European transport industry. ■



How a Swedish tech-company is helping to transform road freight



Photos: Einride

# A game changer

by Ragnar Johansson

By rethinking road freight from scratch, the Swedish tech-company Einride is developing a solution that has the potential to revolutionise transport by being both cost-competitive and sustainable. Einride's Autonomous Electric Transport (AET) system is based on self-driving, all-electric vehicles, the so-called Pods. The company has already attracted global interest for its solution, including the Port of Helsingborg, Sweden's record-breaking second-largest container seaport.

## E/NRIDE

Einride provides the mind and the muscle to transform transport. The company offers a complete Autonomous Electric Transport (AET) solution consisting of an intelligent shipping platform and electrically-powered, driverless vehicles, aka Pods. Einride is making the movement of goods more intelligent: emission-free, safe, cost-effective, and ultimately sustainable. To challenge conventional thinking, please head to [www.einride.tech](http://www.einride.tech)

heavy-duty road transport is responsible for around 7% of global CO<sub>2</sub> emissions. By substituting electricity for diesel, Einride believes it can reduce the level of pollution by as much as 90% for countries with a low-carbon electricity mix like Sweden. Emissions of nitrogen oxides and ultrafine soot particles that can be harmful to people's health can be eliminated as well (read more in BTJ 4/14's *Driving out of last breath. The cost of air pollution from road transport*).

There are also strong business incentives for transport-intensive companies to transition to a sustainable electric transport system. Fleets of Einride's Pods can be coordinated by an intelligent routing system, which optimises delivery time, battery life, and energy consumption. The company thinks its solution could reduce operating costs by around 60% when compared to a traditional diesel engine truck with a driver. As such, CB Insights, a cutting-edge research and technology firm from New York City, has named Einride one of three Sustainable Shippers in its Game Changers 2020 report, in which it identifies emerging trends and

high-momentum start-ups with world-changing potential.

### Building the roster

Einride was founded in 2016 by the engineer and former automotive executive Robert Falck and has already had a significant impact on the transportation industry since its start. In May 2019, it became the first company in the world to put an electric, driverless truck on a public road. It did so with its customer and partner, DB Schenker, at the global logistics provider's facility in Jönköping. "This day represents a major milestone in Einride's history, and for our movement to create a safe, efficient and sustainable transport solution, based on autonomous, electric vehicles, that has the potential to reduce CO<sub>2</sub> emissions from road freight transport by up to 90%. I can't begin to describe how proud I am of our team that made this happen in collaboration with our great partner and customer DB Schenker," said Falck about the occasion.

Einride has to date built an impressive roster of customers, apart from DB Schenker also Coca-Cola European Partners, the



**Tab. 1. Main characteristics of Einride's pallet and timber Pods**

Truck	Loading capacity	Range per charge	Top speed	Battery capacity	Size	Weight fully loaded
Pallet	15 pallets	200 km	85 km/h	200 kWh	7 x 2.5m	26 tonnes
Timber	16 tonnes			300 kWh	7.3 x 2.5m	

Michelin Group, the Swedish arm of Lidl, and Svenska Retursystem (a Stockholm-based company that develops and operates reusable systems used to simplify and improve the logistics and distribution of goods). One of the more recent additions is the Port of Helsingborg. The port is located in a booming part of the Nordic region and functions as a rail & road freight hub. This is one of the factors that have made it one of Sweden's most used seaports – its container turnover reached a new peak in 2019 (+10.8% year-on-year up to 267,652 TEUs). “The Innovation Partnership with Einride means exploring new and uncharted territory together. In the third quarter of 2021, we hope to have a pilot in place to transport containers between two different parts in our port area. As the last level and step three, the vehicles should be able to drive 4-5 kilometres outside the port,” commented Mats Fernebrand, Purchasing Manager, the Port of Helsingborg. Falck added to this, “The Innovation Partnership with the Port of Helsingborg will enable us to explore how autonomous, electric trucks can contribute to both effective and safe transport in harbour areas while radically reducing CO<sub>2</sub> emissions. We look forward to the partnership with the Port of Helsingborg and the opportunity to be part of their continued journey to become the most modern port in the Nordic region.”

Meanwhile, Einride partakes in other eco-friendly undertakings, too. One of them is a research project – carried out within the framework of the Triple F (Fossil Free Freight) initiative – conducted by the Stockholm Environment Institute with the help of the Forestry Research Institute of Sweden and involving players from across the Swedish forest industry that will study how the most innovative fossil-free solutions, and the combination thereof, could reduce CO<sub>2</sub> emissions from transport in the industry.

#### **Tech-enabled sustainability**

Einride's solution for self-driving, electric trucks, is based on a variety of technologies, including advanced safety systems and sensors like lidars, radars, and cameras used to position the vehicle and observe its surroundings. The pioneering Pods are equipped with specialized modular trailers for transporting pallets, timber, and perishable goods, while future vehicles will be pretty much able to take on-board any shipment. Self-driving technology for Einride is not an end in itself but is seen as an important enabler for future sustainable transport. Vehicles without a cab are naturally lighter and can be developed and designed for electric propulsion (Tab. 1).

Another important milestone for the company came just after summer 2019

when Einride announced it had closed its first big funding round of \$25m, co-led by the EQT Ventures fund, a European multistage venture capital fund with commitments of over 566m, and NordicNinja VC, a deep tech-focused 101m Nordic & Baltic fund backed by Panasonic, Honda, Omron, and the Japan Bank for International Cooperation (JBIC). Other investors joining the round included Ericsson Ventures, Norrsken Foundation, Plum Alley Investments, and Plug and Play Ventures.

The funds will support both organizational growth and continued investments in Einride's software platform as well as further international expansion, enabling the company to keep on building demand for sustainable transport and delivering on its growing number of customer contracts. “Our ambition is to disrupt the transport industry and closing our series A brings us one step closer to that goal. The funding will allow us to start expanding in the US, deliver on our technology roadmap and to meet rapidly increasing customer demand,” sums up Falck.

“Robert has a bold vision and a great way of attracting the right people,” said Claes Hemberg, the man synonymous with personal finance in Sweden for more than 20 years and, for some time now, also one of Einride's investors. Hemberg continued, “He wants to challenge the status quo and change road freight transport by introducing a more intelligent system, based on self-driving, electric trucks, that is both sustainable and cost-efficient. The last part is crucial. Companies need a compelling business incentive to change. Einride has that.”



# Trust

[trʌst]

confidence in

How to take the risk out  
of container logistics

Photo: Canva

## Trust, but verify – smartly

by **Christian Roeloffs**, *CEO & Founder, Container xChange*

**Who is reliable enough to trust with my assets? This was the main question people asked me after my How to take the risk out of container logistics keynote speech delivered at last year's Intermodal Europe. Trust is basically the most important ingredient when doing business with a partner: will they return my containers on time? Do I have to follow up on my invoices? Can I easily reach my partner when I have questions? Without a certain level of trust, you would probably not make deals with a company, even though the offered price seems cheap.**



**C**hristian Roeloffs is the founder and CEO of Container xChange, an on-line platform that creates transparency on supply and demand in container logistics. More than 300 container users and owners, such as Seaco and Kuehne + Nagel, use the neutral online platform to find Shipper Owned Containers across some 2,500 locations and identify partners to avoid empty container repositioning. For more on Container xChange, please go to <https://container-xchange.com>

**O**ver the last decades, we have built long-lasting relationships with partners where trust was not an issue, but two things have now changed. First, digital technologies allow us to collaborate with basically the entire world in no time. Second, stakeholders are increasingly asking for transparency, i.e., to better understand where the products they purchase come from. To adapt to these changes, we have to redefine “trust” and find answers to how to make time-efficient and risk-free deals with partners you have never worked with before.

### **We only work with people we know!**

The lack of trust is an everyday problem for most container owners and users with high impact on decisions they make.

Imagine a container lessee returns your equipment too late or in bad condition. Of course, you might receive per diem fees to compensate you, and the Damage Protection Plan covers damages, but how do you explain that to your next customer who is waiting for these boxes? How much time does it cost you to follow up, arrange container inspections, and send emails

back and forth? Imagine if you bought a used car and the condition was completely different to what the seller had told you before, you would probably not work with the same seller again in the future (and I bet you would also advise your friends against buying their cars). What happens is that operational costs increase due to the lack of trust. As such, Maersk has announced random container inspections because of cargo misdeclaration.

Increasing costs and high risk ultimately lead to something everyone probably has already said at least once: we only work with people we know!

### **Mitigating risk – past & future**

Most of the time decisions are made based on gut feeling or anecdotal evidence that came from your network, the press, Google, or sometimes just a random LinkedIn post about a specific company. In addition to that, personal meetings and extensive travel are still the standards for vetting a potential new partner before setting up bank guarantees, credit assessments, and “triple-checked” watertight contracts by expensive layers. It's not only incredibly

## Customer reviews

★★★★☆ 4.2 out of 5

2,532 customer ratings



### By feature



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**Fujian Auplex Appliance Co., Ltd.**  
Manufacturer, Trading Company

CN 7YRS 4.6★

92% Response Rate

510,000+ for 478 Transactions

91.3% On-time delivery rate

Antwerp, Belgium

xChange member since 2018

Founded in 1890

★★★★☆  
4.9 101 reviews in total

### Performance Overview

(356+ transactions in prev. 12 month)

- Provides data regularly:** Keeps requirements and balances up-to-date.
- Replies quickly:** Typically responds within 10 business hours.
- Picks-up on time:** Picked up 90% containers from accepted Requests.
- Return speed:** Returned on average 10 days before the freedays ended.

difficult, time-consuming and expensive to collaborate with new partners, but also not real-time, non-scalable, and error-prone. Such partner vetting processes lead to fewer partnerships, less market transparency, and slower speed which all makes no sense in times of real-time communication, cost pressure, and the increasing need for market transparency. In today's digital age, there must be a better way! Why? Because you won't have the time to initiate your traditional vetting process when a potential customer is reaching out. If you want to get new deals, you have to be the first one with a quotation!

To create trust, we can learn from other industries; specifically those which have increased trust through platforms that serve as neutral data layers, have data standards set as the common language, and provide user-generated content and financial credit scoring models. May it be Amazon or Alibaba for buying and selling products online, Trustedshops for e-commerce, or Delivery Hero for ordering food online. Take Alibaba as an example: would you buy from a small, random company that you have never heard of just because

the price is low? Most likely, you would not! On Alibaba, you do so because you trust their platform, the Alibaba insurance, and their vetting process. Moreover, you trust your peers, and you look at how other partners have rated that company in past transactions. That's why most online platforms have introduced performance reviews & ratings. You would probably rather buy from a seller on Amazon with thousands of five-star reviews instead of from someone with barely any ratings.

Another great example of how platforms in other industries leverage technology are payment and loan providers such as Klarna or even retailers like IKEA with next level credit scoring models. Instead of 'divine revelation,' they can now, for example, even include signals from social media

with their algorithms to forecast creditworthiness, which, again, speeds up the vetting process and decreases human-made errors significantly.

### Trustworthiness reloaded

Luckily, we can see the same happening in container logistics. Since we've introduced peer-to-peer reviews and ratings at Container xChange, we have seen an increase in transactions by 17% for top-rated companies (four-and-more-stars on average), and overall it has led to faster replies, release of documents, and a greater level of trust because members have now a bigger incentive to be a reliable partner.

May it be reviews, credit checks, or vetting – I think we can do the same in logistics! Platforms like Freightos (for freight forwarders and shippers), Xeneta (freight rates), or Container xChange (asset-sharing in container logistics) already exist, but in the end, it comes down to your behaviour. Make credit checks for your partners as easy as possible, be reliable, and stick to what you've agreed on. Becoming a trustworthy partner yourself is the first step to a greater level of trust in logistics.



How the Internet of Things can make dumb logistics smart

Photo: Dmitrii Vaccinium/Unsplash

# Embedding (standardised) intelligence

by Uwe Bormann

Thanks to the technical achievements of the last decades, our world has become more and more digital. Take, for instance, the Internet of Things (IoT), thanks to which analogue objects can suddenly communicate with each other as well as ‘talk’ to their users. While IoT devices have become particularly popular in the business-to-consumer sector, think of all those wearables and smart fridges, the topic has also spread to the manufacturing and industrial environment simply because it improves communication between man and the machine, hence prevents production stops. Encapsulated in the Industrial Internet of Things (IIoT) keyword, a new, rapidly growing market segment has developed in the last five years.

**nexxiot**

Nexxiot AG, headquartered in Zurich, is a pioneer and industry leader in the development and delivery of digital supply chain management solutions. Founded in 2015 – as a spin-off of ETH Zurich, one of the world’s leading technical universities – the company can rely on more than ten years of research in the areas of complex systems, big data algorithms, and ultra-low power embedded technology. Three successful investment rounds enable the company to pursue ambitious global expansion plans. In addition to its headquarters in Switzerland, the company has offices in Germany and the USA. For more information, please head to [www.nexxiot.com](http://www.nexxiot.com)

**t**he logistics sector is also undergoing changes as a result of IoT. Shippers and producers, driven by increasing transparency in the consumer market and innovative production methods, such as just-in-time production, are requiring increasingly higher standards in the traceability of their shipments. Transport companies must adapt and provide complete proof of the traceability of their assets. Yet, a vast majority of the companies still operates their transport means in a very analogue way.

## No more naked eye

This is why various providers are entering the market and offering solutions to logistics service providers that create transparency. “Imagine owning thousands of transport assets that travel around the world. But you don’t know where the assets actually are, whether they need to be

served soon or even repaired. You usually don’t even know what condition the transported goods are in. But many shippers are now demanding long overdue visibility into the supply chain. The carriers now have to react to this,” Marcel Scheurer, CCO at Nexxiot, a start-up company from Switzerland that uses IoT sensors to monitor entire transport fleets in real-time, describes the challenge.

For this purpose, the company has developed its own hardware with integrated sensors called “Globehopper,” which records data such as location, temperature, or shock events. It is very robust and runs on solar energy – according to the company for up to at least six years. It also works as a gateway device and is able to collect data from any other third-party sensor. Thanks to ATEX certification (IIC and IIIC), the Nexxiot gateway device can also be operated in areas where there is a constant





Photo: Nexxiot

risk of explosion, for example, when load- and unloading tank containers. Equipped assets can, therefore, be safely used on the premises of chemical or oil producers.

### Context and speed

But it is not enough to equip transport objects with sensors. Nicholas Negroponte, Chairman Emeritus of the Massachusetts Institute of Technology's Media Lab once said, "When we talk about the Internet of Things, it's not just putting RFID tags on some dumb thing so we smart people know where that dumb thing is. It's about embedding intelligence so things become smarter and do more than they were proposed to do." It's also about the fast analysis and contextualisation of the resulting data and their useful integration in the daily work of the users.

Nexxiot, for example, transfers collected data to their own cloud platform in almost real-time every five minutes. There the data is analysed and processed by in-house developed algorithms. The raw data are then contextualised and transformed into valuable information, which, among many, generates greater transparency for the users. The enriched information and insights build the basis for alerts and decisive recommendations for action and are directly transferred to the customer's management system.

"A logistics service provider thus knows exactly where its entire fleet is located. But thanks to Nexxiot, he knows much more: he can differentiate which objects have loaded what, where they have to be delivered or come from, whether they are on

time and whether the goods being transported are in perfect condition. All these findings are provided by our solutions, which address use cases defined together with our customers. We see ourselves as a strategic partner to enable our customers to gain the highest level of transparency in their supply chain processes," Marcel Scheurer lists the benefits.

### Standards:

#### Basis for a digitised supply chain

That said, the increasing spread of IoT technologies in the transport industry also entails a problem: there are still no international standards for IoT devices in logistics. As a result, devices from different manufacturers are not compatible with each other. The lack of standards and manufacturer-specific protocols can lead to dependence on certain suppliers.

Industry associations have already identified this issue. For example, the International Tank Container Organisation (ITCO) has recently set up a working group to deal with standards for communication and telematics, including the development of standards for IoT technologies in the field of tank container transport.

Nexxiot has also been a member of the working group since October 2019. "Standardization is a dynamic practice with built-in adaptation mechanisms," said Patrick Hicks, Secretary General, ITCO, on the occasion of Nexxiot's admission. "We are involving as many stakeholders as possible to enable a discussion that covers all the important technological and commercial aspects. That's why Nexxiot's involvement

as experts in freight market digitization will contribute to the work of ITCO and create real benefits for our members."

"As a neutral party, we network all those involved in a supply chain and are open to third-party applications. This means, for example, that our technology is not dependent on our own sensors and transmission paths. In some of our projects, we work in partnership with third-party vendors and integrate data from their hardware on our platform. This is why we want to support the development of international standards with our know-how," Tim Thiemann, Segment Head Tank Container at Nexxiot, underlines.

Freight quality and security are particularly important for ITCO members. Against this background, international standards for freight are particularly important. When transporting sensitive goods, it is essential to be able to check the status of the goods at any time. "Stakeholders in the global supply chain demand interoperability, which means comprehensive standards for hard- and software, open protocols for communication platforms and business processes. Interoperability standards will increase the efficiency of the supply chain and expand the market with coordinated products that do not compromise quality," explains Tim Thiemann.

New standards can reduce conflicts between technology providers, as open and integrative standards ensure that the market is not flooded with incompatible IoT technology. Therefore, an agreed standardisation process guarantees the support of business cases and ease of use. ■

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# Small ports vs big issues



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