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Baltic Transport Journal

bimonthly-daily companion

100TH ISSUE

LEGAL

Will the European Green Deal make ports' future sustainable?

SUSTAINABILITY

A gender perspective provides reasons and ways to diversify transport

REPORT

Investments in port handling capacity to re-capture Russian cargo traffic in the Baltic

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Dear Readers,

The jamming of the Suez Canal brought our industry to the attention of the public at large. Unfortunately, it seems that almost only negative events have enough (meme) power to do so. Before **Ever Given**, *when was the last time mainstream media cut out a bit of its airtime for transport & logistics? Probably at the time of the Beirut and Tianjin port explosions. These 'Exxon Valdezes' give us nothing but bad press. While being hosted on a regional Polish radio show to share my thoughts about the recent mishap, I was racing to squeeze in as much as possible in the allotted ten minutes to explain to the person on the Clapham omnibus the murky reality of today's global container shipping, hence how such an incident was almost inevitable. I think not even such heavyweight maestros like Mark Twain or George Bernard Shaw could deliver a punchline that would encapsulate the container alliances' tug-of-war and their TEU-arms-race. Sadly, the public eye is by and large stone-blind to how the surrounding things got around us in the first place. 'iPhones, well, China, then, I dunno, Apple Store. Whatevuh, dude, mine is delayed because of some frickin' boat!'*

Digging a bit deeper, did you also notice the place of transport & logistics, particularly ports, in popular culture? Time and again, I'm struck that every shady business, gunfight, pursuit, final showdown, etc., pictured in films and video games takes place in a harbour. For instance, in the **Mafia II** *game, the port labour union was corrupted and ran by gangsters, with car theft, in order to sell the vehicle to a felonious stevedore, being one of the best ways for making a quick buck... At least they paid attention to historical accuracy – the stolen loot was handled in the lo-lo technology. On the other hand, though, strategic games teach us that there's a rift between having a port or not, economy- and military-wise. There's also a robust niche involving trucking games, so maybe not all hope is lost.*

Luckily, we know better, right? That's why we have prepared yet another bundle of splendid reads for you. These include pieces about the port- and shipping-related legal aspects of the European Green Deal; what will potentially be needed to revive cruise shipping; what good can come from machine learning for maritime logistics; the, it appears, unintended competition that will be brought about by Russian port investments; along with reads that very much focus on the 'human factor' of our industry – addressing gender inequality as well as the importance and benefits of providing our brave seafarers with proper nutrition, for their physical and mental health alike. These, plus, of course, the **Collector's corner** *and* **Transport miscellany** *columns, as always packed with outrageously interesting content!*

Przemysław Myszka

Where did we go wrong or the Suez Canal Ever Given *jam* by Przemysław Myszka

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30 MARITIME

34 LEGAL

38 SUSTAINABILITY

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BTJ CALENDAR OF EVENTS

transport logistic online conference, *4-6/05/21, www.transportlogistic.de/en/trade-fair/conference-program*
transport logistic 2021 will not take place. The background to this is the numerous international travel restrictions, the lifting of which is not foreseeable until spring and which thwart the exhibitor's claim with regard to visitor participation. As a bridge to other events in the transport logistic network, an online conference will be realized. The next transport logistic as a physical trade fair will take place on 9-12 May 2023.

ESPO Conference, *27-28/05/21, NO/Oslo, www.espo-conference.com*
The annual gathering of the European Sea Ports Organisation, this time hosted by the Port of Oslo, will bring players from across the port industry to discuss the most burning questions, exchange experiences and ideas, as well as connect and network.

Baltic Ports Conference, *2-3/09/21, EE/Tallinn*
Digitalization and smart solutions for ports and the maritime industry will be the main talking points of the Baltic Ports Organization's (BPO) annual gathering. The BPO is looking forward to once again meeting its Members and other stakeholders in person.

TOC Europe, *7-9/09/21, NL/Rotterdam, www.tocevents-europe.com/en*
With a 40+ year heritage of being the global gateway for shippers, logistics providers, shipping lines, 3PLS, port authorities, terminal operators, and other key stakeholder, TOC Europe is the place to meet everybody who's anybody in today's highly-complex global container supply chain.

WOF EXPO, *6-8/10/21, SK/Bratislava, wofexpo.com*
Experience the first logistics exhibition in Central and Eastern Europe which brings shippers, retailers, wholesalers, importers, and exporters in front of top exhibitors who offer the latest logistics and supply chain solutions. WOF EXPO covers all transport modes and technologies under one umbrella, and shows the importance of CEE which became a powerhouse for key sectors such as automotive, electronics, manufacturing, pharmaceuticals, perishables, aerospace, retail, agribusiness, chemical, FMCG, construction, and energy.

Multimodal 2021, *19-21/10/21, UK/Birmingham, www.multimodal.org.uk*
Multimodal 2021 celebrates 14 years of putting shippers, retailers, manufacturers, wholesalers, importers and exporters in front of exhibitors who offer the latest logistics and supply chain solutions.

Shipcon 2021, *19/10-5/11/21, shipcon2021.com*
The event will be centred around three main tracks – Sustainability, Digitization & Tech, and Diversity – with a dynamic mix of presentations, workshops, interactive elements, and learning initiatives all designed to engage delegates. During the event's interactive experience Shipathon, young professionals will compete to solve different virtual and Rotterdam live challenges – Sustainable Ports, Sustainable Shipbuilding, and Financing Sustainable Ships – culminating in a live pitch.


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PORT OF GOTHENBURG

Finnish ports: *103.37mt handled in 2020 (-4.9% yoy)*

A total of 94.38mt was handled in international, down by 5.3% year-on-year, while the remaining 8.99mt were made in domestic traffic, a downtick of 0.5% yoy only.

Finnish ports' volumes

Port	International traffic (million tonnes)	Yoy	Domestic traffic (million tonnes)	Yoy	Total (million tonnes)	Yoy	Container traffic (TEUs)	Yoy
Sköldvik	19.95	-8.7%	–	–	**19.95**	**-8.7%**	–	–
HaminaKotka	14.16	-4.9%	4.36	+2.3%	**18.52**	**-3.3%**	622,526	-7.0%
Helsinki	13.25	-6.8%	0.22	-24.3%	**13.47**	**-7.2%**	501,315	-4.7%
Kokkola	6.17	+3.0%	3.10	-5.2%	**9.27**	**+0.1%**	12,668	-16.3%
Naantali	6.08	+7.5%	0.55	–	**6.63**	**+17.3%**	–	–
Hanko	4.84	-0.4%	0.56	+80.4%	**5.41**	**+4.4%**	74,138	+16.3
Rauma	4.82	-15.7%	–	-100%	**4.82**	**-15.7%**	220,328	-15.3%
Raahe	4.66	-1.8%	–	–	**4.66**	**-1.8%**	145	-70.5%
Tornio	3.16	+3.4%	–	–	**3.16**	**+3.4%**	15,702	+7.6%
Pori	2.95	-8.3%	0.15	-82.6%	**3.10**	**-23.6%**	809	-14.3%
Turku	2.35	+15.5%	0.04	+152%	**2.39**	**+16.5%**	3,355	+0.2%
Uusikaupunki	2.12	-14.0%	–	–	**2.12**	**-14.0%**	1,450	-8.2%
Inkoo	2.10	+2.3%	–	–	**2.10**	**+2.3%**	–	–
Oulu	1.84	-24.8%	–	–	**1.84**	**-24.8%**	28,358	-20.6%
Kemi	1.38	-14.7%	–	–	**1.38**	**-14.7%**	13,165	-31.6%
Kaskinen	1.20	+11.9%	–	–	**1.20**	**+11.9%**	–	–
Pietarsaari	1.06	-15.0%	–	–	**1.06**	**-15.0%**	2,149	+31.1%
Vaasa	0.77	-14.9%	–	-100%	**0.77**	**-15.0%**	84	-40.0%
Kalajoki	0.38	-29.2%	–	–	**0.38**	**-29.2%**	214	-95.3%
Lappeenranta	0.27	+9.5%	0.001	–	**0.27**	**+10.0%**	–	–
Eurajoki	0.23	+20.6%	–	–	**0.23**	**+20.6%**	–	-100%
Joensuu	0.17	+38.1%	0.003	–	**0.17**	**+40.3%**	–	–
Kantvik	0.16	-28.1%	–	–	**0.16**	**-28.1%**	–	–
Tolkkinen	0.16	+16.6%	–	–	**0.16**	**+16.6%**	–	–
Kristiinankaupunki	0.10	+65.7%	–	–	**0.10**	**+65.7%**	–	–
Varkaus	0.03	-6.9%	0.003	–	**0.03**	**+4.4%**	–	–
Kuopio	0.02	-14.1%	–	–	**0.02**	**-14.1%**	–	–
Total	**94.38**	**-5.3%**	**8.99**	**-0.5%**	**103.37**	**-4.9%**	**1,496,406**	**-7.5%**

The Port of Hamburg:
8.5m TEUs handled in 2020 (-8.6% yoy)

Out of these, 5.5m were taken care of in hinterland traffic (-5.2% year-on-year), including 2.77m by truck (-5.2% yoy), 2.58m by train (-4.4% yoy), and 145.1k by barge (+/-0% yoy). In total, the Port of Hamburg turned some 126.3mt over, down by 7.5% on the 2019 result. The handling of general cargo amounted to 87.8mt (-7.9% yoy), followed by 38.5mt (-6.8% yoy) of bulk goods (incl. 7.5mt of agribulk, +19% yoy; 11.6mt of liquids, -7.9% yoy; and 19.4mt of other dry bulk, -13.4% yoy). Traffic was split between 70.1mt of imports (-10.6% yoy) and 56.1mt of exports (-3.6% yoy).

Finnlines:
723k ro-ro cargo units carried in 2020 (-2.0% yoy)

The company also transported some 1,107kt of non-unitised freight, noting in this segment a decrease of 0.5% year-on-year. A total of 154k vehicles (excl. passenger cars) was transported by Finnlines' fleet (-7.2% yoy). The company also served 501k passengers (incl. truck drivers), 24.7% fewer than in 2019.

The Port of Trelleborg:
11.93mt handled in 2020 (+1.1% yoy)

With 11.81mt (+0.8% year-on-year) going over the quays, wheeled cargo (ro-ro) traffic accounted for nearly all the freight activity at the Swedish seaport. A total of 802,376 (+0.8% yoy) trucks, trailers, and railcars were brought on-board ferries to and from Trelleborg. At the same time, passenger traffic decreased by 31.6% yoy, down to 1,241,299 travellers. Fewer private vehicles were brought along, too, a 42.3% yoy drop to 234,860 units. "The reason for our increased freight volumes is primarily the growing need for fast transports, thanks to the sharp rise of e-commerce. At the same time, construction work is accelerating in the wake of the pandemic, and a large part of the material comes from the continent, transported via Trelleborg," Jörgen Nilsson, CEO, the Port of Trelleborg, commented.

DCT Gdansk – The Baltic Hub

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Global Ports: *1.72m TEUs handled in 2020 (+2.2% yoy)*

The company's terminals also took care of 20.3k ro-ro cargo units (+1.5% year-on-year), 82k vehicles (-20.6% yoy), and 5,074kt of dry bulk (+38.7% yoy).

Global Ports' volumes

		2020	Yoy
Region	**Container traffic (thousand TEUs)**		
Russian Baltic – sea	First Container Terminal	654	+/-0.0%
RU Baltic – sea	Petrolesport	377	+14.9%
RU Far East – sea	Vostochnaya Stevedoring Company	453	+14.7%
Finnish Baltic – sea	Multi-Link Terminals (Vuosaari & Kotka)	98	-11.7%
RU Baltic – hinterland	Yanino Logistics Park	86	-28.3%
RU Baltic – sea	Ust-Luga Container Terminal	50	-19.4%
RU Baltic – sea	Moby Dik	–	-100%
	Total	**1,718**	**+2.2%**
	Other unitised freight traffic (thousand units)		
	Finished vehicle logistics	82	-20.6%
	Ro-ro	20.3	+1.5%
	Other cargo traffic (thousand tonnes)		
	Dry bulk	5,074	+38.7%

Tallink & Silja Line:
85,156 cargo units carried in Q1 2021 (-14.5% yoy)

Over the first quarter of 2021, a number of the company's operations were suspended due to the ongoing coronavirus pandemic. These included the sailing of the cruise ferry *Silja Europa* as well as the operations across the Tallinn-Stockholm, Helsinki-Stockholm, and Riga-Stockholm routes.

Tallink & Silja Line's volumes

	Q1 2021	Yoy	Q1 2021	Yoy	Q1 2021	Yoy
Trade lane	**Cargo units**		**Passengers**		**Passenger vehicles**	
Estonia-Finland	57,595	-11.0%	201,446	-76.2%	67,743	-55.3%
Finland-Sweden	16,950	-17.6%	56,077	-88.1%	7,739	-61.3%
Estonia-Sweden	10,611	-4.2%	9,701	-93.1%	333	-96.2%
Latvia-Sweden	–	-100%	–	-100%	–	-100%
Total	**85,156**	**-14.5%**	**267,224**	**-82.9%**	**75,815**	**-60.2%**

Photo: Tallink Grupp/Argo Argel

Swedish Ports' Members:
135.56mt handled in 2020 (-2.1% yoy)

The organisation, part of the Swedish Confederation of Transport Enterprises, comprises 38 port companies, managing over 40 ports across the country.

Swedish Ports' Members' volumes

	2020	Yoy
General cargo (excl. forest products), out of which	60,939kt	-3.9%
Wheeled (ro-ro)	44,239kt	-1.7%
Containerised	13,587kt	-2.5%
Break-bulk	3,113kt	-30.7%
Liquid bulk	36,891kt	+2.6%
Dry bulk (excl. iron ore)	22,117kt	-0.1%
Forest products	12,974kt	-8.7%
Iron ore	2,642kt	-4.6%
Total	**135,563kt**	**-2.1%**
Ro-ro traffic		
Trucks & trailers	3,024,567	-2.6%
Other	20,796	-15.9%
Railcars	19,193	-4.9%
Total	**3,064,556**	**-2.7%**
Container traffic		
TEUs	1,607,653	-1.0%
Finished vehicle logistics		
Units	781,454	-9.5%
Passenger traffic		
Passengers	13,400,819	-51.7%
Pax cars in ferry traffic	3,034,230	-37.4%

The Port of Gdynia:
905,121 TEUs handled in 2020 (+0.9% yoy)

On the whole, the Polish seaport took care of 24.66mt last year, up by 2.9% on the result from 2019. With 14.11mt (-0.3% year-on-year), the turnover of general cargo (excl. timber) topped Gdynia's statistics, followed by 5.43mt of grains (+68.6% yoy), 1.77mt of liquid bulk (-4.8% yoy), 1.68mt of coal & coke (-41.4% yoy), 1.56mt of other dry bulk goods (+4.8% yoy), and 101kt of timber (-72.3% yoy). A total of 263,590 ro-ro cargo units went through Gdynia's quays, up by 39.5% yoy. At the same time, due to the coronavirus pandemic, the port's passenger traffic decreased by 42.6% yoy to 394,680 travellers.


Photo: Port of Gdynia/Tadeusz Urbaniak

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CLIP's terminal in Swarzędz to grow with three RMGs

The 96 m of span rail-mounted gantry cranes (RMGs), manufactured by Künz, will be able to lift up to 40t and stack containers five-high. The new machinery will also be equipped with fold-out grabs for handling intermodal trailers. Thanks to the new RMGs, it will be possible to take care of up to eight trains at the same time. The latest purchase is part of CLIP's PLN200m (approx. €52m) investment aimed at tripling the yearly handling capacity of the Swarzędz facility up to 533k TEUs. Apart from the new gantries, the terminal's yard will be enlarged from the current 4,500 to 10,000 TEUs; there will be 12 rail tracks in total, each 750 m-long, able to handle up to 20 trains per day; and the adjacent warehouse complex will grow to 450k m^2, following the addition of the newest 30k m^2-big storage.

Antwerp's autonomous HSS drone

The Port of Antwerp, in cooperation with DroneMatrix, has deployed its first self-flying drone for inspection and control operations. The drone departs from a fixed operating base, which includes an intelligent docking & charging station, near the Kieldrecht Lock and follows a fixed route within the port. The drone can also fly on-demand, e.g., in emergencies where an overview of the situation is critical. The port authority will test the drone in various 'live feed' use cases, such as infrastructure inspection, surveillance and monitoring, incident management, berth management, and oil spill or drift waste detection. The plan is to have an operational network of autonomous drones ready to be deployed in 2022 to aid the Harbour Safety & Security (HSS) department in its work.

Eskilstuna secures a €250m-big high-end tech & logistics investment

Shenzhen Senior Technology Material will erect a production line, its first outside China, at the Svista industrial estate, with supplies going by rail via the Eskilstuna Intermodal Terminal. Senior's establishment in Sweden and Eskilstuna will involve three phases. To begin with, the company will rent a 13,900 m^2 facility at Svista from the real estate company Nyfosa. A letter of intent has been signed between Eskilstuna Municipality, Nyfosa, and Senior to develop a 120,000 m^2 plot of land adjoining the existing facility, with a view to expand operations in the second and third phases. Currently, the plan is to establish a 70,000 m^2 facility by 2025. The investment is expected to create some 500-600 direct jobs. Once operational, the Senior Eskilstuna factory will provide the Northvolt Ett lithium-ion battery production site in Skellefteå with separators (large-scale manufacturing at Northvolt's facility is to commence this year – annual capacity will ramp up to at least 32 GWh by 2024, with the potential to expand to 40 GWh in the future; in spring 2020 another Chinese firm, Kedali Industry, decided to settle in Skellefteå to supply Northvolt with square battery cases). Senior says that the company chose Sweden because of the high share of carbon-free energy available in the country, while Eskilstuna – for its logistics capabilities, especially as regards rail transportation.

North Star Renewables' SOVs to serve the Dogger Bank Wind Farm

The Aberdeen-based company has won a £270m-big contract for the design and delivery of three hybrid service operation vessels (SOVs) which will work around the world's biggest (3.6 GW) offshore wind farm. Dogger Bank, which is going to be built in three 1.2 GW-strong phases (A, B, and C), is scheduled for completion in 2026. North Star will deliver one SOV to be used for scheduled maintenance at Dogger Bank A and B. The vessel is due to be delivered in January 2024 and will also serve Dogger Bank C when this phase of the wind farm is operational. The two other SOVs will be used for corrective maintenance at Dogger Bank A and Dogger Bank B. Delivery of these vessels is scheduled for July 2023 and July 2024, respectively. A further contract for an SOV to be used for corrective maintenance at Dogger Bank C will be awarded at a later stage. The Dogger Bank Wind Farm will be located more than 130 km off the Yorkshire coast and will generate enough renewable energy to power six million UK homes. It's a joint venture between SSE Renewables, Equinor, and Eni, with the Scotland-headquartered SSE Renewables leading on construction and delivery, while Equinor will operate the wind farm upon completion. The SOVs will be chartered to Dogger Bank by North Star for a ten-year period, with an option for three one-year extensions. Wind farm engineers and technicians will spend two weeks on board each of the vessels while working on the offshore wind farm. The SOVs will incorporate logistics platforms to allow the staff to work on the wind farm during the day, featuring safe, hotel-grade comfort in the living quarters for operational personnel at all other times. The Port of Tyne has been selected as the operation base for the wind farm. Consequently, North Star will establish a new permanent presence at the English seaport. The company will create 130 new full-time UK-based jobs in crewing and shore-based roles for the lifetime of the contract.

Antwerp + Zeebrugge = the Port of Antwerp-Bruges

The cities of Antwerp and Bruges have come to an agreement to join their ports under one umbrella. The unification process, among others setting a new organisational structure, is expected to take a year to finalise, with the City of Antwerp holding an 80.2% and Bruges 19.8% stake in the new port authority. The merger is subject to a number of customary suspensive conditions, including approval from the Belgian Competition Authorities. Once combined, the Port of Antwerp-Bruges can count on some 278mt/year of all sorts of cargoes passing through its quays, the majority of it, some 157mt, being containerised freight.

The first commercial container transport along the Vistula River

The Warsaw-based VAN cargo has organised, within the EU-backed EMMA Extension project, an inland waterway shipment of containerised freight from Gdańsk to Chełmno and back. The set that left the Port of Gdańsk on 6 April consisted of a pusher tug and a barge with six forty-foot containers, carrying goods for TZMO, a manufacturer and supplier of sanitary articles, cosmetics, and medical devices. After going 152 km southbound, the barge arrived in Chełmno on 8 April for the cargo to be transshipped onto trucks. TZMO, as well as IKEA, also got its goods transported by the barge back to Gdańsk. The tug-barge set was accompanied by researchers and students from Kazimierz Wielki University who investigated the traversed section, including the identification of obstacles to navigation, from a boat belonging to the Regional Water Management Board in Gdańsk.

DFDS to acquire 100% of the HSF Logistics Group

The company is a full-service provider of cold chain logistics to the food industry. The HSF Logistics Group, 1,800 employees-strong, operates from 22 locations across Europe and includes the N&K Spedition, Skive Køletransport, and Eurofresh brands. The company runs a fleet of around 700 trucks and 1,700 reefer trailers, both owned and leased units. Services provided by the company include collection from food producers, packaging, storage, processing services, and distribution of both part- and full-loads. The main flows handled by the HSF Logistics Group are from the Netherlands to the UK and Germany, and from Denmark to the UK and southern Europe. Front-loads are mainly meat and seafood, while back-loads include fruits, vegetables, frozen fries, dairy products, and meat. DFDS acquires the HSF Logistics Group for a debt-free price of DKK2.2bn (€296m).

Gasum to supply more renewable biogas

The company intends to make 4.0 TWh of biogas available on the market from its own production and that of certified European partners by 2025. Gasum has set a goal of reducing its carbon footprint by one million tonnes. Apart from providing greater availability of biogas, the company will also reduce the emission intensity of its liquefied natural gas (LNG) and biogas production chains by 1%/year. To deliver more biogas, Gasum will set up new facilities. The company is building an industrial-scale manure-based plant (120 GWh/year) in Götene, scheduled for completion by the beginning of 2023. Gasum is also planning to build biogas plants in the Swedish Borlänge and Kalmar and in the Finnish Oulu. Gasum currently operates 15 biogas plants, nine in Finland and six in Sweden. In 2020, the company acquired a plant (40 GWh) in the Swedish Skövde. The Lohja site (40 GWh) in Finland entered commercial production in January 2021, while the Nymölla facility (75 GWh) in Sweden will come online later this year. In addition, Gasum is looking into the production of other renewable gases in the Nordics – synthetic methane and green hydrogen.

Tallinn becomes e-green

The Estonian port has entered into a renewable energy purchase agreement with Eesti Energia and now consumes only green electricity that's produced in the country. According to the deal, Eesti Energia will supply the Port of Tallinn with 10 GWh of renewable electricity during 2021 for the port's own use. As a result, emitting almost 7,000t of CO_2/year will be avoided. Leading up to the agreement, the Port of Tallinn has invested in measures aimed at electrifying port operations, including the installation of onshore power supply facilities (across five piers in the Old City Harbour, a carbon reduction of 100t/month) as well as retrofitting the port's subsidiary TS Laevad's *Tõll* into a hybrid passenger ship, making it possible to partly run on electricity on the Virtsu-Kuivastu route (the operator plans to introduce the hybrid technology also on other ferries in its fleet).

The North Sea-Baltic TEN-T Core Corridor extends westwards

Responding to a request submitted by the Flemish-Dutch port authority of North Sea Port, the European Commission will prolong the Corridor in question to also include the Ghent-Terneuzen Canal Zone. The North Sea-Baltic TEN-T Core Corridor runs from Belgium and the Netherlands via Germany, Poland, Lithuania, and Latvia to Estonia. In Poland, it also rail-connects to the non-EU part of the New Silk Road through the Małaszewicze-Brest border crossing with Belarus.

SCA to invest nearly half a billion Swedish crowns in the Tunadal harbour

With SEK460m (approx. €45.5m) put on the table for the years 2021-2024, the Sundsvall-based timber, pulp, and the paper manufacturer will set up a new container terminal, plus other cargo handling areas. The 100k TEUs of yearly handling facility will be able to serve ships with a draft of 15 m (currently 12 m of draft vessels can call to the Port of Sundsvall). The company also intends to build land south of the current port to create new cargo handling space. According to the company, the volume of containerised trade (incl. pulp and solid-wood products) from the Tunadal harbour has more than doubled over the past five years.

Mukran chosen as the installation base for Baltic Pipe

The British arm of the Italian Saipem has selected the German Baltic port as the site from which it will carry out laying 275 km of gas pipes, with depths ranging from four to 57 metres. Saipem Ltd has been contracted, in a deal worth €280m, by the Polish Gaz-System (who works with the Danish gas and electricity transmission system operator Energinet on the Baltic Pipe project). The laying of pipes is scheduled to begin this summer. The bi-directional pipeline is slated for commissioning in October 2022. The Baltic Pipe is a gas connection project that will link Poland and the Norwegian sector of the North Sea via Denmark. The annual gas transportation capacity of Baltic Pipe will amount to 10b m^3 from Norway to Denmark and Poland and 3.0b m^3 from Poland to Denmark. The German seaport had already served as one of the installation bases for the Nord Stream 2 project.

Port of Karmsund buys another LHM 550

The new machinery, offering 154t of lifting capacity and a maximum outreach of 54 m, was shipped fully assembled from Liebherr's plant in the Port of Rostock in March. The new LHM 550 has been deployed at the Haugesund Cargo Terminal in the Norwegian Husøy. It's equipped for handling containers, bulk goods, and project cargo. The new crane joined an identical one already working for the Port of Karmsund. In tandem, the two can lift 308t. Alike its older counterpart, the new LHM 550 runs on electricity.

Lübeck-Helsinki's Hansalink 2 project gets CEF funding

The Lübeck Port Authority (LPA), the terminal operator Lübecker Hafen-Gesellschaft mbH (LHG), and the Port of Helsinki have received a €3.4m-big grant from the EU's Connecting Europe Facility (CEF) for greening their operations. Both ports will invest in onshore power supply (two berths to be equipped at the Skandinavienkai in Lübeck-Travemünde and two in Helsinki as well). The LPA will set up new rail & road gate systems, while the one at Helsinki's Vuosaari will be upgraded, too. At the same time, LHG will invest in a new terminal operating system. The Hansalink 2 project has kicked off in February and will have been completed by June 2023 at the latest.

Yilport buys a large batch of mobile equipment from Kalmar

The Turkish terminal operator, managing 22 facilities worldwide, has ordered 27 Kalmar machines – 12 heavy terminal tractors, 11 reachstackers, and four empty container handlers. The Port of Oslo will receive three Eco reachstackers and two reachstackers for empty container handling; the Leixões Container Terminal – two Eco reachstackers; Yilport Huelva – one Eco reachstacker and four heavy terminal tractors; Yilport Gebze – one Eco reachstacker and two empty container handlers; Puerto Bolívar – two reachstackers and two empty container handlers; and Gävle Container Terminal – eight heavy terminal tractors. The delivery of all machines is scheduled for Q3 and Q4 of 2021. The Port of Oslo and Gävle Container Terminal have a Kalmar Optimal Care service agreement in place, which will cover all the new equipment. Yilport Huelva and Leixões Container Terminal are supported by Kalmar's on-call services, while Gebze and Puerto Bolivar will be serviced and supported by Kalmar's local dealers.

Sweden's first container barge service

The 2012-built *Emelie Deymann*, operated by the German Reederei Deymann, started sailing between the ports in Norvik and Västerås this April. The 110 m-long and 11.45 m-wide barge, capable of carrying up to 208 TEUs, serves the route in question with two sailings per week.

Hupac starts building its new terminal in Poland

The construction of the Brwinów rail terminal, located near Warsaw, has begun, with the start of operations slated for Q3 2022. The terminal will cover nearly 14 ha, offering in the first phase four transshipment tracks, with a minimum length of 750 m, and a 42k m^2-big storage yard. Freight handling will be carried out with the use of reachstackers. In the second phase, three more tracks will be added. Gantry cranes will be deployed, too. The Brwinów terminal will have an annual handling capacity of up to 180k cargo units.

Stena Line adds a third ship to the Liepāja-Travemünde ferry crossing

The *Stena Vinga* ro-pax has joined *Stena Gothica* and *Urd* and will sail with them between Germany and Latvia for a couple of weeks in April and May. The 130 m-long ferry offers 1,500 lane metres of cargo capacity as well as room for up to 400 passengers. Later this year, two bigger vessels will be deployed across the Liepāja-Travemünde service, increasing the line's cargo capacity by 40%, according to Stena Line. At the same time, the transit time will go down from 27 to 20 hours. The weekly timetable will comprise 12 sailings, six in each direction.

Lithuania-Ukraine rail co-op

The two countries want to add more volume to the already existing container services (from Klaipėda to Odessa and Kiev), set up one for the transportation of trailers (Klaipėda-Odessa) and rail-connect Kyiv, Minsk, Vilnius and Riga together. Lithuanian Railways' subsidiary LTG Cargo has recently branched out to Ukraine, with the aim of LTG Cargo Ukraine becoming a freight haulier carving for itself some of the Ukrainian 300mt/year rail market. A similar move took place in summer 2020 when the Polish daughter company LTG Cargo Polska was brought to life.

Photo: LTG Cargo

New rail container service St. Petersburg-Moscow

Container Terminal Saint-Petersburg and Port Express Transport Company have put in place a bi-weekly train service, running every Tuesday and Thursday. The service offers capacity for up to 124 TEUs, including containers with dangerous goods (excl. IMO classes 1 and 7). The transit time in one direction amounts to one day and 18 and a half hours. For containers at the destination station, free storage for up to five days is provided.

Gothenburg's new global East-West vehicle & high-and-heavy service

The Norwegian Höegh Autoliners' new link connects the Swedish seaport to Australia and New Zealand via South Africa, Mozambique, Mauritius, and Madagascar. On the export leg, the every other week sailing from Gothenburg (Logent Ports and Terminals taking care of stevedoring) will see cars, other vehicles, construction equipment, and project cargo heading for Durban, Port Elizabeth, Maputo, Port Louis, Tamatawe, Fremantle, Port Kembla (Sydney), Brisbane, Melbourne, and Auckland. On the backhaul, Höegh Autoliners' vessels will go through Japan, South Korea, China, and possibly also ports of other countries if the demand requires it. The first shipment left Gothenburg on-board the 8,500 CEUs-big *Höegh Trigger* on 12 March.

APM Terminals Kalundborg goes live

The 50k m^2-big container terminal, offering a yearly handling capacity of 50k TEUs, has begun operating in the Danish Port of Kalundborg's Ny Vesthavn. The facility provides 500 m of berthing length and a maximum draft of 15 m. Quay operations are carried out with the use of two 100t of lifting capacity cranes, with the third (150t) to come online in May. There are 100 reefer plugs in the yard. The terminal's reachstackers and tractors run on gas-to-liquid fuel. APM Terminals Kalundborg has been included in Maersk's feeder network, instead of the Port of Copenhagen, with two weekly rotations linking the Danish seaport with Bremerhaven, Halmstad, Helsingborg, Aarhus, and Frederica.

CoolRail links Spain and Denmark

A reefer train carrying fresh fruits and vegetables was sent from Valencia to Copenhagen via Cologne to test a route that is expected to become a regular weekly connection. The transit time amounted to five days. The shipment was arranged by Transfesa Logistics on behalf of Coop Trading, part of the retail cooperative. On the backhaul, the train carried empty pallets of Euro Pool System that, together with Transfesa Logistics, is involved in the CoolRail project. The rail route is said to emit 70% less CO_2 than comparable road service.

Photo: Transfesa Logistics

MSC launches three domestic container rail services in Ukraine

The shipping major has connected, on a weekly basis, the Port of Odessa with Kyiv, Kharkiv, and Dnipro. Should volumes build up, the company will set up other intra-Ukraine regular rail services.

Unifeeder's new Baltic loop – extended

The feeder & short sea arm of DP World has introduced a new weekly service that links Russia with the German North Sea, Belgium and England, and then also included Poland in the rotation. At first, St. Petersburg has been linked with Bremerhaven, Antwerp, and DP World London Gateway. Then, the Port of Gdynia has been added as well.

Smyril Line gives *Norröna* a lux-retrofit

The 2003-built ferry, which serves the weeklong North Atlantic Cruise (Hirtshals-Tórshavn-Seyðisfjörður-Tórshavn-Hirtshals), has been fitted with 50 new luxury cabins as well as a new outdoors sky bar and a panoramic view lounge on the top. The DKK100m-worth (around €13.5m) retrofitting, carried out at the Danish Fayard shipyard in Munkebo, saw the crew quarters moved to a different location while the old, shared cabins were removed altogether. *Norröna*'s decks nos. 5 and 6 have been upgraded earlier, and plans to modernise and give the upper deck more capacity emerged in 2019. According to Smyril Line, passengers used to buy tickets for berths in shared four-person cabins, but these sales have more or less disappeared. At the same time, *Norröna*'s 12 luxury cabins are often sold out.

Helsingborg to set up a brand-new container terminal

Choosing from three locations, the Swedish port has decided to move its container operations, sea & inland, to the south. The new container terminal will comprise 750 m of quay wall, making it possible to take care of three 225 m-long vessels at the same time. Cargo handling operations, both at the quay and in the yard, is to be carried out with the use of electric machinery and vehicles running on renewable diesel (hydrated vegetable oil). In addition, a new terminal for combined traffic will be erected. Construction works can kick off in 2026 at the earliest, with the commissioning taking place two years later.

Metrans to build a terminal in Hungary

The rail freight arm of HHLA will invest over €40m into the development of a brand-new facility in Zalaegerszeg, located on the transport axis to the Adriatic ports of Trieste, Koper, and Rijeka. Construction works are to kick off this autumn, with the first section of the new terminal coming online in 2023. The €40m+ investment includes a grant (approx. €11m) from the Hungarian side. Metrans expects that some 120 new jobs will be created in Zalaegerszeg. The company has been operating a terminal in Budapest since 2017, handling around 425k TEUs/year there.

Capacity increase on DFDS' Ghent-Gothenburg route

The Danish shipping & logistics company has exchanged *Begonia Seaways* for *Humbria Seaways* of the so-called 'Jinling class.' The new vessel is 237 m-long and 33 m-wide, offering 6,700 lane metres of cargo capacity (vs *Begonia*'s 4,731 lm). "In the first five weeks of this year, transshipment volumes increased by almost a quarter. The *Humbria Seaways* will be able to transport 320 more trailers per week in both directions. This is like one of the current ships doing a seventh crossing," Alain De Brauwer, Route Operations Manager, DFDS, explained. DFDS sails between Ghent and Gothenburg six times per week, apart from *Humbria Seaways* also with *Freesia Seaways* (4,731 lm) and *Primula Seaways* (4,650 lm).

Photo: DFDS/Peter Therkildsen

Grimaldi orders six new con-ros

The Neapolitan Group has entrusted Hyundai Mipo Dockyard with the delivery of what will constitute the new G5-class of multipurpose vessels designed to carry trucks, trailers, cars, and containers. The new 45,684 dwt-big ships will be 250 m-long and 38 m-wide, offering 4,700 lane metres for carrying wheeled cargo, plus room for 2,500 CEUs and 2,000 TEUs. The newbuilds are expected to be delivered between the first months of 2023 and the end of 2024, replacing the Grimaldi Group's ships which will have reached an age of 25 by that time. The G5s will be deployed across the company's services between North Europe and West Africa (particularly to/from Lagos in Nigeria). According to the shipowner, the G5-class units emit up to 43% less CO_2 per tonne transported compared to other Grimaldi multipurpose ro-ro ships. The newbuildings will feature a number of emission reduction solutions, including an integrated rudder-propeller system for minimising vortex losses, variable frequency drive devices, low friction hull paint, and a connection to onshore power supply. The G5s will also be equipped with scrubbers for compliance with the global sulphur cap.

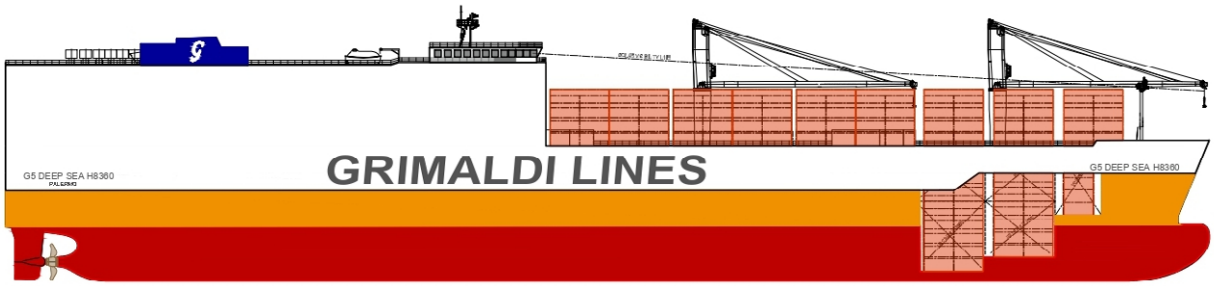

Photo: Grimaldi Group

A new ro-ro line to link Nynäshamn and Rostock

The Swedish Rederi AB Gotland has received support from the country's Transport Administration to launch the route in question in order to unburden road traffic between southern Sweden and the Mälaren Valley (the Stockholm-Mälaren Region). The aim is also to cut transport-related emissions. According to estimations, the sea service will help to axe the carbon footprint by around 20%. Rederi AB Gotland also says the new route can be at times extended to Visby on the isle of Gotland. The Swedish Transport Administration has in total rewarded four road-to-sea-shift projects. Rederi AB Gotland will get SEK74.22m; IW Line Rederi AB – SEK 12.63m (for relieving road traffic between Kapellskär and Norrköping by setting up a ro-ro line for trailers between the two ports); Wallenius Marine AB – SEK6.59m (for putting in place a barge service that links Norvik with Västerås and Köping); and AB Flivik Shipping – SEK 1.05m (for shifting the transportation of woodchips between Kalmar and Copenhagen from road to sea).

The Cuxhaven-Immingham crossing gets an extra departure

The route served by DFDS not only offers now six weekly sailings, Monday-through-Saturday, but the transit time has been reduced to 19 hours, and all departures take place in the evenings. In addition, customers can deliver their trailers or containers at terminals of Cuxhaven Port Association's (HWG) members in the evening and these units can be expedited on their onward journey without an escort. The Cuxhaven-Immingham link of DFDS is served by the ro-ros *Selandia Seaways* and *Britannia Seaways*, both offering 2,772 lane metres of freight space.

Nippon Express' Suzhou-Hamburg-Duisburg rail container service

The new route goes via the Manzhouli-Zabaykalsk and Brest-Małaszewicze border crossings, with trains running to Europe once per week. The Japanese logistics company is also working on adding the eastbound leg to the service. Nippon Express wants to connect Suzhou with Moscow, too. The company plans to ramp up the number of to-Europe train runs from 3,000 to 5,000/year. Meanwhile, Nippon Express has also put in place a service that links Suzhou and Hanoi.

TransContainer trails the carriage of bulk goods in containers to China

The Russian rail freight haulier has started to carry coal and solid bitumen in order to source more containerised cargo for the eastbound leg of the New Silk Road. The first batch of coal, 3,960t loaded into open top containers, was dispatched from the Priargunsk station on 26 January. It reached the Zabaykalsk-Manzhouli border crossing in less than one day, where the Chinese took over the shipment. TransContainer plans to transport some 13kt/month on the route in question. Next, on 28 January, a 120 TEUs-big train with solid bitumen, which earlier was transported in covered wagons, left the Chernikovka station for Chengdu, also crossing the border in Zabaykalsk-Manzhouli. Trains with containerised solid bitumen are to run on a monthly basis. TransContainer expects to at least double that frequency in the near future.

PPE-MDD trains from China to Poland

Commissioned by the Polish Material Reserves Agency (a governmental institution that purchases, stores, and distributes strategic reserves), Maersk has organised two rail shipments to Małaszewicze – from Xi'an and Yiwu. The load (4.0k m^3 in total) consisted of personal protective equipment (PPE) and medical disposable devices (MDD) procured by the ZARYS International Group, a Polish medical supplies provider, on behalf of the Agency. Each train set comprised 41 containers – from Xi'an with 20 boxes for ZARYS, while the Yiwu one fully loaded with PPE and MDD for the company.

Denmark included in the New Silk Road network

A fully loaded train left Xi'an on 6 March for the Russian Baltic Port of Kaliningrad, where the goods were loaded onto a vessel heading for the Danish Port of Fredericia. The service started running once every two weeks in March, up to one per week later on.

From Wuhan to Milan

The train set – carrying electronics, auto parts, and epidemic-prevention supplies – crossed Duisburg on its way and arrived at the final destination after 21-22 days. According to the China Railway Wuhan Group, the set that left the Chinese city on 20 March was the 30th China-Europe container train that departed from Wuhan since the year started. In 2020, Wuhan saw a total of 215 China-Europe freight train trips, reports *China Daily*.

From Xi'an to Helsinki via Kaliningrad

By combining rail and sea transport, DB Cargo Eurasia is testing an alternative route from China to Finland to the current setup that sees trains passing the Buslovskaya-Vainikkala border between Russia and Finland. The company – working with its partners DB Schenker, DB Cargo Russia, XIAN ITL, UTLC ERA, and Mann Lines – organised a train set that arrived in the Port of Kaliningrad on 8 March. A total of 42 FEUs was then transshipped onto Mann Lines' *Dornbusch*, which on 10 March sailed out for Helsinki's Vuosaari where the vessel berthed three days later. The total Xi'an-Helsinki transit time amounted to 16 days. The service isn't a regular one but can be arranged on an on-demand basis. The shipment comprised clothing, furniture, fittings, personal protective equipment and medical disposable devices, car tyres, production equipment, and household appliances.

Valenciennes joins the New Silk Road network

A barge carrying some 40 FEUs loaded with Chinese goods has arrived at the Scheldt River-located Terminal Bruay-sur-l'Escaut of Contargo near the French Valenciennes close to the Belgian border. The barge – 110 m-long and 11.4 m-wide, able to carry up to 104 TEUs – was loaded in Duisburg from a train that came from China. The journey took around 20 days, with the Duisburg-Valenciennes stretch covered in 60 hours.

'Crunch time' for (European) shipping

The Swedish Shipowners' Association, the Union of Greek Shipowners, and the NGO Transport & Environment (T&E) have issued **a letter** to the European Commission (COM) calling for the placing of the 'polluter pays principle' at the core of the revised EU Emission Trading System (ETS), which is expected to cover sea shipping, too. "This is crunch time for the shipping industry. With the EU deciding on the details of its maritime carbon pricing, it is an opportunity to put shipping on a path to decarbonisation. A well-crafted proposal can achieve this without undermining the smooth functioning of the sector," Faig Abbasov, Shipping Director, T&E, underlined. According to the signatories, the ETS should not be limited to voyages within the EU but also cover voyages with third countries. "An intra-EU only ETS would reduce the environmental effectiveness of the measure and place the burden unfairly on short sea shipping companies," they said. The three also ask the COM to rule out free emission allowances to avoid punishing smaller companies that have less administrative capacity to take advantage of the system as well as back the European Parliament's proposal of establishing an 'Ocean Fund' under the ETS to push forward R&D on, i.a., green fuels. The COM is revising the EU ETS in line with the European Green Deal. The proposal is expected in June. Meanwhile, T&E has also partnered with the shipping companies CMB, DFDS, Torvald Klaveness, and Viking Cruises, the association of hydrogen and hydrogen-based fuel producers Hydrogen Europe, the maritime classification society Lloyd's Register, and the commodities trader Trafigura to call on the COM to create investment certainty for green hydrogen and ammonia as marine fuels. According to the parties, green hydrogen and ammonia are sustainable and can be produced in sufficient quantities to decarbonise the industry. They say production costs can be reduced with economies of scale, but that will cost around €1.4t in capital investments globally. Abbasov commented in this regard, "After more than two decades of inaction in cleaning up shipping's environmental impact, we finally have solutions on the horizon that offer a clean future for the maritime and fuels industry. But this opportunity will be lost if there is no incentive for investment in green hydrogen and ammonia. That's why the Commission must use its upcoming maritime fuel law to require ship operators to progressive switch to these green fuels, as that will provide the investment incentives that will bring down fuel prices." The signatories also warned against any role for biofuels, especially those crops-based, in cleaning up shipping, both on emissions grounds and on how much supply could be increased to meet demand.

Photo: DFDS

Green light for the 2021-2027 CEF 2…

The European Parliament and the Council have given their go-ahead for the €33.7b Connecting Europe Facility (CEF). The proposal includes €25.8b for co-funding transport projects, among many facilitating decarbonisation, as well as €2.0b for the new CEF Digital, which will channel money towards investments in connectivity infrastructure like the roll-out of the 5G network – also across the transport sector. As such, the new CEF is to directly contribute to the realisation of the European Green Deal post-corona recovery plan, a 90% cut in emissions by 2050, and the **Digital Decade**. "The Connecting Europe Facility is central to completing the **Trans-European Transport Network (TEN-T)**, as well as making it greener and more digital. It will serve to bridge critical cross-border transport connections, shift more traffic towards rail and inland waterways, and boost multimodal integration. We must have a smarter, more sustainable and crisis-proof transport system, and CEF will be key to making that happen," Adina Vălean, Commissioner for Transport, underscored.

… and for the Delli Report

The Committee on Transport and Tourism of the European Parliament has adopted the Delli Report – prepared by Karima Delli of the Group of the Greens/European Free Alliance and Chair of the Committee in question – on more efficient and cleaner maritime transport. The Report calls on the European Commission (COM) to address, under the FuelEU Maritime initiative, not only the carbon intensity of fuels but also the technical and operational measures which would improve the efficiency of ships and their operations. The Report also underlines the need to fulfil the investment commitments under the **Trans-European Transport Network (TEN-T)** as well as to boost access to funding under the Motorways of the Sea programme through simplified criteria. Lowering the threshold for financing small-scale projects by the European Investment Bank has also been identified as a necessary step. Moreover, the Report encourages the COM to establish a good practice exchange network to adapt the workforce to the new needs of the sector. The transport industry has welcomed the move, though, not without a few reservations. For instance, the European Sea Ports Organisation said that it "[…] does not favour the proposal for a subsidy scheme for shipowners to bridge the price gap between fossil fuels and clean alternative fuels, especially if these subsidies should come from the potential ETS [Emission Trading System] revenues. Using the EU ETS revenues for such a scheme could reduce available funding for necessary investments in port infrastructure and shipping and create market distortions. Therefore, ESPO agrees with calling for an impact assessment of any such subsidy scheme."

INEA becomes CINEA

As of 1 April 2021, the Innovation and Networks Executive Agency (INEA) became the Climate, Infrastructure and Environment Executive Agency (CINEA). The 'new-old' Agency will look at supporting sustainable, green, and decarbonised Europe. CINEA will continue managing the existing projects and start implementing the new 2021-2027 programmes, including CEF 2 transport-related initiatives and adding to these climate actions.

YouTube

THE CONTAINER BARGE *MAAS* TO RUN ON ZERO-EMISSION HYDROGEN

• Future Proof Shipping (FPS) has partnered with the Holland Shipyards Group (HSG) to retrofit the vessel to a zero-emissions hydrogen propulsion system. Both the main engine and gearbox will be removed, making room for a new modular propulsion system (electric motors, hydrogen tanks, a proton exchange membrane fuel cell system, and a battery pack). The fuel cell system will be triple redundant with 825 kW of capacity to supply propulsion and auxiliary power, while the 504 kWh lithium-ion battery pack will be used for peak shaving, secondary and bridging power. The system will contain a 750V DC bus bar and an e-motor for propulsion. The hydrogen and fuel cell system will be installed in the cargo space, with the former being placed above the latter in two forty-foot containers (approx. 1,000kg at 300 bar). The compressed hydrogen tanks, the fuel cells, and the battery system will be separate units in order to be removed for maintenance or replacement purposes. The 110 m-long and 11.45 m-wide inland container vessel will be retrofitted at the Holland Shipyards Group's yard in Hardinxveld throughout Q3 2021 and is expected to be sailing 100% on hydrogen by December of this year. Once back in service between Rotterdam and Antwerp, *Maas* is expected to reduce greenhouse gas emissions by some 2,000t/year of Carbon Dioxide Equivalent. FPS aims to build a fleet of 10 zero-emissions inland and short sea vessels. •

ALTERNATIVE SHIPPING FUELS UNDER ALFA LAVAL'S SCRUTINY

• The company's Test & Training Centre in the Danish Aalborg has begun looking into two types of marine fuels, methanol and biofuels made from waste. Alfa Laval will not only investigate the fuels' decarbonisation potential but also what measures will have to be taken to adapt and develop equipment for the vessel engine rooms. "A number of fuel pathways are on the table in the transition towards zero-carbon shipping, but the knowledge about their impact on marine equipment solutions is limited. We want to extend that knowledge through testing," Sameer Kalra, President Marine Division, Alfa Laval, underlined. The 2,800 m^2-big testing space – already equipped for today's oil and gas fuels – has been readied for testing biofuels and methanol. Working together with MAN Energy Solutions and other partners (the Danish Technological Institute, Technical University of Denmark, and the biofuel producer Nordic Green), Alfa Laval will explore the possibility of running the centre's four-stroke, 2.0 MW diesel engine on methanol – without modifications or another pilot fuel. Once the fuel has arrived, the first task has been to determine how to handle it at scale. Because methanol is a liquid at room temperature, it can be stored in unpressurised tanks. However, a low flashpoint of 7°C makes methanol highly volatile – despite the challenge of igniting it through compression. After working out the handling practicalities, broader tests of methanol in the unmodified engine will commence. •

WALLENIUS WILHELMSEN MOVES FORWARD WITH ITS WIND-POWERED SHIP

• The company will now conduct a comprehensive viability assessment in order to have the design ready by mid-2022 so as to contract a shipyard which, in turn, would deliver the vessel in 2025. *Orcelle Wind*, previously known as *Oceanbird*, will be a pure car & truck carrier, 220 m-long, 40 m-wide, and able to carry 7,000 vehicles (incl. heavy machinery as well as break-bulk goods). She will primarily be propelled by wind, harvested with the use of telescopic sails. Wallenius Wilhelmsen speaks of a sailing speed of 10-12 knots under sail, increased with a supplemental power system if need be. •

FIRST SEA TEST OF *RABOCHAYA*'S AUTONOMOUS OPERATIONS

• Rosmorport's hopper barge has undergone an autonomous voyage outside the Port of Gelendzhik in the Black Sea, during which her abilities to detect targets have been tested, along with optimising manoeuvring. The MARINET Industry Center of the National Technology Initiative has initiated a project – supported by the ministries of Industry and Trade and of Transport of Russia, and the Russian Maritime Register of Shipping – tasked with introducing unmanned shipping for Russian-flagged ships. Another of Rosmorport's vessels, the dredger *Redut*, has been equipped with remote controls for steering *Rabochaya*. Rosmorport plans to use such a setup to control an entire dredging fleet from a single point. According to Russia's Agency for Strategic Initiatives, technological solutions for autonomous ship operations will have been adopted for commercial fleet use by August 2021. •

THREE MORE PARTIES JOIN THE COALITION FOR THE ENERGY OF THE FUTURE

• Airbus, Bureau Veritas, and PSA International have joined the now 14-member-strong organisation tasked with accelerating the green energy transition in the transport & logistics industry. The Coalition was founded in late 2019 to drive the development of solutions to curb global warming, reduce air pollution, and protect biodiversity. Specifically, the members pool their R&D efforts in pursuit of three goals: increasing the availability of clean energy sources; lowering the energy consumption of transported goods per kilometre-equivalent; and eliminating a substantial proportion of harmful emissions being released into the atmosphere. The Coalition has also unveiled its first seven projects it will be working on: hydrogen-run long-distance trucks; next-generation biofuels for shipping; carbon-neutral liquefied biogas; green electricity to power depots, terminals, and warehouses; zero-emission vehicles for road, air, and sea transportation; a digital door-to-door eco-calculator; and ways to make ports intermodal green hubs. •

YARA-STATKRAFT-AKER HORIZONS GREEN AMMONIA CO-OP

• The trio has signed a letter of intent aimed at electrifying Yara's existing ammonia facility in Porsgrunn, hence making it a production base of zero-emission fuel for shipping, carbon-free fertilizer, and ammonia for industrial applications. Provided that power is available at the site and the required public co-funding is in place, the project could be realized within five-to-seven years. Making the Porsgrunn facility entirely green equals to getting rid of more than 300k fossil fuel passenger cars. According to the parties, converting long-distance shipping to ammonia would require some 500-600mt of ammonia produced annually, i.e., three-four times more than what is the current global output. In addition to the Porsgrunn project, the companies plan to explore the potential for green ammonia production in Northern Norway as a future opportunity. •

THE POWER-TO-AMMONIA PROJECT KICKS OFF

• DFDS, Arla, Maersk, Danish Crown, and DLG have partnered to increase the availability of green ammonia as an alternative fuel. The 50kt of yearly production capacity Power-to-Ammonia facility will be based in Esbjerg and is expected to become operational in 2026. Green ammonia can be used as an energy carrier in solid oxide fuel cells. •

THE HOPE PROJECT

• The IVL Swedish Environmental Research Institute, Sintef, the University of Iceland, Stena Rederi, and Powercell Sweden have initiated a new study on how hydrogen and fuel cells compare to other alternative fuels for sea shipping. The HOPE – Hydrogen Fuel Cells Solutions in Shipping in Relation to Other Low Carbon Options project will develop and evaluate a concept design of a short sea shipping vessel, which uses hydrogen and fuel cells for propulsion. The initiative will also scrutinise the barriers and driving forces for constructing such a ship in the Nordic region as well as how operating such a vessel would impact greenhouse gas emissions and air pollution. The HOPE project is financed through a cooperation programme set up by the Norwegian Nordic Energy Research, the Danish Energy Technology Development and Demonstration Program, Business Finland, the Swedish Transport Administration, the Research Council of Norway, the Icelandic Centre for Research, as well as through in-kind contributions from partaking companies. Two other projects testing the application of hydrogen and ammonia in sea shipping are also supported via the programme. •

STENA BULK'S INFINITYMAX MODULAR HYDROGEN-RUN LIQUID & DRY BULK CARRIER CONCEPT

• The design, which could turn into reality in 2030-2035, features self-sufficient compartments for carrying different types of bulk goods, as well as solutions to make the ship zero-carbon, including telescopic wing sails and a sharkskin hull. In addition, wind turbines and solar panels will generate the electricity needed for the internal systems of *Stena Infinity*'s modular cargo units. The modules have also been designed to be able to be dropped off outside of ports and picked up by tugs, avoiding congestion and reducing call times. "In effect, the InfinityMAX drives improved world fleet utilisation and the potential for more standardised supply chains, as well as reduces the unnecessary environmental impact of empty tanks being shipped around the world in search of new cargo," Stena Bulk underlined. Although the vessels will be crewed, Stena Bulk has designed *Stena Infinity* to be semi-autonomous in order to shift the role of the on-board crew away from hard labour to monitoring and interaction with operators ashore. •

'PORT POWER BANK' TESTING IN AMSTERDAM

• While berthed at the VCK Logistics' Waterland Terminal in the Port of Amsterdam, Wilson's 3,500 dwt-big general cargo ship *Wilson Goole* received power via SKOON's battery. The portable battery is able to provide 630 kWh of electricity, which equates to at least 12 hours of shore power. The Port of Amsterdam has already been supplying power at the shore but only to inland vessels, including river cruise ships. The authority now wants to expand that coverage. •

THE FIRST REMOTELY OPERATED FORKLIFT

• GEODIS has partnered with Phantom Auto, a company specialising in long-range remote operation software for unmanned vehicles, to develop a fork truck that can be controlled from thousands of miles away. The solution uses a Fenwick forklift combined with Phantom's network-agnostic and interoperable remote operation software. The software provides real-time eyes and ears all around each vehicle, enabling operators to safely and confidently guide the vehicles from wherever is convenient. The overarching aims of the project are to reduce injuries and increase overall safety in warehouses; reduce the number of people physically inside warehouses to enhance worker comfort; create new future-proof remote operator jobs that can be carried out within an office environment; hire individuals who may have physical disabilities restricting their use of traditional forklifts as well as people from other historically under-represented demographics; and recruit from regions outside where the warehouses are located, including areas of higher unemployment. The first tests took place in Levallois and Le Mans, as part of multi-year cooperation between GEODIS, Phantom Auto, and Fenwick-Linde. •

NORTHVOLT'S $200M EXPANSION IN GDAŃSK

• The Swedish battery producer will establish – on the territory of the Pomeranian Investment Centre, near the Port of Gdańsk – what it says will be Europe's largest energy storage factory. The 50k m^2-big facility will be set up in two stages, with works on the first to commence in autumn 2021. Initially, from 2022, the plant will have an annual output of 5 GWh of energy storage modules and packs, up to a total capacity of 12 GWh after the completion of the second phase. In addition to the production line, an engineering R&D center of excellence will be created. Northvolt's investment will bring 500 new jobs. The factory will receive its supply of lithium-ion battery cells from the Northvolt Ett gigafactory, located in Skellefteå. The new factory will be powered with renewables, including on-site renewable energy generation. •

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Color Line
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INTERMODAL SERVICE MAP

European Cargo Logistics

ONE-STOP-SHOP“ ADVANTAGES

- Increased transport capacity (trailer up to 28 to.)
- No road transport toll
- No prohibited weekend driving
- Attractive lead times
- Reduced kilometre costs per ton
- Approx. 70% CO_2 reduction/unit
- Optimal connected to train schedules and ferry departures and arrivals
- Neutral experienced intermodal partner

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We make your standard trailer „liftable“ for train transport by special platform technic.

Now available for ***VERONA SHUTTLE!***

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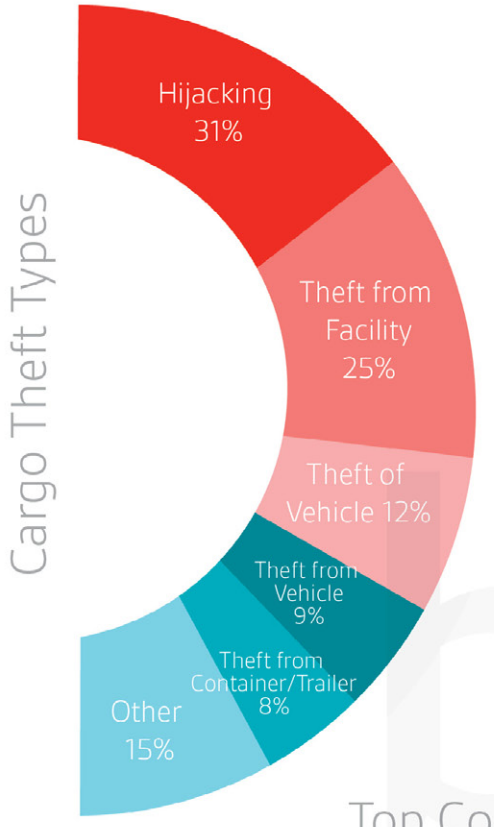
Cargo Theft Trends Global 2020

Based on recent incident data via collaboration and partnerships with law enforcement, government, non-government, commercial partners, trade associations, open-source media reports, and input from BSI advisors and expert consultants

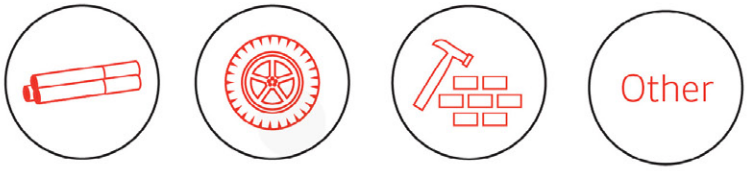


Top Commodities Stolen

31% Food and Beverage

10% Consumer Products

9% Electronics



8% Alcohol and Tobacco

7% Fuel

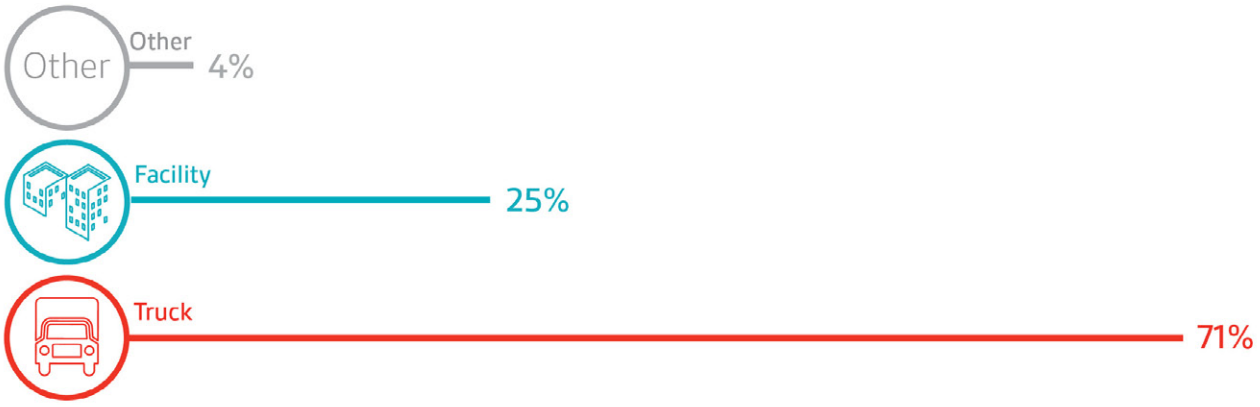
5% Construction Materials

30% Other major commodities

Top Countries for Cargo Theft

Brazil India Mexico Germany Russia United Kingdom

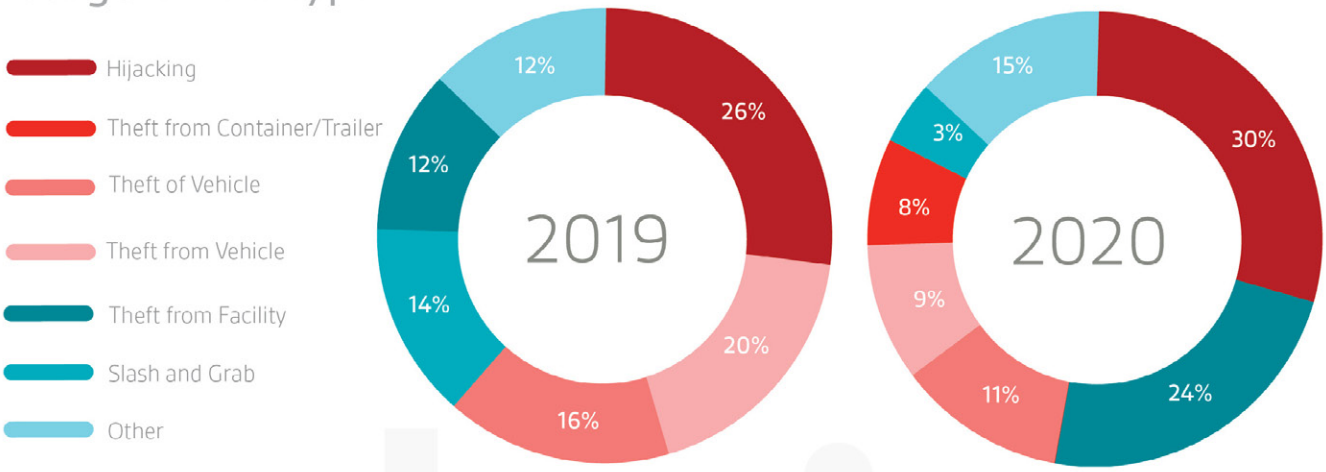
Modalities of Theft



Cargo Theft Trends Global 2019 v. 2020

Based on recent incident data via collaboration and partnerships with law enforcement, government, non-government, commercial partners, trade associations, open-source media reports, and input from BSI advisors and expert consultants

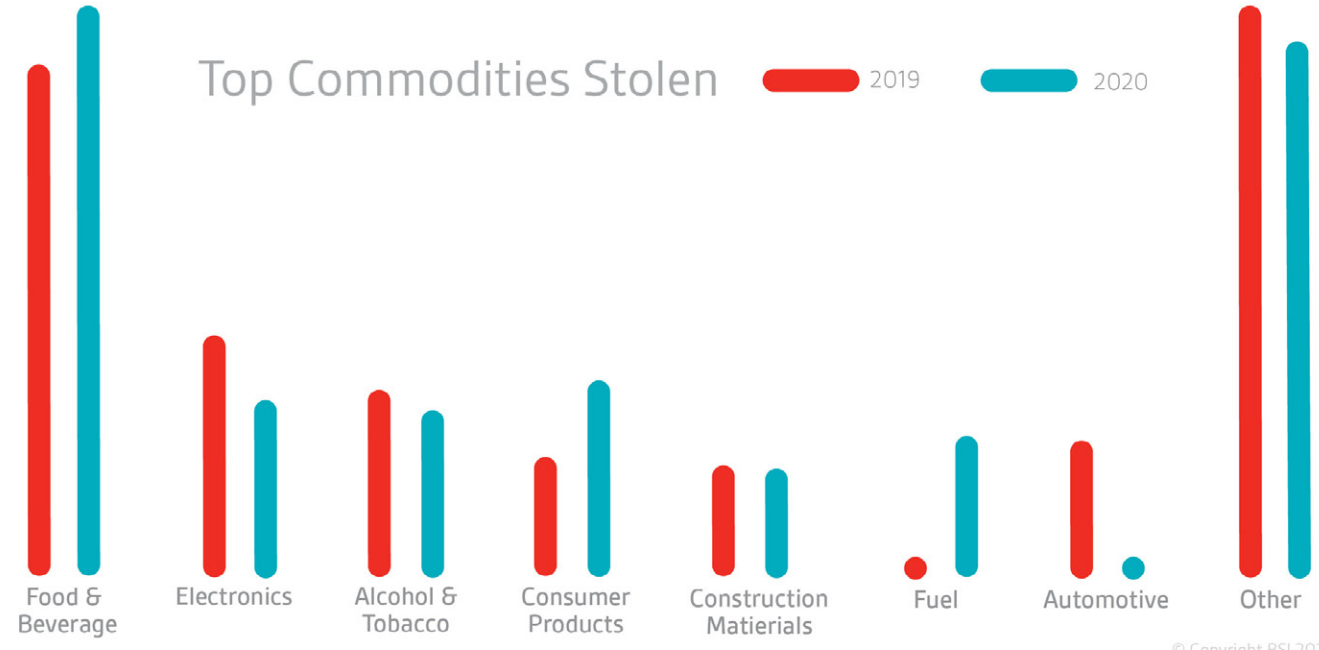
Cargo Theft Types



Modalities of Theft

	Road	Facility	Maritime	Other
2019	87%	10%	1%	2%
2020	71%	25%	<1%	4%

Top Commodities Stolen



Procedures and protocols

by Captain Michael McCarthy, *Chairman, Cruise Europe*

Nobody can quantify or articulate how much our world, and in particular the cruise industry, has changed in the past year and what the new world may look like. The gap between the hope of the cruise ships returning and reality, with still rampant coronavirus and slower than expected roll-out of vaccines, is a grave concern to the whole industry. The cruise companies and many organisations and people have shown great resilience even though, through no fault of their own, their lives and livelihoods have been totally upended. COVID-19 is truly an unprecedented event.

Global travel was flying high in 2019, a peak year in the modern travel era with one-and-a-half billion international tourists recorded globally. This was part of an upward trend since 2010 and was expected to continue, despite Brexit and other world events, according to the UN World Tourism Organisation (WTO).

COVID-19 brought it sharply back down to earth. The stark reality of economic paralysis into which the cruise and hospitality industry had fallen moved sharply into focus. The scale of the devastation that lies ahead and economic recovery is difficult to quantify.

"Travel as we know it is not coming back"

We will never forget the unprecedented adverse and unwarranted publicity early in 2020. The world knew more about how COVID-19 impacted cruise ships than any other sector, even though the suspension of all cruising occurred within 48 hours of the World Health Organization's (WHO) pandemic declaration.

By mid-March 2020, no one was travelling. By April, global air passenger numbers were down 94%, according to the International Air Transport Association (IATA), which represents 290 airlines. Initial optimism that the effects of the virus on travel could be sidestepped or overcome quickly dissipated. The importance of the world's aviation industry, particularly to the cruise industry, has never been more evident in the last nine months when it comes to the economic movement of passengers and crew, travel connectivity, and supply chains.

A September 2020 report from Accenture, entitled *Defining the Future of Travel*, states, "Travel as we know it is not coming back." The study notes that a 60-80% decline in tourist footfall is expected initially – according to the WTO – due to lack of confidence in booking, concerns about health, finances and safety, with people cautious about resuming normal activities. The cancellation of 30-40% of all global air routes will not be reversed quickly, while some may not return at all. Consolidation will be a big component of the resurgence of the industry.

There will be a latent demand for international tourism and cruise tourism. However, options for cruise travellers to make their own way to a departure or return port may be a problem due to the unavailability of connections and potentially higher flight costs. This will affect the cruise industry, but, as we all know, this industry has proved itself to be resilient. The knowledge in dealing with this pandemic will undoubtedly inform and shape the future of cruising.

COVID-19 can spread in any setting where people come together to socialise and enjoy shared experiences, from the retail, hospitality and transportation sectors – such as airlines, ships, trains, buses, and events – to those where people have close contact with others who are infected. The cruise lines are agile and resilient and are working under the guidance of international and national health authorities to adopt policies and protocols, such as travel, contact, and symptom screening. These are above and beyond the actions of other industries. They have to be as they develop plans for the future, including consideration of enhanced boarding procedures, additional public health and sanitation protocols, monitoring capabilities, quarantine arrangements, and shore side care for guests and crew.

COVID-passports, 'staycation,' and tourism's role in climate change

The cruise industry is regulated by the International Maritime Organization

(IMO), flag and port states, and the return to operations will be based on a number of factors, including guidance from prevailing global health authorities and governments.

But we need more harmonisation of procedures and protocols. We have many organisations, from the WHO, the EU and governments to the cruise lines, cruise associations, the Cruise Lines International Association, and ports, responding to this very difficult and ever-changing problem. It is exacerbated by the continued spread of the virus, the mutation into different and more contagious strains, numerous national/regional lockdown durations and restrictions, international travel restrictions, and the roll-out of multiple vaccines.

It is clear that one size fits all procedures and protocols are not feasible. However, after studying different documents, it is clear that there is over 70% commonality across the protocols. Why not start with that and adapt across transport modes, making due allowance for an ever-changing 30% landscape?

The other issue that also needs urgent clarification is the duration of protection once a vaccine is received and if/when it needs to be re-administered or topped-up. This then raises the issue of a COVID-passport, date-stamped, again assisting confidence to travel and cruise.

The cruise industry and tourism businesses that offer a customised experience, with the right combination of technology and personal service, are most likely to survive and prosper. The return to a cruise line offering a total package, from home to a ship and return, will be very important to a lot of cruise travellers, particularly the elderly, due to guarantees of health and travel protocols.

For people fortunate enough to be financially secure, there has been a build-up of involuntary savings as restrictions limited many peoples' spending outlets so that social spending will bounce back on travel, hospitality, entertainment and retail, once a semblance of normality returns. People will want to travel again, but it will depend on national and local protocols that welcome 'responsible' visitors while ensuring their safety. Even as restrictions are relaxed, many leisure travellers are not ready to take a flight, stay in a hotel room, take a cruise, or rent a car.

This may mean a combination of rapid testing, vaccine passports, enforcement of social distancing, and mask-wearing. But can full flights guarantee social distancing, and will there be a falloff of business and premium travellers who have traditionally subsidised the costs of economy seats on long-haul flights? And, with the rise in remote working and virtual events and conferences, business travellers don't need to get on the road anytime soon. It is reported that over 50% plan to reduce their travel in the future.

The sustainability of all leisure activities has been brought sharply into focus. In many countries, where people are forced to 'staycation,' there has been a reawakening of what is available at home, particularly regarding less-crowded locations and outdoor activity. People are walking, cycling and exercising more, watching nature, while socially distancing. Will this mean a future structural shift, filtering down to ship design, size, and a wish to cruise on less crowded vessels as the industry strives to zero emissions? The situation again has made us think-over tourism and tourism's role in climate change, particularly aviation.

As soon as practicable

We have seen cruise companies unfortunately forced into liquidation, while many continue to downsize their fleets and accelerate the removal of older ships in 2020, which were previously expected to be sold over the coming years. Future capacity is being moderated by the phased re-entry of ships and delays in newbuild deliveries.

The cruise industry will prevail and work hard to get their business back up and running as soon as practicable. In the current environment, cruise companies that source the majority of their guests from the geographical region in which they operate look like the first to resume operations in the mid-latter half of 2021.

Most of our Cruise Europe members are hurting badly with huge loss of revenues (the Baltic cruise market alone saw its traffic going down from nearly 5.6m travellers in 2019 to a handful of 58k last year). The year 2020 was full of highs and lows for many ports and terminal operators, which, despite a disastrous first quarter, saw a pick-up over the rest of the year in port activity across many sectors, other than cruise and ferry passengers. However, the losses incurred by the cruise lines themselves are mind-blowing.

I often think about what the return to business will look like, who will survive and what measures will have to be introduced on the mega-ships with reduced numbers of people. What will the price of a ticket be? Will a small destination welcome a few thousand people from a ship? Will everyone have to have a COVID-passport, etc.?

Necessity is the mother of all invention

Human nature has evolved over thousands of years, as has the craving people have for other human interaction. Hopefully, when COVID is a long distant nightmare/memory/lesson, the interaction will recover strongly, and full cruise ships will sail again. There is no denying how all our lives have been affected and our outlook shaped with the times changing before our eyes.

We have also seen that 'necessity is the mother of all invention.' This rings true for many businesses which have had to find creative solutions and innovation to survive. Many work practices, from the need to travel and office occupancy to business travel, have changed and will never go back to the way they were. Modifications and alterations through technology, social media, LinkedIn, and other platforms offering fast, targeted and cost-effective communication have made this possible.

Businesses have proved their ability to be flexible and agile, replacing structure, discipline, and expectations. While companies have to develop business plans and strategies, predicting the future is now a mug's game. It is stated that "If you want to give God a good laugh, tell him your plans."■

Captain Michael McCarthy has been chairing Cruise Europe since 2012, having previously worked at the Port of Cork for nearly three decades, first as Deputy Harbour Master/PFSO/DGSA and then Commercial Manager. He also runs his own consultancy business MMCC Port Marine Ltd.

In the best of health

by Fitzwilliam Scott

COVID-19 has shone a light on the importance of health and how we should all look after ourselves. Governments have issued stark warnings that obesity leads to vulnerability in overcoming the virus, alongside underlying health conditions. Similarly, it has reminded everyone, both at sea and onshore, that health can't be bought and that diet plays a pivotal role in our ability to fight off infections such as this latest one.

The international catering management and training business provider MCTC has long promoted the importance of leading a nutritiously rich and wholesome lifestyle to improve health on-board. Its Managing Director, Christian Ioannou, has set up the company to change people's mindset surrounding good nutrition. He strongly believes the rise in diet-related conditions among seafarers is down to the number of preservatives that are added to ready-made products nowadays.

Healthier and cheaper

According to Ioannou, it is important that companies realise the benefits that providing good nutrition can offer to crews and vessel operations. "It is a common myth that cooking your own products will end up costing vessels more, but by cooking meals from scratch, as opposed to ready-made portions, it can actually end up in cost efficiencies for companies," he underlines.

"There is a range of benefits that cooking self-made products offers. They have lower refined sugar levels, fewer artificial ingredients, and often contain fewer calories as cooks have the control over what actually goes into the pot, not to mention they are less expensive," Nichole Stylianou, Food Nutritionist at MCTC, lists the positives. Examples of ready-made products that achieve better nutritional and financial value when freshly made are salad dressings, bread, cakes and cookies, stocks, soups, and sauces. Buying these products ready-made will cost a lot more and will run out faster.

"Good nutrition can be achieved through eating a balanced diet, including nutrients, vitamins, and minerals. Ensuring you are eating a balanced diet can be overwhelming, but small, gradual changes can lead to the best results," Stylianou explains. Seafarers can often be resistant to adopting a more nutritional diet if they have been used to relying on sugary foods and snacks and eating a more fatty diet, but by introducing small changes gradually, they can be more open to the change.

Good nutrition can be achieved by planning meals, following a weekly menu, planning at least one meat-free meal a week, enjoying (whole) grains more often, making plans for leftovers, and knowing what your colleagues like to eat. "You do not need to eat less to achieve a balanced diet; you just need to eat better," she adds.

Nutrition and mental health

As well as helping seafarers to stay healthy and reducing the risk of diet-related illness, such as diabetes, high blood

Photo: cottonbro/Pexels

pressure and obesity, good nutrition can also offer a wealth of mental health benefits. MCTC works with **Mental Health Support Solutions** (MHSS) to strengthen support for seafarer mental health and create a 360-degree care approach to their day-to-day lives.

MCTC offers, through its partners, therapeutic relief to seafarers through counselling as well as diet, sleep cycles, social interaction, cultural differences, and Internet use. It enables both parties to ensure a unified and comprehensive stance in the fight against depression and anxiety on-board ship. Further efforts are also underway to create exercise routines to help with developing healthier dietary habits off- and ashore.

MCTC has always advocated the importance of leading a nutritionally rich diet which impacts overall physical and mental health. Food is crucial in supporting mental health due to its role in providing the body with essential nutrients which can only be obtained directly from the diet.

According to Ioannou, if fed properly, the body converts carbohydrates into glucose, fatty acids into healthy brain cells, and amino acids into neurotransmitters. **Vitamin C** also lowers the amount of cortisol in the body, a stress hormone that has adverse effects on the organism if elevated for a longer period of time, while complex carbohydrates increase the production of serotonin (often called the 'happiness chemical'). All of these are found in nutrients in food, especially vegetables and fruits, and demonstrate the important relationship between nutrient-rich diets and mental health.

Charles Watkins, Managing Director, MHSS, links good mental health and sound nutrition, pointing to the positive effects of the consumption of higher levels of magnesium and zinc can have on an individual's mood. **Zinc** deficiencies can lead to mental health problems, including depression, increased anxiety, irritability, and induced deficits in social behaviour. Clinical studies have shown that low levels of zinc intake contribute to the symptoms of depression, and patients suffering from depression have a lower serum zinc level. Watkins also mentions how past studies have revealed that an increase in zinc, either through diet or supplements, have provided a natural anti-depressant effect and enhanced the mood of individuals.

It is also understood that the consumption of **magnesium**-rich products can offer positive effects on symptoms of depression. A recent random clinical trial in a population of adults diagnosed with mild-to-moderate depression found that the consumption of 248 mg of magnesium per day for six weeks resulted in a clinically significant six-point decrease ($p < 0.001$) in depressive symptoms, as measured by the Patient Health Questionnaire-9 (PHQ-9) compared to those receiving a placebo treatment.

We are all, no doubt, aware of how consuming too much sugar can lead to unhealthy habits and putting on weight, but too much sugar can be a key factor in depression and anxiety as well. Multiple studies have found a link between diets high in sugar and depression. Overconsumption of sugar can trigger imbalances in certain brain chemicals. These imbalances can lead to depression and can even lead to a long risk of developing a mental health disorder. Low blood levels of **polyunsaturated omega-3 fatty acids** are also associated with depression, implying a role in mood disorders, Watkins notes.

Sailing through the food aisle

The popular saying goes: you are what you eat. While there is more nuance to it – genetics play a role, too, as well as the quality of the environment and the relations we have with others, plus, of course, exercising also counts – there is no denying that the diet is one of the most powerful tools we have at our disposal to either ruin or heal our bodies. The market for diet advice is also dual, with a lot of sham on one side of the aisle and genuine life-saving science & nutrition intervention on the other. The brave seafarers, thanks to whom global trade didn't cave in during the past year, deserve only the best cooking. That's some food for thought for their employers! ■

MCTC is an international maritime catering management and training business, with its primary vision being to change the quality of the meals served on-board vessels, significantly contributing to healthier eating habits. MCTC offers full catering management to shipping companies as well as a comprehensive range of training programmes for chefs and cooks working on-board ships. Go to **www.mctconsultancy.com** to learn more.

Will the European Green Deal make ports' future sustainable?

by Dr. Kai-Dieter Classen, *LL.M. (Berkeley), Deputy Director of the External Affairs Division*, and Manfred Lebmeier, *Senior Environmental Advisor in the Environment & Sustainability Division, Hamburg Port Authority*[1]

The European Green Deal (EGD) is a set of comprehensive policy initiatives by the European Commission (COM) aimed at achieving climate neutrality in Europe by 2050. It will affect all European industries, in particular transport, with ports very much included. For the impact to be significant – and positive – EGD-related policies will have to be carefully revised and adjusted accordingly. In sum, this is a Herculean task.

In December 2019, the new COM presented the core of its governmental programme – the EGD. It addresses some of the most urgent mega-trends of our times, which can be, by all means, considered as this generation's defining task. The most prominent is climate change, followed by the loss of biodiversity, pollution and destruction of ecosystems, and the waste of resources. To counteract these across the board, the COM identified various measures which shall be driven or supported by regulation and fiscal measures. Overall, it suggests making the EU's economy decarbonised, digitalised, and circular, a move that is hoped to create new commercial sectors and business models along the way. Even though no stones are to be left unturned by the EDG, an immediate focus lies on the transport sector – and consequently, on ports.

Superordinate legislation – Climate Law and Green Taxonomy

The most prominent part of the EDG currently in the legislative process is the proposal for the European Climate Law. This proposal aims to establish the framework for achieving EU climate neutrality in 2050 (incl. defining a trajectory towards it, such as an intermediate target for 2030). The COM's proposal increases the CO_2 reduction target for 2030 to 55%, which was originally set at a 40% reduction in emissions compared to 1990 by the 2013 Climate Change Adaptation Strategy (the European Parliament even suggested raising this intermediate target to 60%).

Meanwhile, another and quite complex policy is taking shape, intending to support the EDG objectives by way of fiscal measures. The purpose of Regulation 2020/852 on the establishment of a framework to facilitate sustainable investment (Taxonomy Regulation) is to direct investments in the EU towards sustainable projects and activities. Therefore, it establishes criteria for determining whether an economic activity qualifies as environmentally sustainable. While this regulation has already been in place since June 2020, the supporting delegated acts, which will contain the technical screening criteria, are in the making. Once completed, this set of rules is going to have a big impact on the EU funding policy, as unsustainable projects are not likely to be eligible anymore.

[1] *This article represents the authors' personal views.*

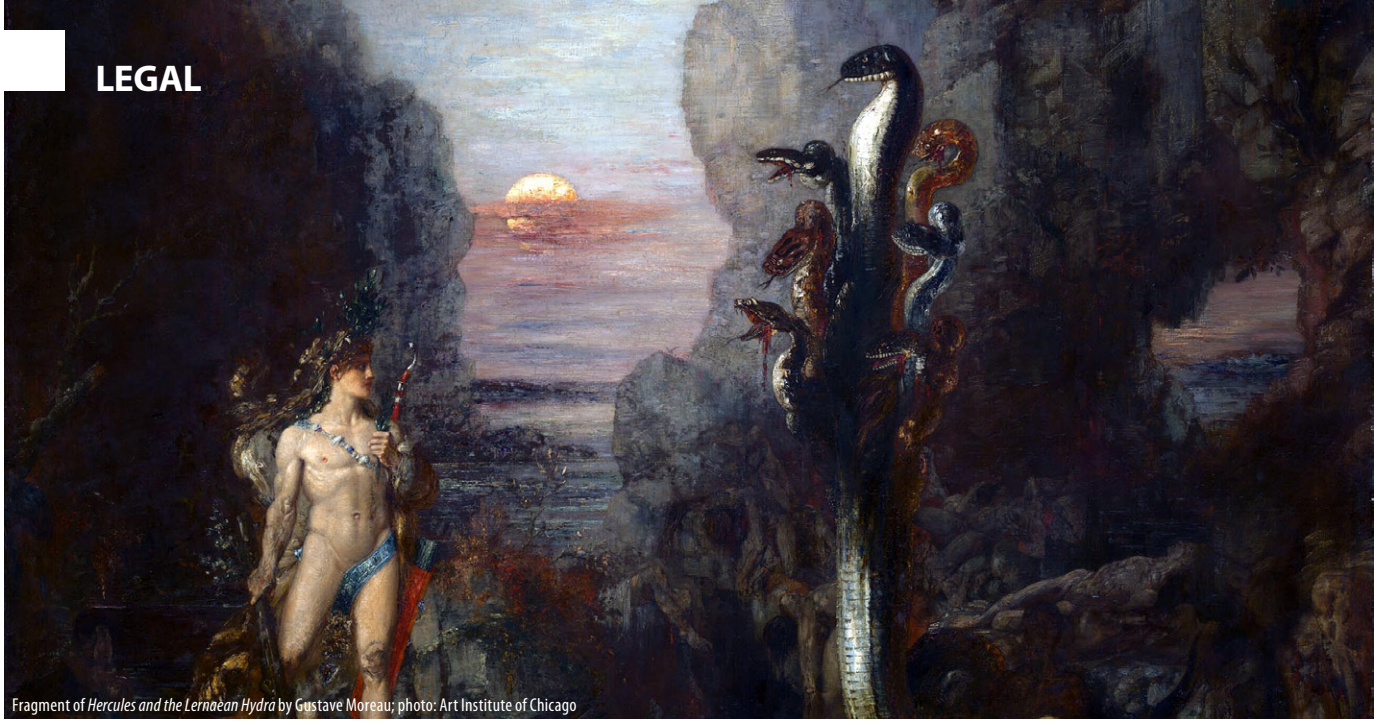
Several current initiatives of the COM have repercussions for ports on short notice, among others, the revision of the Energy Taxation Directive 2003/96/EC (which will presumably be completed in summer 2021). Energy taxation is relevant to the overall cost of onshore power supply (OPS), liquefied natural gas (LNG), bunker, and net-zero-carbon fuels and other forms of energy – as a result, it bears a significant impact on the attractiveness of both established and alternative means of power generation. Under the proposed FuelEU Maritime Initiative, the demand side of shipping will be in focus. The announced directive seeks to increase the use of sustainable alternative fuels in European shipping and ports by addressing market barriers and uncertainty about technical options. Likely, it will regulate the emission behaviour of vessels in ports and at berth. The controversial and increasingly heated discussion on the inclusion of shipping in the European Emission Trading Scheme (ETS) is in full progress. Concerning infrastructure, two initiatives deserve the ports' full attention.

First, the revision of the TEN-T Regulation. In 2013, the EU laid down its infrastructure policy regarding transport in Regulation 1315/2013 on Union guidelines for the development of the Trans-European Transport Network (TEN-T). Notably, the EU recognized more than 300 European ports as essential nodes in the defined Core and Comprehensive Networks. This decision has an impact on many fields of EU policy, i.a., on state aid law, where the character of a port being part of either the Core or Comprehensive network is an important aspect in framing a positive notification decision. The corresponding Regulation 1316/2013, establishing the Connecting Europe Facility (CEF), provides the funding instrument for EU's strategic investments in transport, energy, and digital infrastructure. According to an informal agreement (reached during passing for press), the CEF transport budget for the 2021-2027 term will be €25.81b (incl. €11.29b for Cohesion Countries).

All things considered, the TEN-T policy is of critical importance to ports. According to the COM's Green Deal Action Plan, a proposal for a revision of the TEN-T regulation is planned. The main problem of the current TEN-T regulation, according to COM, is its insufficient effectiveness to stimulate zero- and low-emission transportation. It seems that the COM intends to gear a revised TEN-T Regulation away from classical infrastructure policy and towards an instrument with a strong decarbonisation impact. This shall include, i.a., supporting the deployment of high-power charging facilities and new flexible bunkering infrastructures to provide large quantities of sustainable alternative fuels for different shipping segments in European sea- and inland ports. In this respect, the COM tends to blur the demarcation lines between infrastructure and transport policy and needs to establish a clear border between the TEN-T revision and our second focus point, the ongoing revision of the Alternative Fuels Infrastructure (AFI) Directive.

A clean port starts with clean ships. To that end, the AFI Directive 2014/94 on the deployment of alternative fuels infrastructure creates a common framework for the development and realisation of such infrastructures in the EU, notably in ports. It marks the first decarbonisation efforts of the EU by means of supporting infrastructure policy. The main idea was to make setting up infrastructure for LNG bunkering and OPS mandatory in TEN-T Core Ports. At the time of drafting the AFI Directive, LNG and OPS were considered the silver bullets for shipping to solve the emission issues at sea and berth. Eight years on, it is apparent the original approach failed for several reasons. As a standalone measure, it addressed only the supply side – there was no regulatory support targeting the demand side. And, instead of being technology-neutral, it prescribed two solutions without a deeper understanding of the economic rules and forces applying to the shipping business. As long as traditional fuels are dramatically cheaper and available pretty much anywhere, the pressure on freight rates will continue to discourage the uptake of sustainable alternative fuels or the use of (electricity-taxed) OPS, putting the first-movers, shipping companies and ports alike at a significant competitive disadvantage.

In April 2020, the COM started a revision of the AFI Directive with the objective of building-up a dense and easy-to-use alternative fuels infrastructure network for land vehicles, vessels, and aircraft. However, it seems that the COM, by following the mantra of 'more is better,' now runs the risk of treading even farther – and increasingly faster – down the inconclusive path taken in 2014. LNG is still regarded as a highflying new fuel, used by less than 1% of the merchant fleet; in addition, as a fossil fuel, its CO_2 saving potential is nil. The construction of OPS infrastructure could become mandatory for TEN-T Core Ports, a move that may backfire at least at two levels. These are costly installations, to begin with, especially those for serving the needs of cruise ships, with no guarantee the shipping side will make use of it; at the same time, given the 'wrong' power mix using OPS can actually increase CO_2 emissions. Establishing infrastructures for net-zero-carbon fuels is not the focus.



Fragment of *Hercules and the Lernaëan Hydra* by Gustave Moreau; photo: Art Institute of Chicago

Zero-emission at berth: a goal-based technology-neutral approach

Under the EDG, the COM, fortunately, seems to take a holistic approach to decarbonising transportation, as its parallel engagement with Energy Taxation, ETS, the TEN-T Regulation, the AFI Directive, and additionally the FuelEU Maritime initiative indicates. And yet, the challenge of the huge difference in costs between fossil fuels and sustainable alternatives will probably remain unsolved. All vessels in all ports should contribute to climate change mitigation and air pollution reduction. Shipping lines should not be able to bypass offers of clean alternatives, neither the availability of green electricity as a prerequisite for genuine emission reductions by means of OPS should be omitted.

Thus, prescribing a specific technical solution in binding EU legislation at this time will most likely produce stranded assets, in many cases at the expense of the taxpayer, leaving the competition with cheaper fossil fuels untouched. A goal-based, technology-neutral approach seems economically and ecologically much more worthwhile: a zero-emission limit at berth, that is.

With this requirement, it is up to ship owners to decide for each vessel on the best way to comply, which might vary from port to port. Once traditional fossil fuels are no longer the price benchmark due to the zero-emission at berth requirement, OPS will be one of the cheapest solutions in terms of operational expenditures, thus attractive to invest in and use. New solutions for ship propulsion, like net-zero-carbon fuels (e.g., hydrogen, ammonia, or methanol), batteries, or fuel cells, will become competitive as they will no longer run against cheap fossil fuels. Additionally, the zero-emission at berth standard would allow the COM to focus the revision of the TEN-T Regulation and the AFI Directive on their respective hitherto regulatory core. In the case of the latter, the revision should only centre around mandatory safety and permit standards for OPS as well as net-zero-carbon fuel infrastructure. A goal-based technology-neutral approach is also no novelty in EU law, as the very successful example of the Sulphur Directive 2016/802 proves.

Much more than carbon footprint

Greening a whole economic system is a formidable task of evermore pressing importance. It will need constant & constructive input to succeed. For ports, the measures described above are the most imminent. However, the EDG's focus is broader than CO_2 alone. Other aspects will become relevant in the near future as well, including improving the energy efficiency of buildings, the condition of the water body and the soil, and the integration of biodiversity in the highly industrialised port areas. These will force ports not only to make considerable investments but to question and ultimately re-establish the role they play in the greater scheme of things by seeking, testing, and putting in place new business models, most probably being much more open to incorporating practices from other industries – which we already see today. A generation's defining task – for sure.

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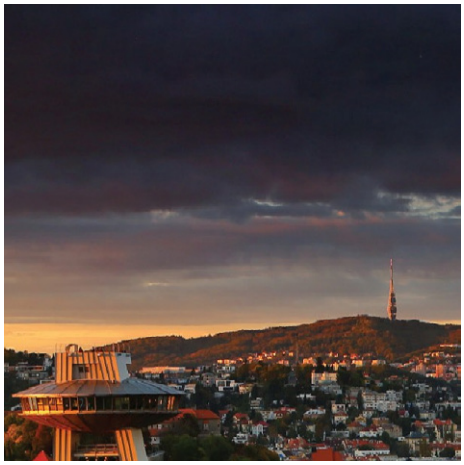

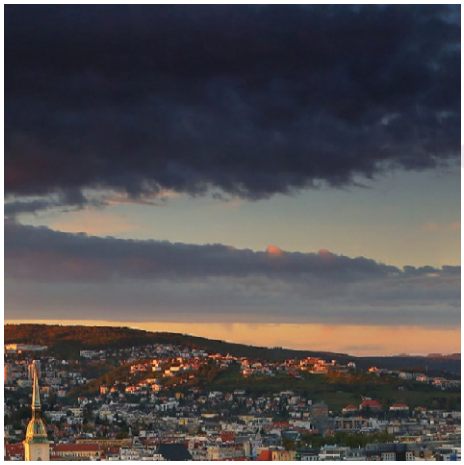

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Mind the gap

by Ewa Kochańska

The International Transport Forum's 2021 report, *Transport Innovation for Sustainable Development: A Gender Perspective*, combines articles from over 40 global transport experts, highlighting the necessity for the transport industry to consider the lifestyle, employment, and safety needs of women to help achieve higher efficiency, environmental sustainability, and innovative solutions in the sector. Right now, there is a pronounced lack of gender equality in the mobility sector which, as the research shows, suppresses overall economic growth, weakening creativity, ingenuity, and cooperative behaviour within companies and across industries. The results of this gender disparity can be felt by women worldwide, especially in less developed nations, as women are more vulnerable than men regarding safety and economic stability.

Only 22% of the transport sector's workforce in the European Union (EU) are women compared to 46% in other sectors combined. Statistics show just 10% of female employees in land transport, 20% in maritime, and 40% in the aviation sector. Women also don't benefit from transport the same way men do, due to different life responsibilities and travel patterns. In *Designing transport networks with women's mobility needs in mind*, Floridea Di Ciommo and Suzanne Hoadley describe how women's responsibility of care affects their transport needs. The authors point out that 'mobility of care' – shopping, visits to health centres, and escorting children, elderly or disabled persons – adds up to 40% of trips worldwide. Work-related trips amount to less than 20%, and the rest is school, leisure, and personal needs. Women engage in 80% of mobility of care-related travel, and most of those trips are shorter and taken by public transport or on foot. Malin Henriksson and Michala Hvidt Breengaard (Senior Researchers at VTI/TInnGO) call these shorter mobility patterns "chain-tripping" in their article *Is shared mobility innovative enough for gender needs?* This term is used to describe travel patterns in which (usually) women make several stops on their journey, commonly related to childcare, grocery shopping, or running errands for the household. With conventional traffic systems favouring car driving and traditional work schedules, women, who are less likely to drive and have more responsibilities outside of work, are forced to choose jobs closer to home, which translates to an economic disadvantage. Considering these statistics, it's necessary to redirect transport planning away from work- and business-related commuting towards the more complex and female-dominated mobility patterns.

Gender imbalance

Sustainability and innovation have become two of the most desired qualities companies of the 21st century aspire to have, including those from the transport & logistics industry. However, that's difficult to do without diversifying the labour force, also when it comes to gender. Maja Bakran (European Commission's Deputy Director-General for Mobility and Transport), in her article *Gender equality in transport: A precondition for innovation and sustainability*, underlines that companies with a balanced and inclusive workforce are six times more innovative. This heterogeneity helps create a more sustainable and resilient workplace during challenging times and improves capabilities to handle challenges, such as climate change and digital transformation. Women are under-represented in the mobility sector due to stereotyping, intimidation, and tough working conditions in transport, among others. Additionally, changes in the industry, such as digitisation and automation, as well as female under-representation in engineering and transport science, threaten to reduce the female workforce even further. As a result of this imbalance, when creating and planning transport modes and infrastructure, women and their habits are hardly considered even though they are more inclined to support environmentally conscious initiatives and support expanding public transport options.

Marina Estal and Maria Ibanez of Spanish Civil Aviation also link the commitment to sustainability with gender equality. "These two concepts should be considered fully integrated and interlinked, otherwise the sector will fail to achieve the Sustainable Development Goals (SDGs)," they say in their article *Sustainability and gender in the aviation sector.* As the European population ages and women live longer, they become the majority of the ageing population. Since female transport patterns are already more environmentally sustainable, and they have a higher environmental awareness, women would be more willing to make mobility choices based on the mode's carbon footprint or more female-friendly employment policies.

There are also obstacles standing in the way of women working in higher-earning positions in transport. The article *Innovation*

Photo: Ports of Stockholm

for gender equality in the Black Sea region by Ambassador Michael B. Christides (Secretary-General of the Permanent International Secretariat of the Organization of the Black Sea Economic Cooperation) touches on some of the reasons for the disparity, particularly in the long-haul driver sector. They include too much time away from home, long delays at border crossings – sometimes a week-long, poorly maintained and unsafe facilities along the transport routes, and inhumane working hours and days. Ambassador Christides states that innovation, digitalisation, automation, and other new technologies can help mitigate some of these issues. Additionally, self-driving trucks, digitalisation of inefficient procedures, and most importantly, access to education and training can help diversify the transport sector and offer a unique opportunity for women to enter the industry. As a case in point, the French logistics group has recently partnered with Phantom Auto, a company specialising in long-range remote operation software for unmanned vehicles, to develop a fork truck that can be controlled from thousands of miles away. One of the overarching aims of the project is to make it possible to hire individuals who may have physical disabilities restricting their use of traditional forklifts, people from other historically under-represented demographics (read: women) as well as from regions outside where the warehouses are located, including areas of higher unemployment.

In conjunction with that, companies ought to consider tweaking their hiring practices. In the article *Overcoming barriers to women's employment in transport*, Dr Evangelos Bekiaris (Director of the Hellenic Institute of Transport of the Centre for Research & Technology Hellas) suggests using more effective (perhaps gender-neutral) job descriptions and diversifying interview panels, cultivating opportunities for both men and women in positions of leadership, embracing equal pay for equal work practices, developing zero-tolerance harassment measures, and improving work-life balance. The hiring process, both that done by people and increasingly more by machines, can be gender-biased, too, as the tile of one of *Inc.*'s articles vividly displayed: *How Amazon Accidentally Invented a Sexist Hiring Algorithm. A company experiment to use artificial intelligence in hiring inadvertently favored male candidates*. Furthermore, to foster innovation in the EU, all citizens should be able to acquire proper education, with emphasis on digital skills, 'learning to learn,' entrepreneurship skills, and 'cultural awareness.' Dr Bekiaris also underscores the importance of collaboration between education, research and innovation.

Governmental and NGO response

The European Commission (COM) has undertaken several initiatives to boost gender equality in the transport sector, discussed in *Gender equality in transport: A precondition for innovation and sustainability* by Maja Bakran. In terms of data gathering and research, the EU-funded research and innovation projects DIAMOND and TInnGo (Transport Innovation Gender Observatory) have been launched to evaluate gender differences concerning digitalisation in transport and to identify skills and strategies for women to benefit from technological advancement. Likewise, the European Institute for Gender Equality (EIGE) is currently reviewing gender data in transport decision-making positions to determine the extent of gender disparity. When it comes to fighting gender stereotypes, the COM is designing primary and secondary school educational aids for teachers across the EU, some specifically with examples from the transport sector, to help address gender stereotyping from an early age.

Also to diversify the transport sector, the World Economic Forum has launched the Inclusivity Quotient project. This initiative is described in *Advancing equitable mobility: Using gender-disaggregated data in the wake of Covid-19* by the Forum's Mouchka Heller. Initially, the goal was to come up with an outline to solve diversity issues in general. However, the coronavirus pandemic has highlighted how important women are not only when it comes to economic growth but also in emergencies as frontline workers. Incidentally, the pandemic also provided a 'wealth of data' on women's transport patterns and the impact of reliable, multimodal mobility solutions as a means to get essential workers to the trenches of the crisis. Resulting from the current crisis, the Inclusivity Quotient launched the RESET Challenge "to reconfigure the public-private partnerships and financing of multimodal solutions for commuting, still with a focus of gender."

Photo: Port of Gothenburg

An inspiring example of an NGO changing women's transport realities is The Flone Initiative out of Kenya. This female-led organisation seeks to create a safe and sustainable transport system for all users, including vulnerable groups such as women. The project is described in the article *Transport innovation for sustainable development: A gender perspective from Kenya* by Naomi Mwaura, the Flone Initiative's Executive Director. In Kenya, only 7% of the transportation workforce are female. The reasons for it sound familiar – hostile work environment, difficult scheduling, insecure employment status, lack of sexual harassment policies and promotion opportunities, and no women in upper-level positions. The pandemic has even further accelerated some of these inequalities. Since most female transport workers in Kenya are employed as conductors, they are in direct contact with commuters increasing their risk of contracting the disease. Likewise, due to governmental restrictions in public transport, women are financially affected to a greater extent than men. At the same time, mothers' responsibilities at home have increased because of school closings. The transport restrictions left women, often single mothers, without an ability to find other employment, hence unable to provide for their families. The Flone Initiative has been helping in the crisis by, for example, facilitating "unconditional cash transfers" and providing covid awareness courses via text messaging. Outside of the pandemic, the Flone Initiatives started social campaigns such as #MyDressMyChoice protesting harassment and violence against women on public transport, leading to legal action and more public and social involvement on the issue.

Tools for research and data collection challenges

Some of the problems with gender diversity result from faulty research methods utilised to determine mobility needs. One of the more obvious problems is that the collected information and data are processed, analysed and applied mostly by men. Since transport needs differ between men and women, the subconscious bias of transport architects gets in the way of addressing female habits, hardships, and aspirations. In her article, Mouchka Heller (Automotive and Autonomous Mobility Lead at the World Economic Forum) touches on this problem, pointing out that "we have learned to worship data like a deity that does not get questioned, even though data are nothing without trained judgement, critical thought and insight." More about data bias can be found in the highly recommended and award-winning book *Invisible Women: Data Bias in a World Designed for Men* by Caroline Criado Perez.

The answer to this problem could lie in using the ethnographic research method when collecting and analysing transport data. Rachel Cahill from Transport Infrastructure Ireland describes this method in her article *Travelling in a woman's shoes: Everyday stories for inspiring new thinking.* Participants of the study, Irish women from various geographic, socioeconomic, and demographic backgrounds, have been accompanied by the researchers on their daily journeys. The article states that the ethnographic research method – of long-term observations and learning cultural and environmental elements affecting the outcomes of the study in addition to considering the subject's own description of her experiences – is most useful in transport policy design and planning. This approach makes it possible for both male and female researchers to observe their subject's travel patterns and daily objectives first-hand. "[Ethnographic method] is an essential vehicle for communicating complex problems and may be more effective in motivating transport professionals to engage in the subject than high-level statistical data," says Cahill. Detailed personal accounts as well as witnessing and capturing of emotions, such as stress, fear, or joy associated with mobility add surprising insights to the study and provide decision-makers with a better picture of sustainable transport parameters for women.

Thinking outside the box

The coronavirus pandemic has clearly affected the transport sector, particularly the less regulated gig-economy disruptors such as Uber. Alexa Roscoe and Ahmed Nauraiz Rana from the International Finance Corporation (IFC), in their article *Women at the core of a resilient recovery for ride-hailing*, discuss women's impact on the recovery of the ride-sharing sector post-covid. They found that, firstly,

women riders are often the key to market growth. According to an IFC study of Uber riders in six countries, an average of 40% of all riders are women. That means that understanding women's mobility needs is essential to stay in tune with the core consumer and to potentially expand the consumer base. Secondly, according to user surveys, passengers want more female drivers on the roads – at this point, women add up to less than 5% of drivers in the countries studied. The majority of those requesting more female drivers were people who travel alone, at night, or in an unknown place. Thirdly, companies are open to changes and innovation catering to women. The IFC has recently conducted research if gender-segregated ride-hailing service could be possible with positive feedback from over 30 companies. In such a system, female riders and drivers could match up only with each other.

Of course, one of the most significant issues that women face when using and working in transport all across the world is safety. In *Transformational technologies: New opportunities for women*, Cristina Marolda points out that in a free-market system, developers are driven by purchasing power of their potential customers, which can accelerate inequalities where women are once again on a losing side. For example, in mapping applications, safety and security information is often not included, making it much less user- friendly for women. To tackle this issue, a female-driven mapping platform Wher came up with a service designed by women for women with security in mind. It allows users to communicate with each other whether a route is safe and at what times of day and night.

Employment practices within transport companies could also use an innovative approach when it comes to diversification. The article *Talent has no gender: Good practices in promoting equity in the workplace* describes an Equality Plan introduced in Ineco, a Spanish engineering and consultancy firm, in December of 2019 with the aim of achieving equal opportunities for men and women in engineering sector. Under the umbrella of the initiative, the company launched a mentoring project Mujeres IN (Women IN), enrolling a group of female employees in a 12-month development programme with mentorship and tools needed for further career and personal development. The participants from the first edition of the Mujeres IN, in turn, mentor schoolgirls, illustrating the importance of engineering in the mobility sector. The most important elements of Ineco's Equality Plan include eradication of any left-over potential discriminatory practices in the hiring process and promotion of female employment where they are still under-represented, encouraging communication, promoting equal training opportunities, promoting work-life balance, fostering equal pay practices, zero-tolerance harassment policies and better protection for victims, and biannual monitoring and evaluation.

Technology – the double-edged sword in a changing professional landscape

The absence of and difficulties with access to information, education, and training form more barriers for women to overcome in the transport sector. When digital technologies 'deskill a work process,' wages are impacted, leading to rising income disparities. The article *Future of work: Building a gender-equal new normal* by Claire Clarke from the International Transport Workers' Federation discusses the need for policies that address technology and gender inequality in the transport sector, with labour rights and sustainability in mind. Without an appropriate policy, technology could threaten women's employment in transport and magnify gender inequalities. "For female transport workers, technological development is happening in the context of unequal pay, discrimination, gender-based occupational segregation and exposure to gender-based violence, on top of economic model that incentivises precarious work and the lack of formal work opportunities," says Clarke.

To include and prepare women for the fast-moving technological change, innovation and globalisation from the education standpoint, participation in STEM subjects while in school is crucial. In the article *Fostering women's participation in STEM education*, TInnGo's Andree Woodcock and Miriam Pirra discuss obstacles, such as the glass ceiling, in regards to positions of leadership in transport and the need for well-qualified women to take these positions. The underrepresentation of women in STEM sectors is undeniable, and those sectors do need qualified employees. While governments are willing to incentivise under-represented groups to enter STEM industries, more reforms are needed in education, planning, and operation. In the EU, just 12.6% of women graduate with a degree in STEM subjects – versus 37.5% of men (2012). Therefore, education is the starting point and root of the problem. Women don't choose STEM for various reasons, such as intimidating male-dominated environment, stereotypes, welfare policies, and lack of female mentorship. "These may be compounded by limited access to information, networks, funding or institutional support," state the authors.

An interesting example of a technological innovation that women could be benefiting from is RPAS, remotely piloted aircraft systems, or as they are commonly known – drones. Drones are often capable of performing tasks more efficiently than traditional aviation options in jobs such as aerial photography and surveying, building inspections, disaster response, monitoring traffic patterns, planning road repair, research and development. Transport Canada has been conducting research and development and working on regulation to safely integrate RPAS into the Canadian airspace. The article *Remotely piloted aircraft systems in Canada: Gender considerations* discusses key outcomes of the research, mainly determining that the gender disparity in the RPAS sector is similar to that in the aviation and STEM fields. "An overwhelming proportion of RPAS engineers, manufacturers, educators and operators are male," says the article. Transport Canada decided to enact several changes to address the issue, such as introducing gender-neutral language in drone nomenclature, e.g., using RPAS instead of an unmanned aircraft system or unmanned aerial vehicles, or using neutral and inclusive imagery, text, and visuals in its RPAS regulation safety campaign.

Covid and the road to equality and sustainability

Without a doubt, in order to achieve sustainability and efficiency in transport, understanding what mobility is for different user groups is vital; otherwise, the existing inequalities will persist. Ironically, the coronavirus pandemic offers a unique opportunity to restart transport services and develop new infrastructure projects in a more thoughtful, sustainable, and inclusive way. Both the public and the private sector can help include more women in the mobility sector by engaging in public campaigns about the importance of their employment in transport, recruiting in collaboration with female community leaders, ensuring flexibility of work hours and offering equal pay for equal work done, enacting zero-tolerance harassment policies, providing efficiency and safety in the workplace, and gender-responsive monitoring and reporting. □

Walking the green mile

by Dan Nash, *Head of RoRo, VesselsValue*

Flows of money were already pouring into sustainable funds prior to the rendition of *Amazing Grace* by Garth Brooks at "green president" Biden's inauguration. Electric vehicle maker Tesla increased its market cap by an astonishing $500b in 2020. It is now more valuable than the world's top eight automakers combined, thanks to its cutting-edge lithium-ion battery technology and the visionary Elon Musk, who takes more risks than most. If only such equity returns were possible in the margin-thin shipping business.

In January 2021, Stena Line took the bull by the horns in the ro-ro sector by re-announcing the intention to build the world's first fossil-free, fully-battery powered ro-pax of its size. At 200 meters in length, the lightweight *Stena Elektra* will have a capacity for 1,000 passengers and 3,000 lane meters (lm) of freight, capable of sailing 50 nautical miles on a single charge targeting the Gothenburg-Frederikshavn route. People at Stena are looking to add fuel cells, hydrogen, and biofuels to extend the power from 60-70 MWh in collaboration with the Volvo and Scania groups and the Port of Gothenburg, which is a smart move. Regrettably, she will not be ordered for another four years, launching into service later in 2030. Rome wasn't built in a day, but it feels slightly undercooked. DFDS responded soon after in more bullish tones, partnering up with ABB, Ballard Power Systems Europe, Hexagon Purus, Lloyd's Register, KNUD E. HANSEN, Ørsted, and Danish Ship Finance to develop a ferry 100% powered by hydrogen which could be fully operational by 2027 – if public money from the EU Innovation Fund is approved.

So, we finally have a race towards carbon neutrality in the ro-ro & ferry sector, which can only benefit the wider industry bringing more investors to the table. Sale and purchase activity has been down prior to COVID-19, with a scarcity of second-hand buyers and new orders stalled as ship owners deliberate on green technology and best timing. The container operator Maersk, pledging carbon neutrality by 2050, will place its first zero-emissions order within three years, deciding between ammonia, methanol, biodiesel, and lignin fuel. That is a lot of fleet replacement – and subsequently new bunker/energy carrier demand. And if the European Commission makes good on carbon taxation to achieve climate targets by 2030, we could be looking at a major shake-up in the industry.

Premium for zero-carbon ships

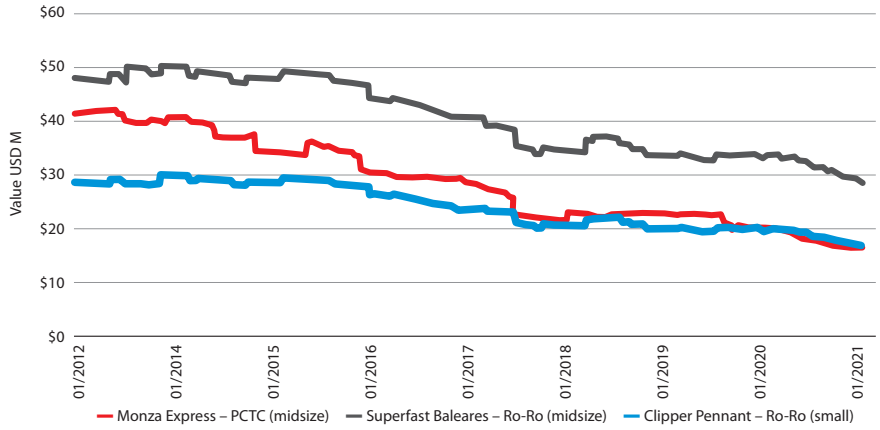
Transparency is the name of the game in today's consumer-led supply chains. Manufacturers are acutely aware of environmental, social and governance (ESG) standards, using tech such as blockchain for immutability and supply accountability. Global forwarders advertise online carbon calculators for sales and emissions clarity, enabling exporters to see the climate footprint per unit of cargo quoted. DSV is currently working on a digital platform that will enable customers to choose more climate-friendly routes and pay extra for green fuel. Whilst carriers, as transport suppliers to both manufacturers and forwarders, must accurately report on CO_2 emissions per freight unit to secure long-term contract business. Fairly soon, the end consumer will expect zero-carbon transportation from end-to-end in the supply chain, on cost parity over land and sea. There lies the drawback for ship owners.

What will then happen to ro-ro asset values as we transition to green? It depends on the cargo mix, respective markets, and the vessel type. In the mid-term, we expect to see a divergence in charter rates with stronger relative demand for liquefied natural gas (LNG) powered tonnage and battery hybrids. Pure car & truck carrier (PCTC), ro-ro, ro-pax/ferry, and con-ro ship owners already priced-in to LNG such as Siem, UECC, NYK, K-Line,

Tab. 1. Value change of selected ro-ro vessel ranges – from 1/10/20 to 31/01/21 ($m/lm)

Age	Large (5,500 lane metres)	Midsize (3,500 lm)	Small (2,500 lm)
0		-0.6%	
5		-1.8%	
10		-3.7%	
15		-6.7%	
20		-10.8%	
25		-15.7%	

Fig. 1. Ro-ro/vehicle carrier values – from 1/01/12 to 31/01/21



Source for Fig. 1 & Tab. 1: VesselsValue

Stena RoRo, WALLENIUS-SOL, Bore, Tallink Grupp, Matson, Crowley, Seaspan are in a favourable position to capitalise over non-green assets. Grimaldi's green battery-in-port hybrids are a clever compromise, and values should hold up relatively well, especially if the battery tech develops. NYK recently announced they plan to replace the existing PCTC fleet with 40 newly built LNG-fuelled vessels over the next decade, reducing CO_2 emissions by 50% per tonne-kilometre by 2050. However, these plans could be revised if the EU toughens its policy on emissions, pushing through a regional carbon levy as a logical next step. Biden is likely to support it.

A blueprint from Norway

Latest global predictions from auto analysts suggest 20% of all new car sales will be electric by 2030, rising to 58% by 2040. These are big numbers and perhaps conservative for Europe, noting more than half of Norway's total was electric in 2020, with many arriving on PCTC's from Tesla's Gigafactory in Shanghai (although outsold by Volkswagen). Norway has the highest number of electrical ferries in the world (though these are relatively small units), where the pioneer Norled is now building a hydrogen-driven ferry. The car market transformed due to generous government tax incentives, excellent stakeholder collaboration, and strong consumer demand for electric vehicles.

General Motors (GM) referenced Norway's success in their **Super Bowl commercial last month**, employing Will Ferrell to great comedic effect. GM is launching 30 new global electric vehicles by 2025, aiming to be completely electric by 2035. With such development, investment, and demand – it is plausible to imagine a scenario next decade where a leading car manufacturer will insist their sophisticated electric tech vehicles are shipped on zero-carbon vessels, paying a premium for the service, bringing value back to ship owners and shareholders invested.

Values as we transition to green

Figure 1 compares historical values for a vehicle carrier and two ro-ros of similar age, tracking the PCTC-midsize *Monza Express* (3,693 car equivalent units, CEUs, of cargo capacity; built in 2009 by Hyundai Mipo), the ro-ro-midsize *Superfast Baleares* (3,625 lm, 2010, Navantia Carenas), and the ro-ro-small *Clipper Pennant* (1,830 lm, 2009, Ast de Huelva) from 1 January 2012 until 31 January 2021.

As per the red trend line, the PCTC depreciated at the fastest rate, losing 61% in nine years. The midsize and small ro-ros, as per the black and turquoise trend lines, held value depreciating 41% and 42%, respectively. Midsize PCTCs were cannibalised by larger vessels during this period, as new Post Panamax deliveries of 7,000 to 8,500 CEUs hit the water from 2013. We are starting to see the same scenario play out today in the European straight ramp ro-ro market, with mega-sized deliveries of 5,000-7,800 lm squeezing out smaller tonnage on competing routes.

Based on the high proportion of valuable cars on Large Car and Truck Carrier/PCTC/Pure Car Carrier vessels, vehicle carriers will be the first type to 'go green.' Closely followed by ro-paxes/ferries trading on shorter city-to-city journeys, where passenger income is the driver of earnings. Pure cargo ro-ros will enjoy the longest period of grace due to a more diverse freight mix. The impact on values, as non-green assets compete head-on with green assets in their respective markets, is the big unknown. As per Table 1, ro-ro values have been falling over the last four months, primarily due to an oversupply. Government incentives to encourage scrapping could address this imbalance (environment-friendly ship decommissioning being a topic of its own).

The scales tip

Investing in bridging fuels versus carbon-neutral solutions continues to divide ship owners. However, we are beginning to see carriers take clearer positions with electric, biofuels, and hydrogen emerging as front runners in the ro-ro sector. Dual-fuel LNG engines equipped with battery packs, which also have the flexibility to run on fossil-free liquid or gas, are a safe bet. The need for real-time asset valuations has never been greater. □

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Baltic port market in 2020 (soon, that is)

We have been raising the red flag for the past few years, but now we can say it officially – national port statistics have largely fallen apart at the seams. This, in turn, made it impossible to on-board the traditional opening facts & figures article without considerably delaying the entire issue's publication. Luckily, this mishap took place when we've already gone digital, so please stay tuned as we're going to add the missing pages in due time as well as release the Baltic Port Map, the publishing of which is also dependent on data from external sources. Doubly lucky, the *Report*, along with the remaining columns, features other crackerjack reads to keep you occupied until certain statistical offices pull themselves together. We'll update you on the progress through our e-communication channels, hopefully in next to no time!

Photo: Fernando Arcos/Pexels

The volume is there

by Przemysław Myszka

Last year when the Port of Turku's Erik Söderholm and I sat down for an interview, the coronavirus was just beginning to sweep through Europe. Fast forward to today, and the continent is still very much under lockdown; though, the pandemic has affected various aspects of our lives to a different degree. We are talking with Erik about corona's influence over his port's cargo and passenger traffic, as well as the wider impact it has had on Finland's trade. Leaving corona aside, we are also focusing on the Port of Turku's technological and environmental efforts. Lastly, we are taking a step back to put Finland's issue with intermodality in the right perspective.

■ ***Let us address the elephant in the room head-on: the coronavirus pandemic and its impact on the world of transport & logistics, including the port sector. Tragic as the situation continues to be, the Port of Turku's cargo traffic noted double-digit increases last year – in overall freight turnover and the number of trucks & trailers handled. What has led to these results?***

The main reason has been the stopping of the Helsinki-Stockholm route as a result of the virus outbreak. That said, the trade volume between Finland and Sweden did not disappear, so cargo had to find another corridor to flow through. That wheeled traffic has therefore moved eastwards to our as well as Naantali's port.

Other services – to the UK, Norway, and Germany – also had a good year, mostly owning it to the freight structure that goes through Turku. A lot of groupage moves via our quays, fuelled by the growing e-commerce trade. The parcel business is shooting up like a weed here in Finland, with an annual growth rate of 10%. The warehousing for the entire Nordic region is located in Sweden – and what better way for a parcel company to get the shipment to Finland than board a ferry the evening before and unload the goods the following day?

We have also been positively surprised that Brexit hasn't, to date, negatively affected Finnish exports to the UK, which continue to remain at the same level. On the flip side, imports have plummeted. Businesses in Finland that have previously imported goods from the UK are now trying to source the same kind of commodities from the EU Member States. It is not only the initial logistics mess created by Brexit but the additional red tape, hence increased costs, that measurably impaired the competitiveness of the 'Made in the UK' products.

■ ***In what condition is the port and the city/region's tourism business, especially the part that had been propelled by ferry traffic?***

The worst thing that happened to us was the loss of two million passengers last year, roughly two-thirds of the whole traffic we would otherwise serve during a corona-free year. This had an impact on our bottom line; however, I'm happy to say that we broke even in 2020, even despite such a powerful headwind. I'm worried about our ferry clients, Viking Line and Tallink & Silja Line, with whom I sympathise in these more than challenging times, who have had to sustain terrible blows inflicted by the pandemic. I nevertheless stay optimistic as regards the future – the vaccination is underway in Finland, and I'm certain this summer will be far better for the lines than the previous one. Out of the five and a half million Finns, around two million should have been administered the vaccine by May. The elderly are getting vaccinated in the first place, and this is the group that used to ferry between Finland, the Åland Islands, and Sweden on the weekdays in the past. Once immune and safe, the ferry companies and we are hoping the pensioners will return to this habit. Then, maybe in autumn, we will also welcome back families with children travelling for holidays.

Viking Line is readying its newbuild, *Viking Glory*, for launch at the beginning of 2022. It is an ultra-modern ship, and it will surely be a recipe for success in attracting new people to come and have a taste of the port & ferry experience. I wish Viking Line as well as Tallink & Silja Line the best – getting to the port office and having to see their vessels laid up, 'parking' a ship being a huge cost, has been heart-breaking.

The situation of the international tourism sector is unenviable, be it ferry, cruise, or air. On the flip side, though, domestic travelling became again a big thing

Photo: Port of Turku/Suomen Ilmakuva

in Finland, especially in Lapland/Sápmi, our northernmost region. The Finns who used to ski in the Alps are rediscovering their own country. That's maybe the unintended silver lining to the pandemic – people started to consider their own country as a tourist destination once more. Yet, I'm convinced that 'northern folk,' eager for the Mediterranean sun, will hop on a southbound plane, or better still board a cruise ship, given the opportunity.

- ***How has the pandemic affected Finland's people, trade and economy, and consequently its transport businesses? Have there been any measures introduced by the government to remedy the situation?***

We have been fortunate to keep the virus away from our staff. The stevedores and freight forwarders are alright as well; because of the redirection of cargo traffic, they have had more work, in fact. Overall, Finland, as a whole, has been very lucky. Comparing ourselves to other countries, we haven't seen as many infections and deaths. The Finns have approached the pandemic in a disciplined way, closely following the recommendations and restrictions put in place by the authorities. Trade-wise, the demand for Finnish products has remained unchanged. The businesses worst affected, alike in other countries, are those 'person-to-person' ones such as bars, restaurants, theatres, cinemas, gyms, etc. Clearly, the situation could have been far worse.

The Finnish state has supported the Turku-Stockholm and Helsinki-Tallinn services, considering them as the country's lifelines. Subsidies are in place as a means of getting vital goods to and from Finland. I'm certain the government would go to extreme lengths only to keep the supply chain unbroken. From this perspective, one can clearly see how Finland's trade has changed over the past few decades. The majority of the southeastern Baltic has modernised, and economic ties between the 'old' and 'new' EU countries became only stronger. I'm sure not even COVID could reverse this. It has been a stumbling block, that's true, but postponing plans, like establishing a ro-ro link between Turku and Gdynia to which I'm more than looking forward to, is not the same as making them impossible.

- ***How is the work on the future ferry terminal going? What is the status of the NextGen Link and SecurePax projects, especially the latter's 5G part?***

Indeed, a big discussion has been going around the new terminal, particularly how the pandemic will impact the investment – since the ferry lines, its future users, have been having it hard financially. While it is difficult to see 15 or more years from now, everybody believes that the Turku-Stockholm service will be there, just as it has prevailed

Photo: Port of Turku/Robert Seger/Moment

Photo: Port of Turku/Robert Seger

Photo: Port of Turku/Robert Seger/Moment

Photo: Port of Turku/Pauliina Roti

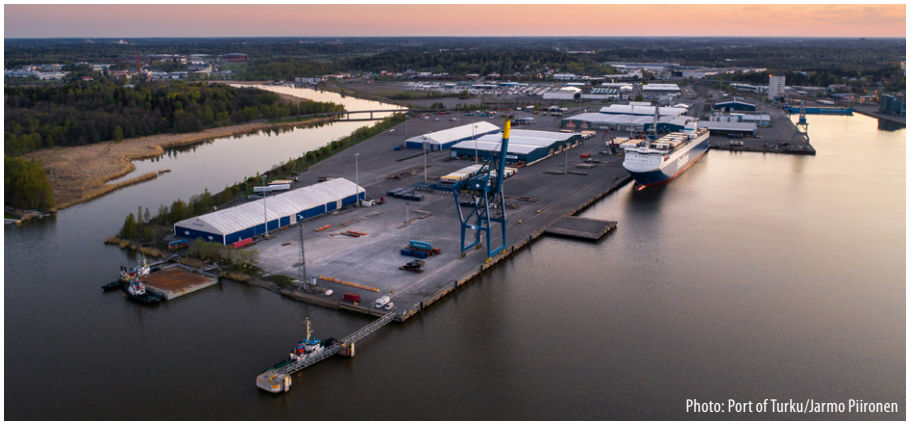


Photo: Port of Turku/Jarmo Piironen

for so many decades till now. It will be a landmark venture, one that sets the freight and passenger framework in Turku anew.

However, crucially important, the investment will be much more than just about a new terminal building or passenger gangways. Access to and from the port will be remodelled to smoothen the flow, including a digital gate system that will automate truck traffic as much as possible, along with new trailer parking places and a ring road that will unburden the city's roads. The nearest milestone is to have the investment agreement before the summer, which requires having all the parties, the port authority, the city, municipality, shipping lines, etc., on-board. Up until this interview in mid-February, we have had three meetings with our partners on the subject of the new terminal, and although cautious, everyone has been positive, understanding that this is the way forward for Turku. The ultimate goal of cutting the ribbon in December 2025 remains unchanged.

Other projects, NextGen Link and SecurePax, are proceeding as planned. The auto-mooring equipment has been installed; we will begin trial operations in April in order to have it in regular use by Viking Line as of May. In the future, a similar solution will be put in place for Tallink & Silja Line. Our testing of the 5G technology is a sort of preparation ahead of the new terminal. We need sufficient capacity and security to transfer and process all the visual data. Checking six thousand passengers in & out on a Friday evening, within one hour, in the traditional, analogue way, is doomed to failure. In principle, the 5G technology has what it takes to meet such demand. Still, theory tallies with practice – but only in theory. That's why we are putting it to the test (and to verify the marketing guy's selling pitch that it will, of course, be fast, cheap, and good). The 5G trial has also demonstrated that the port business requires young blood, people who understand and use technology intuitively. That's a positive thing, a change for the better.

What are the key takeaways from the port's latest environmental report?

A few things stand out. First, the handling of dredging masses. Here in Turku, we really want to put our money where our mouth is; we are setting up a deposit site in order to store the dredged material, purify it if need be, and then use it as a building block. For instance, we will reclaim land next to the Hirvensalo island; to do so, we will create sheltered basins, empty them, and then fill them with the dredging masses. Second,


Photo: Port of Turku/Robert Seger/Moment


Photo: Port of Turku/Robert Seger

Turku sports an environmentally differentiated port fee system. If one sails with an eco-friendly ship to our harbours, then they will get a discount. Third, we are renewing our fleet with electric vehicles, the first two arrived in mid-February, and that should be completed by end-2022. Fourth, we are also looking at installing solar panels atop the terminal buildings (with Turku being one of the sunniest places in Finland). The City of Turku wants to become climate-neutral by 2029 and we will do our part in making that possible.

This proves that a port can make incremental improvements in order to become more friendly to the environment. Others from across the Finnish transport & logistics sector are also making meaningful changes, such as using sustainable diesel or biogas to power their machinery.

■ ***You have been elected to the board of the Finnish Port Association. What issues would you like to bring to the fore in its works?***

I'm part of our Association's Intermodal Working Group, and the problem here in Finland is that any intermodal traffic we have, by all means modest, is concentrated in the south of the country. At first glance, there isn't enough volume, and the distances are too short for shippers and freight forwarders to go by rail instead of the road.

However, if you look at the bigger picture, moving beyond Finnish borders, that's when things change. There is already a number of New Silk Road container trains going through the Buslovskaya-Vainikkala border-crossing between Russia and Finland. Then, you also have Via Baltica and all the trucks going from Western and Central Europe via the Baltics to ferry-cross the Gulf of Finland. Not only intermodal-wise but also from an environmental point of view, the better option would be to channel this cargo stream towards one of the ports on the southern shores of the Baltic Sea for sending the cargo units by sea. Let us also not forget that Via Baltica is, for want of a better word, exploited by trucking companies that take advantage of the fact that they can pay their drivers a considerably lower salary relative to what would be seen as a fair wage in the West. This situation cannot last forever. First, there's a truck driver shortage Europe-wide, so salaries must go up eventually. Second, Via Baltica isn't exactly a six-lane highway. It is a matter of time when some shipping company steps in and rakes in the volumes should the road freight rates go past a certain threshold.


Photo: Port of Turku/Jarmo Piironen

■ ***What is your best shot at how will this year end?***

I hope 2021 won't bring any major turbulences, let alone another black swan, like the pandemic. I'm decently convinced volumes going through our port will stay stable, and there will also be a partial recovery in passenger traffic, especially from autumn onwards. For 2022, I'm expecting a fair increase in cargo throughput, but more importantly, a real boom in the number of travellers boarding a ferry in Turku. I'm also firmly keeping my fingers crossed for the arrival of an operator who will install a bi-weekly service between our port and Gdynia. You can hold me to my promise on that – the volume is there.

And, of course, it would be terrific to finally meet our colleagues and partners from the Baltic and beyond face-to-face! ■

The freight fight – but with whom actually?

by Vitaly Chernov, *Editor-in-Chief, PortNews.ru*

Last year, less than 30 million tonnes of Russian cargo, some 3.6% of the country's entire port traffic, went through the seaports of the Baltic States, Finland, and Ukraine, a 1.5-time-drop on the 2019 volume. The devil is in the detail, so the picture is a mixed one. For instance, Finnish ports handled 7% year-on-year more Russian cargo in 2020, chiefly thanks to ore transshipment taking place in Kokkola (almost 3.0mt, up by 26% yoy). The country also took care of an increased batch of mineral fertilisers, an advance close to 10% yoy, totalling nearly 1.5mt. This points out the lack of dry bulk handling facilities in Russia. However, a number of infrastructure projects aimed at increasing Russian ports' capacity, both in the Baltic and in other regions, are either already in the pipeline or in the planning phase. As such, Russia might as well end up with not only its stevedores competing for Russian goods handled outside the country's borders but also against each other on their own turf. At the same time, Russia is also eyeing redirecting Belarusian trade, oil products and fertilisers, towards its Baltic seaports.

Grains

Another commodity of which transshipment through non-Russian ports rose in 2020 were grains, up to 1.1mt via the Baltics. Here also, there's a shortage of dedicated handling capacity in the Russian part of the Gulf of Finland. Some minor grain loads are taken care of in St. Petersburg (160kt last year) by non-dedicated terminals, noticeably more in Kaliningrad (600kt), the bulk of which is being shipped from the Sodrugestvo Soya terminal. Sodrugestvo, an international agro-industrial group based in Luxembourg, wanted to construct a grain terminal in the Batareynaya Bay in the Leningrad Oblast, but these plans were shelved due to protests of locals and environmentalists. Tehnotrans is set to build the Vysotsk Grain Terminal with an annual capacity of 4mt. New Technological Company is also looking into building a grain terminal in Vysotsk, diversifying the port's portfolio away from coal and oil handling.


Photo: EISA


Photo: UMMC Seaport & Railway Projects

Coal

Speaking of coal, its shipments via the Baltics dropped five-and-half times to 2.8mt and by 37% yoy to 600kt via Finland. Meanwhile, coal exports from the Russian Gulf of Finland seaports went up by 8% yoy to 45.2mt. Interestingly, there's only one Russian coal-dedicated terminal in the Baltic, the Ust-Luga-located Rosterminalugol. Even with its modern equipment, the facility cannot take over the entirety of the country's Baltic coal exports. The question of whether Russia really lacks coal terminals is a tricky one, especially in the light of the fact that Western Europe has been turning its energy-back on coal for some time now.

The Far East market, therefore, seems more promising, the issue here being whether a terminal in the Baltic is the best spot for serving that direction. There might be a risk in investing in a solely coal-handling facility. Nevertheless, it is telling that back at the break of 2018 and 2019, the operator of the Ust-Luga Container Terminal invested in coal handling equipment to make up for the dwindling traffic of what was supposed to be their main line of business.

The Russian rail freight haulier TransContainer has recently reconciled the two seemingly distinct cargoes by starting to carry coal (and solid bitumen) in containers in order to source more containerised freight for the eastbound leg of the New Silk Road. As such, the Far East coal transportation business became even more competitive in Russia.

Photo: SUEK


Photo: UMMC Seaport & Railway Projects


Photo: East Meridian Trading DMCC


Photo: UMMC Seaport & Railway Projects


Photo: UMMC Seaport & Railway Projects

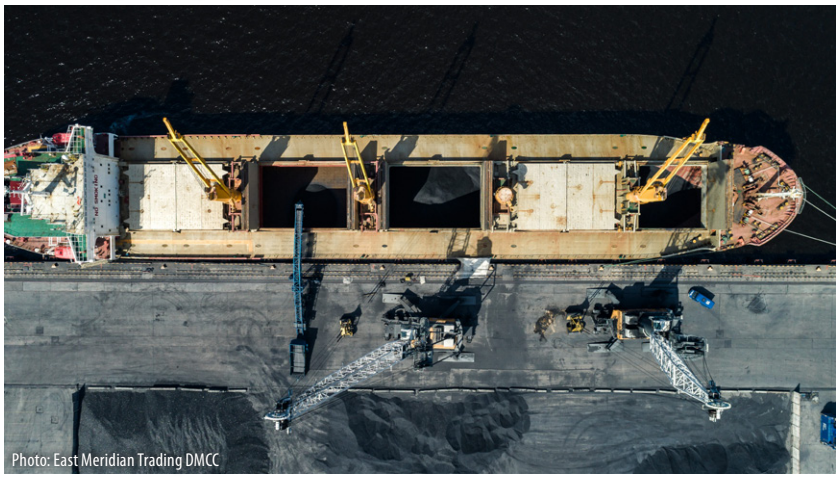


Photo: East Meridian Trading DMCC

Fertilisers

Russia is still dependent on ports of neighbouring countries in terms of handling mineral fertilisers as it lacks dedicated deep-water terminals. That said, mineral and chemical fertilisers have a distinctive advantage over other bulk goods. While the situation in the oil and coal markets is difficult to predict, alternative energy technologies are more and more nibbling at them; the long-term demand for fertilisers is stable – as the world's population grows, so does the demand for crops.

Nevertheless, Russia has yet to supply enough port handling capacity. Exports of mineral fertilisers amounted to 29mt in 2019, with one-third handled in non-Russian Baltic seaports. The volumes flowing via domestic ports are primarily handled by non-dedicated terminals through the involvement of a variety of schemes, including containers. Containerising fertilisers appears to be the right way to go, but handling them at multi-purpose terminals is always less profitable vs exporting them via dedicated facilities, hence enormous flows still going to foreign ports.

Looking at the volumes, the Baltic (St. Petersburg's Baltic Bulk Terminal, and Ust-Luga's European Sulfur Terminal and New Communal Technologies) and Arctic (the Murmansk Bulk Terminal) are the most suitable regions to receive new capacity; smaller volumes are exported via southern ports (Tuapse, Novorossiysk), whereas in the Far East, handling of mineral fertilizers is close to zero (except for a slight amount taken care of in Vladivostok; here coal and oil shipments appropriate the bulk of the rail trunk's capacity, plus, of course, the growing New Silk Road traffic doesn't make it easier to secure a train slot).

Although promising, it can turn out to be a hard nut to crack to re-direct fertilisers to Russian ports. Fertiliser logistics have been well-functioning in the Baltic States for decades. Essential investments in the development of these dedicated facilities were also supported by Russian stakeholders. Till lately, the state law wasn't particularly helpful either, with Russian standards prohibiting the storage of mineral fertilisers closer than 500 m from water. That said, the country's parliament has recently passed a bill on loosening the requirements.


Photo: East Meridian Trading DMCC


Photo: Sodrugestvo


Photo: Port of Vladivostok


Photo: UMMC Seaport & Railway Projects

Belarus' trade

According to 2019 data, Belarus exported $2.78b in potash fertilisers (around 6.7mt), making it the second-largest exporter of this commodity in the world. Brazil ($561m), China ($353m), India ($347m), Indonesia ($174m), and United States ($127m) were the main clients (what's interesting, $578k worth of potash fertilisers was imported). In total, Belarus has the capacity to export some 10mt/year of different fertilisers grades: potash, nitrogen, and mixed.

Historically, the Lithuanian Port of Klaipėda has been Belarus' gateway. The two countries have, over the years, put a lot of money into developing cross-border rail connections. Yet, in late February this year, the Belarusian Transport and Communications Minister Aleksei Avramenko said, after a Belarusian-Russian intergovernmental meeting on taking Belarus' oil products to Russian Baltic ports, that also potash fertilisers can go the same avenue. Quoted by the Belarusian Telegraph Agency, Avramenko noted, "We will trial these routes by exporting oil products. […] Not only potash fertilizers, but forestry products, cargoes of the mechanical engineering industry, and so on." According to a take-or-pay agreement, oil terminals of Ust-Luga and the Petersburg Oil Terminal (POT) are to handle almost 10mt of Belarusian liquid bulk in the coming three years.

However, it remains to be seen whether these agreements, trials, evaluations, paperwork and ceremonies, etc., will materialise. The first deliveries of Belarusian oil products to Russian ports have already begun, but nobody can be sure for now how stable and long-term this cargo traffic will be. Logistics-wise, exports via Russia have never been considered reasonable – the economic outcome would have to be that either Russian Railways would lose money on providing its services or the margin on Belarusian fertilisers would be considerably shaved off. It had been a custom of the Belarusian authorities to transport-play the Lithuanian and Russian sides against each other.


Photo: UMMC Seaport & Railway Projects


Photo: East Meridian Trading DMCC


Photo: Transneft


Photo: UMMC Seaport & Railway Projects


Photo: Gazprom

Photo: EISA

Port capacity coming online

The whole situation can change radically in five years' time. New terminal projects have been blueprinted for all areas where Russia operates its seaports, with the most ambitious plans reserved for the Baltic.

Two years ago, in February 2019, news broke out about the 70mt of annual handling capacity Primorsk Multipurpose Transshipment Complex (PMTC), an investment valued back then at RUB90.6b (€1.21b) and planned to be up and running by 2022. The new deep-water (18 m) port, spanning over 780 ha, is to handle coal and ore (up to 25mt/year), mineral fertilisers (7.0mt), containers, other general cargo, and grains (6.0mt). The PMTC will function as a special economic zone. Site development is underway.

Russia will also continue to vigorously develop Ust-Luga, the biggest seaport in the Baltic, as regards freight turnover and the region's first to break the 100mt/year barrier (in 2018 and 2020). The first phase of setting up Lugaport, a 24mt/year multi-purpose terminal (evenly split into 8.0mt for ore and coal, general cargo, and grains), has recently been completed. Some 47 ha were reclaimed, the quays and yards are ready for Novotrans to furnish them with superstructures.

Next, the Ultramar terminal is under construction in Ust-Luga. At first, it will offer 295 m of berthing length, making it possible to serve over 170 calls per year, which should translate into 5.0mt of cargo. When fully operational, the quay wall will increase to 844.7 m, ship call capacity to nearly 430, and freight turnover up to 12mt. The construction of hydraulic engineering structures is afoot.

Another project in Ust-Luga is the EuroChem terminal. Upon completion of all three phases, the facility will be able to handle up to 6.02mt/year, with the actual throughput utilisation rate expected to be as high as 5.55mt. The terminal has already obtained state expert approval from Glavgosexpertiza (a non-profit organisation established for executing works and rendering services to exercise the powers of the Ministry of Construction of Russia in the sphere of organisation and conducting state expert appraisals of design documentation and engineering survey results).

After a closed meeting involving Yevgeny Ditrikh, at that time the Minister of Transport of the Russian Federation, Aleksandr Drozdenko, Governor of the Leningrad Oblast, authorities of Rosmorrechflot, Rosmorport and Russian Railways, as well as representatives of terminals operating in the port, the Minister said that the new terminals would increase Ust-Luga's capacity by 42mt/year. According to the Ministry's data, some 133mt/year can be currently taken care of in the port. The 42mt figure comes from the following calculations: the port's rail approach throughput capacity is 118mt/year, while the Russian Railways' President Oleg Belozerov said at the meeting that in 2019 some 76mt were delivered to the port by train. Thus, the capacity margin is 42mt/year. It should be noted that railway logistics in the port is the responsibility of PULtrans dealing with online requests (as per the taxi aggregation model), while downtime periods can be reduced thanks to loop-type railway lines within the port. The head of Russian Railways also said unmanned technologies are to be introduced into railway logistics in the future. Unlike other port projects in Russia, Ust-Luga has no problems with rail connectivity.

Moving outside the Baltic, the Liinahamari Port project in the Murmansk region will be a multi-purpose facility able to ship out 4.0mt/year of mineral fertilizers. It has recently obtained the Arctic Zone resident status (which is either an individual entrepreneur or a legal entity that has entered into an agreement to invest in the region; residents are then included in a special register and provided with tax benefits, insurance premiums for new jobs, can apply for a free customs zone, may obtain land in the Arctic Zone without bidding, etc.).

Looking to the south, the OTEKO project foresees adding 5.0mt of mineral fertilisers handling capacity to the Taman dry bulk cargo terminal; the terminal's second phase is under construction (but so far, there has been no handling of mineral fertilisers). In the Far East, the Nakhodka Fertilizer Plant is planned for construction, the production of which is to be channelled through the Port of Vostochny (shipment volumes are being estimated).


Photo: Sodrugestvo

Photo: SUEK

Competition: external-turned-internal

The yearly capacity of all the announced Baltic projects is thus as follows: over 25mt of coal (vs the demand for 5.0mt), 19mt of mineral fertilisers (10mt), 18mt of grains (500kt), and 8.0mt of ore (6-7mt).

In view of the expected excess of bulk cargo handling facilities, especially those handling grains and coal, we should take note that Russian Baltic terminals will compete with each other rather than with foreign facilities, as it is the current public narration.

Investors are aware of that. For example, initiators of the PMTC project are counting on the establishment of a special economic zone in Primorsk. "We will be able to offer quite attractive terms of handling to cargo owners, and that will be our competitive advantage," Dmitry Temkin, Deputy General Director Project Engineering, Primorsk MRC, said in June 2020.

Tab. 1. Handling of Russian dry bulk in non-Russian ports – current vs future capacity of Russ

Type of cargo	Handling via foreign ports	Announced additional capacity in Russian Baltic ports	Expected excessive capacity
Grains	0.5	>18	>17.5
Coal	5.0	>25	>20
Mineral fertilisers	10	19	9.0
Ore	<8.0	<7.0	1.0

Another issue comes from the fact that erecting a terminal does not have to mean that freight traffic will automatically enter the new premises. Consignors like to work through their own facilities (and they have made investments in Baltic ports) or to deal with partners whom they have been working with for years. Logistics and the competitiveness thereof play and will play a major role. Rosmorport has been insisting on increasing port charges by 3% as well as considering the introduction of investment dues in ports; these moves surely won't improve the situation.

Taking all things together, it seems fair to summarise the whole topic by underscoring that the main struggle for Russian dry bulk cargo will develop within the country. On the other hand, healthy competition is always beneficial.


Photo: KRU Overseas


Photo: Rosmorport

Vital yet underappreciated

by Monika Rozmarynowska, *Consulting Projects Leader*, Ewelina Ziajka, *Market Analysis Specialist*, and Ewelina Synak, *Project Assistant, Actia Forum*

Seaports are not only indispensable nodes for the proper functioning of global and regional supply chains, but they also propel local growth, increasingly so, in the so-called blue/green economy. Not to mention, they provide public services such as taking care of island-mainland ferry traffic. Port cargo traffic in the Baltic Sea region rose by 9% over the last five years, hitting a new all-time high in 2019. This success has many (bigger and smaller) fathers.

Since the end of the 1990s, the European Union's transport policy has been channelled through the Trans-European Transport Network (TEN-T) programme, which over the years saw a few modifications, the latest dividing it into the Core and Comprehensive Networks. Consequently, ports that are included in the TEN-T fall into either of the two categories. In the Baltic, out of some 200 seaports, 87 belong to the dual-layer network. These handle around 70% of all freight traffic (a quarter goes through the Russian Baltic ports). However, when it comes to being a modern, fit-for-future TEN-T port, the sheer mass of handled goods can as well be put on the back burner – making room for other activities to take the stage's front and center.

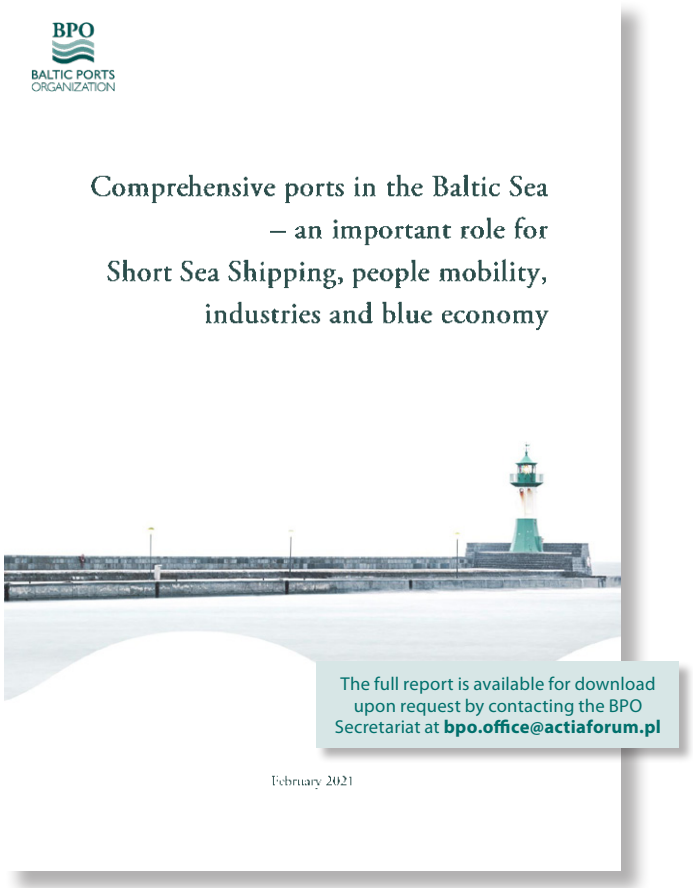
Carve out

Although smaller ports also take care of cargo flows, it's their role in developing the blue/green economy, connecting peripheral areas, and/or serving local industries that makes them stand out.

The regular short sea shipping services they offer are important for the transportation of both freight and passengers, which ensures uninterrupted access to markets and travel/job opportunities for businesses and people, including from more remote regions. Take, for instance, the Danish-Swedish pair of Helsingør-Helsingborg and the stone's throw ferry sea bridge between them – otherwise, going from one country to another would involve a significantly longer overland route. The same holds true for the Port of Ystad whose number and frequency of ferry sailings gives Swedish, German, Polish, and Danish (Bornholm) import & export enterprises the possibility to efficiently and safely trade with each other essentially as the crow flies rather than hauling trucks round often congested roads.

The coasts of the Baltic Sea are as diverse as the countries that constitute the region. In Estonia, for example, there's an abundance of inhabited islands that need secure links to the mainland. The port company Saarte Liinid has been established to manage 18 harbours, including two lake ones. The number of passengers and vehicles that went through Saarte Liinid's quays amounted to two million travellers and one million units in 2019, showcasing the importance of smaller ports for the country's economy and personal (bearing in mind that Estonia's population is around 1.33m).

Smaller Baltic ports are also involved in the works of heavy-duty industries, especially up in the north of the region where a significant number of top-class steel- and sawmills are located, plus mines. In Raahe, for instance, Rautaruukki's steelworks provides the port with 90% of its cargo turnover. Oxelösund would be another example, where the port is owned 50/50 by SSAB, a specialist in processing raw material to steel, and the local municipality. Sundsvall is, in turn, SCA's export base for



A balance between efficiency and sustainability

by **Przemysław Myszka**

Having attended a few hefty-numbered port industry conferences, a strong feeling has grown within me, namely that their agendas lean heavily towards bigger players whose cargo turnover goes into a few dozen million tonnes and more while their billions of euros development budgets are cramped with grandiose hard- and software projects on which an army of employees from across multiple divisions are working. Far too seldom do we hear from smaller ports – the challenges they are facing as well as the advancements they would be happy to share if only given the floor. That's exactly why we're talking to Villu Vatsfeld, who is running a port company that oversees 18 smaller harbours in Estonia and chairing the Baltic Ports Organization's (BPO) Comprehensive Ports Working Group (CPWG), about the future of small ports in Europe. We also picked his brain on the TEN-T policy, asked about smaller ports' voice in Brussels and national cabinets, and looked into the peculiarities of small port development, including tapping into the digital revolution.

Villu Vatsfeld, CEO, Saarte Liinid, and Chairman, the Baltic Ports Organization's Comprehensive Ports Working Group

■ **You've recently become the Chair of the BPO's CPWG. What has been the goal of setting up CPWG? What's your take on the TEN-T policy and its split between Core and Comprehensive networks?**

The intention behind establishing the CPWG a few years ago was and still is the need to show how smaller ports are addressing the issues which cover the entire port industry, say participating in the larger logistics networks, diminishing carbon footprint and digitalization, but within the specific environment they operate, distinct from larger ports, e.g., those listed in the TEN-T Core Network. When the transport infrastructure policy was revised several years ago, EU policymakers reasoned that it would be useful to make a distinction between Core and Comprehensive networks, consequently assigning ports to one of the two categories. According to what was initially planned, the former is to be ready by 2030, while the latter – two decades later, in 2050. As such, a clear investment priority was also adopted. The rationale was reasonable enough – limited EU funds won't satisfy the needs of all the bigger and smaller ports within the same timeframe. In addition, there are other transport modes, notably rail and road, that are competing for the same envelope. In other words, economic efficiency was taken as the prime criterion: put money where it'll deliver the most in return. As a result, one could have seen an

the company's exports of timber, pulp, and paper, with the town also being the main seat of the Swedish manufacturer.

Other ports have carved specialised niches out for themselves. Traditional ferry harbours like Rønne or Sassnitz/Mukran have invested in becoming cargo handling, logistics, operation, and service bases for the offshore wind industry. The German seaport has also been active in the establishment of an offshoot of the New Silk Road that goes by rail to Kaliningrad and then via sea to Germany.

Inequality against the whole TEN-T

While the importance of TEN-T Comprehensive Ports for their regions, towns, industries, and people should be evident, not least for making the EU greener, the understanding of their actual role is somewhat limited. This is clearly reflected in the funding possibilities they have within the TEN-T financial vehicle, the Connecting Europe Facility (CEF). Out of the CEF envelope for ports, as much as 85% is earmarked for the Core ones.

The Motorways of the Sea (MoS) programme, the maritime pillar of the TEN-T, has its limitations, too, from the perspective of the Comprehensive Ports. The idea behind the MoS concept is to encourage the establishment of sea or sea-river shipping services between at least two ports by co-funding infrastructure and equipment as well as through simplifying administrative formalities. However, a particular MoS must include a Core Port. As such, two Comprehensive Ports cannot form a MoS. As well as onboarding a Core Port can prove to be beyond smaller ports' depth, the same can be said about successfully going through the complicated and time-consuming application procedure for CEF financing.

Smaller ports are not properly included in the CEF priorities. While there are possibilities for them to be involved in projects financed through other instruments, e.g. Interreg that's supported via the European Regional Development Fund, this involvement cannot provide the means for setting up crucial infrastructure. The TEN-T and CEF policy should be, therefore, aligned more with the needs of the Comprehensive Network. Specifically, the option for Comprehensive Ports to form consortia should be switched on. This way, we could witness the establishment of more MoS projects hence the redirection of freight flows from roads onto the more eco-friendly ships.

This funding inequality acts against the development of the Comprehensive part of the TEN-T, thus the policy at large, which after all assumes the complementarity within the entire Network. The CEF II budget for 2021-2027 and the revision of the TEN-T policy provide an opportunity to reconsider the financing priorities, with greater attention paid to the development requirements of Comprehensive Ports. More funds would be welcome, as well as making the rules for establishing MoS links, possibly also with non-EU ports, more flexible. Ultimately, this is transport & logistics, flexibility should be the name of the game. ■

Interview with Stephan Piworus,
Senior Vice President/Global Sales Marine & Ports, IDENTEC SOLUTIONS

Reefer plug & play

by Przemysław Myszka

Reefers are one of the staples of globalisation. Bananas in the middle of winter in your corner shop in northern Scandinavia? No problem. Exotic flowers that look as fresh as if you had picked them in your own backyard this morning? A child's play. Refrigerated containers are also vital for carrying sensitive pharmaceuticals all over the world. But cold chain logistics does not happen on its own, naturally, and there is a number of moving targets to hit if it's to work correctly. We are talking with IDENTEC SOLUTIONS' Stephan Piworus about the digital layer of this business, how data makes reefer operations more transparent and fair, how greater visibility can boost productivity and drive costs down, and, of course, if the pandemic has changed anything in the industry.

■ ***How has COVID-19 affected IDENTEC?***

There hasn't been a big change for us, communication- and sales-wise our company has been using digital channels for years now. We experienced some of the standard office-to-remote transition fuss, pretty much as all businesses around the globe had, but other than that, our operations as regards order intake & implementation weren't broken by the pandemic. This is also thanks to our client network doing its best to weather down the corona storm, upholding leads or even generating new ones. This only shows how important establishing long-term partnerships is that even in such difficult times, we can count on each other. On the flip side, I can imagine how difficult, if not purely impossible, it would be to enter the market now without the possibility to travel and create bonds with the customers.

The installation crews had to be out there carrying their work, of course adhering to the new 'normal' of COVID sanitary regimes. However, sometimes being on location was out of the question, which necessitated a bit of creativity to get things done. As such, an order from New Zealand became our very first entirely remote installation. It was with our long-lasting partner already using the Terminal Tracker solution, so because of the mutual trust between us, we knew we could provide them with the Reefer Runner without anybody from IDENTEC actually present at the terminal. We gave it a shot, and everything went smoothly. On the software side, such as uploading updates, we can do it completely remotely, while for installations that cannot be done by ourselves, we can either try and go through the process with the client or find a reliable outsourcing partner. That said, I would rather prefer the 'old' way of setting our solutions in motion, namely being there on the ground, getting instant feedback, taking the chance to walk through each and every step, and, naturally, establishing this personal connection, which is, believe it or not, still extremely important in this relentless era of the sweeping digital revolution.

■ ***How about corona's impact on your clients, the container terminals? Have they, for instance, put on hold their investment plans, including those concerned with digital products & solutions?***

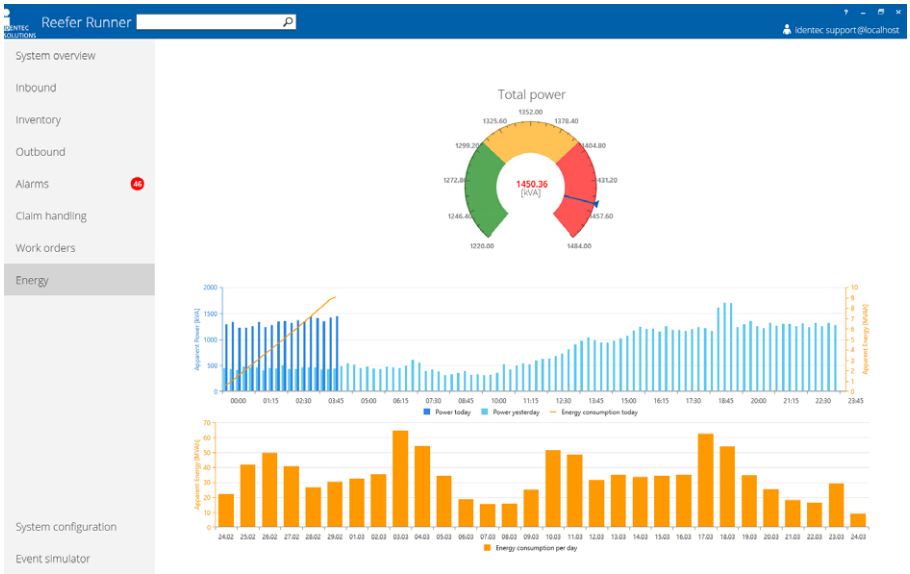
Globally, the port business has been performing its task dutifully, keeping trade flowing around the clock, crisis-no crisis. Truth be told, the marine terminal industry is used to dealing with difficult situations, just to mention the financial meltdown of 2007-2008. We have also seen a number of mergers in the shipping industry during the past couple of years, including some terminals losing their key clients virtually overnight as the neighbouring competitor became 'one family' with the shipping line that had been supplying the volume. While it would be a too far stretching notion that container terminals could shrug off corona just like that, the pandemic has neither undercut their investment plans, be they in hard infra- and superstructures or in digital solutions. Interestingly, that puts pressure on solution providers. Because handling containers is such a competitive environment, operators want to make sure they will squeeze the return-on-investment out of what they buy. This, consequently, makes us focus on improving our offer.

The port industry has approached the digital revolution, including automation, at a somewhat slower pace than other heavy-duty businesses. In certain regions, there are historical reasons why this has been the case. Imagine that countrywide the port industry has heavily invested in

highly qualified staff; exchanging them for algorithms would mean this investment in human capital would very much have to be signed off. As in other automatable areas of life, people can successfully compete against software only to a certain degree. In regions where there is a lack of skilled workforce, there is no alternative to automation.

Next, automation 'sprouts' very rapidly, so to say. If somebody is ready to invest in automating, one also needs to understand that huge amounts of data will have to be handled, and that cannot be done manually; maintenance will go from interval to predictive and real-time; drones will carry out inspections and take care of surveillance, and so on and so forth.

Curiously, if a non-automated terminal is in the black, it can get too concentrated on daily operations, losing from its sight the bigger picture. Essentially, it has to do with missing out on the opportunity to ask strategic questions, such as whether this business model is, though it works fine now, sustainable in the long run, especially against the backdrop of others automating their processes. The merger trend has raised this issue to the top. A group that operates several terminals is in the position to make certain top-down decisions. This is, of course, about productivity. Sure, one can buy new, shining equipment, but there are, in fact, other development options. The key is to be in the know, to actually see how things run in this-and-that facility. Visibility is therefore pivotal, as it gives the tools to cross-reference terminals. "You cannot compare individual terminals" was the same old story we used to hear in the past. It's different now that we have the means to disperse this obscurity. If you are bringing once distinct facilities under the common denominator of automation and data, then the chance of effectively transplanting a given solution from terminal A to B goes up because it's now an informed decision, not a game of pitch-and-toss.



■ ***What are some other benefits of enhanced visibility?***

Greater visibility can also serve as a cost-cutting tool. One of our clients used to face way too many claims, even to the point of losing a customer. Curiously, after partnering with us, the level of claims went almost to zero. It was a custom that a shipping line would come to the terminal operator and accuse them of damaging the reefer. With a push of a button, the operator could now check the reefer's status and history, presenting it as evidence that nothing bad happened to it while it was stacked and handled in the yard. The carrier then backed down and said it must have been their fault then… Without visibility, one can claim whatever they want. Unfortunately, the burden of proof, that they did nothing wrong, rested on the operator. Battling over claims with carriers can be a nightmarish experience, so much so that this particular client of ours just paid the claims in the past. Nowadays,

they have the means to counter such situations. And even better, they just avoid any mistakes on their side.

Another thing would be monitoring energy consumption. Reefer manufacturers put all sorts of promises in their marketing pitches that their container is the most energy-efficient, the greenest, the most eco-friendly, etc. It is similar to what car manufacturers do. And in both cases, what's achievable in reality is often a far cry from the results so glaringly ticked off in laboratory conditions. Even if a given reefer series consumes less on average, there are variations between individual containers and, every now and then, a 'heavy drinker' can pop up. Someone has to ultimately pay for that, and nobody fancies higher bills. With our solution, we are able to nail energy consumption down to a single reefer. In this sense, visibility brings greater fairness into the market.

Maybe not in Europe, but in Latin America and Asia, we have seen trucking companies being reluctant to use the gensets in order to save some fuel, turning them on just before arrival and behaving at the gate as if nothing has happened. Again, their clients had the gut feeling that something fishy was going around, yet they didn't have the data to substantiate their suspicions. But with digital and remote reefer management, we can instantly detect whether the temperature control equipment is working. These 'hot loads' cost terminal operators money, as it is they who need to use more energy to cool down the reefer to the required level. And if it comes to worst, the shipping line will refuse to load the reefer when it hasn't reached the agreed set-point in time. With visibility, you can crack down on such 'hot loads' misbehaviour.

Photo: Hapag-Lloyd

Photos: IDENTEC SOLUTIONS

Photo: IDENTEC SOLUTIONS

■ ***What is your take on how will the port/terminal industry evolve in the near future in general, and the cold chain part of it, in particular?***

Automation will be the all-embracing trend, which only recently got a shot in the arm from the pandemic. Ports saw in all vividness that flexibility isn't a slogan that can be thrown around nonchalantly just to make a power-point presentation look good, but that it has to be a rock-solid basis for their operations. That's maybe why a lot of operators are now reviewing their terminal operating systems (TOS) and asking themselves if what they currently have is not only corona-fit but has the capacity to deal with whatever emerges in the foreseeable future.

The pay-per-use model, which to date didn't fly, may become more popular. If you think about it, modern digital solutions are made for it. This will bring about a profound change in operators' balance sheets – an investment will no longer be a capital expenditure position but an operational one. A solution that sits in-between would be when operators lower their CAPEX by shifting the costs to the maintenance part.

From our reefer point of view, we are closely watching the efforts that are aimed at automating reefer energy connections as well. Funnily enough, it's actually impossible to find a 100% fully automated container terminal. This is "thanks" to reefers which need to be plugged manually and are still monitored by people. Think about it as you would compare smartphones that are still powered through a cord with those that you simply place on a charging pad. It might not be a big deal for


Photo: IDENTEC SOLUTIONS

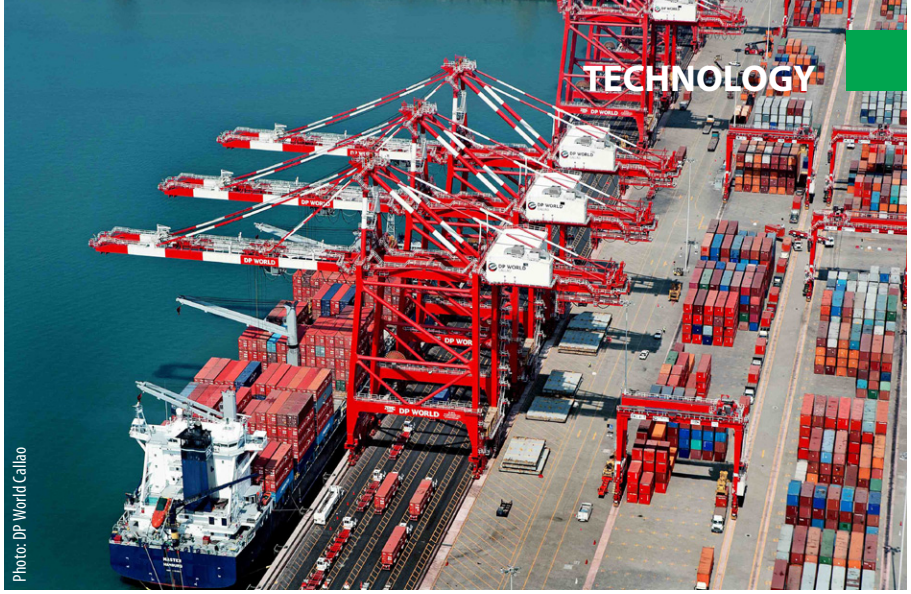


Photo: DP World Callao

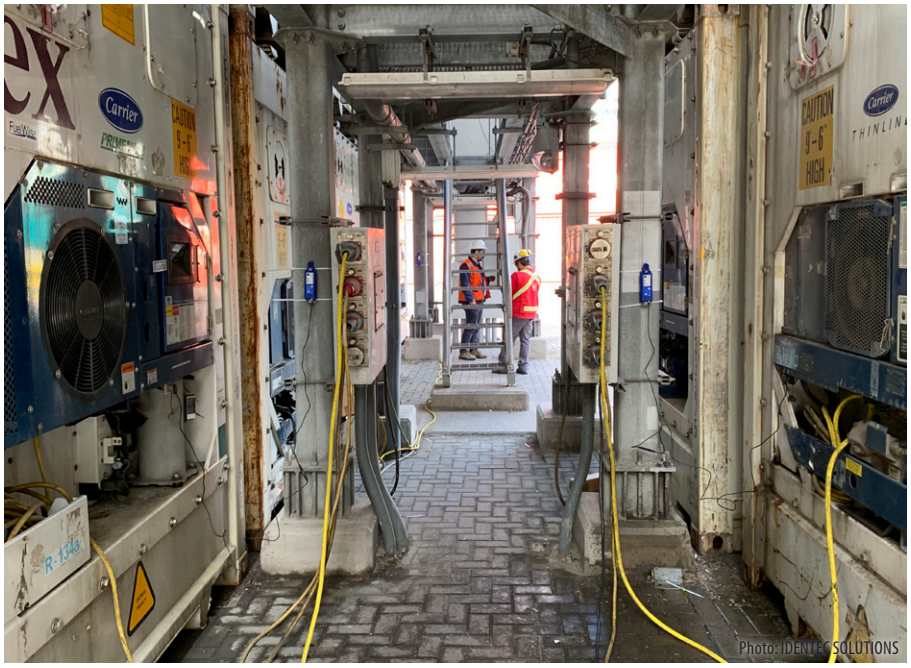


Photo: IDENTEC SOLUTIONS

phone users to stick to the charging wire, but in all probability, it would be a colossal change for the reefer business to have both digital & remote data management and automatic management of the electric connection. No electricians would need to circulate in the storage areas anymore.

There doesn't have to be any revolution for a given business to move forward. Back in the day, everyone had their jaws wide open if you could check the reefer temperature remotely. Now, it is the most standard of all the standard things to have. Modern management systems can track the reefer's entire history, event-by-event, all registered. Next, there are all sorts of alerts, taking the system beyond reporting to making it the centre of the action, with automated checks going in the background. Interoperability is key, too, that the reefer management and terminal operating systems communicate with each other so that the former can double-check the latter. A common mistake here is for a docker to mistake minus with a plus, or vice versa. Our system would instantly raise a red flag and prompt action to remedy the situation – remotely, thanks to current technology. Another example would be when the TOS says a reefer was unplugged for onward handling, but, in fact, it is still connected. Our system would notify the operator about this potentially grave situation. Broken power cables flying in the yard are probably one of the last things anybody would like to see on their shift.

In-system security is very important as well, knowing who did what and when. There are also system credentials so that a given person can only undertake actions he or she is permitted to do. It is not to say that we don't trust people overseeing the system, but mistakes can happen; now, if somebody doesn't have access to certain options, then there will be no risk of them changing the set-points. Our solution is also protected by the so-called Transport Layer Security, i.e., cryptographic protocols designed to provide communications security over a computer network.

Reefers are special use containers; they usually carry fragile goods, frequently high-value items such as pharmaceuticals or highly sensitive electronics. There is only very little error margin before something goes terribly wrong, and the entire load goes from priceless to worthless. At times, one can smirk at the accidents, for instance, when a generator surrendered to bone-breaking temperatures and the entire reefer froze, leaving inside nothing but perfect bottle-shaped ice beer and a thick layer of shattered glass on the floor. But it wouldn't be funny at all to hear that a container with vaccines or emergency response supplies went to waste.

Global temperatures are on the rise, consequently the demand for reefers. I'm also predicting a noticeable shift of reefer transportation from air to sea freight, exactly owning to refrigerated container management systems that give shippers and forwards the 'cool head' that nothing bad will happen to the cargo, even if the haul takes considerably much more time.

On the other hand, I'm sceptical about any harmonisation occurring between reefer manufacturers – each and every one of them sports the message that their solutions/standards are the best. There are also differences within single producers, as one has to deal with various generations of reefers, some of them 12 years old or even more. It's then our job at IDENTEC to reconcile these different protocols so that the terminal operator doesn't get a headache when handling reefers. It all should be plug & play for them. ■

Learnt by (machine) heart

by Dipl.-Ing.oec. Lutz Kretschmann, *Head of Team Marine Operation Management,*
and Dr.-Ing. Miriam Zacharias, *Senior Scientist, Fraunhofer Center for Maritime Logistics and Services CML*

Data from fleet management, ship operations, and port logistics have become an exceedingly valuable resource. This 'new oil,' as it is being called, already drives much of the transformation we see in the maritime industry today. Future-oriented maritime services will rely even more on the careful processing and analysis of data from maritime supply chains and transport markets to extract meaningful information and support decision-making. Data science plays a key role in this context, providing the necessary tools, from statistics to mathematical optimisation. Here are the key takeaways from our recently published free white paper *Machine Learning in Maritime Logistics*.

Beyond these 'classical' methods, more and more attention has recently been paid to new concepts from the field of Artificial Intelligence (AI). In particular, machine learning techniques are very promising for a number of maritime applications. In the right use cases, machine learning is seen as an important means to leverage data, allowing companies to, among many, reduce costs through optimised operations and data-driven decision making; improve quality control and safety through digital monitoring solutions; and capture knowledge hidden in past business records.

As diverse as

Machine learning is a sub-discipline of AI, a wide field within computer science concerned with equipping machines with certain human capabilities – but at a superior level. Traditional optimisation algorithms provide customized steps, or rules, for solving a given problem. Finding suitable rules can be a complicated and time-consuming task, and it is often difficult to verify the quality of the solution. In contrast to that, machine learning automatically identifies rules for obtaining answers from data during a so-called training phase. Subsequently, these rules can be applied to new data to derive answers for specific, clearly defined problems. Typically, three main types of machine learning are distinguished – supervised, unsupervised, and reinforcement learning – each with a variety of different algorithms, distinct application areas, strengths, and weaknesses. What all of these algorithms have in common is that they require a certain minimum of high-quality, carefully pre-processed data.

Accordingly, using machine learning in maritime logistics always starts with checking the available database and implementing a suitable information architecture. Together with industry partners, Fraunhofer CML has conducted several studies and research projects on machine learning in maritime logistics, thereby following a modular approach (Fig. 1). During the initial phase, promising use cases are identified and evaluated in accordance with company goals, available data, and suitable algorithms. Then, a proof of concept is implemented, which includes several iterations of training and testing of the machine learning model to improve a prototype, and finally, the deployment of the solution in practice.

The individual application fields of machine learning in maritime logistics are just as diverse as the algorithms and machine learning models. Deep learning can enable machines to understand and process previously inaccessible information of digital images, text, or audio files. Reinforcement learning algorithms are promising for complex control problems where other optimisation methods reach their limits. Hybrid approaches help to integrate experience and expert knowledge in machine learning models. However, all things considered, using machine learning methods to develop data-based forecasting and prediction models for maritime logistics is probably the most promising field of application right now.

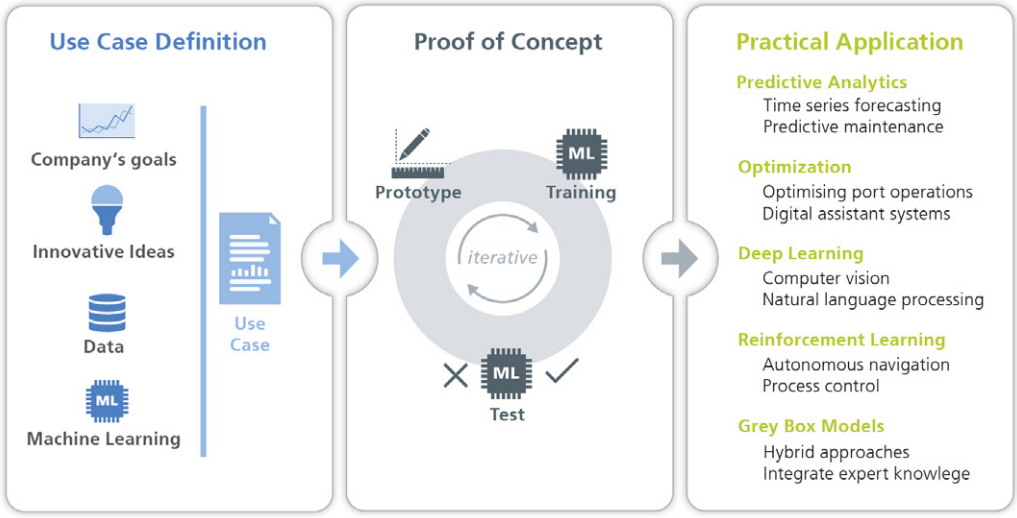
Machine learning in practice

Decision-making in maritime logistics often involves external, fluctuating factors that are stochastic in nature (meaning that something is well-described by a random probability distribution) and therefore complicate identifying and planning well-considered actions. This underlines the importance of reliable forecasts for making optimal business decisions under uncertainty.

By using predictive analytics methods based on machine learning, forecasts can reach a new level of accuracy; reliable predictions for decision-relevant values, such as demand and freight volumes, expected arrival times, or remaining lifetime estimations of components, now become achievable. The approach identifies correlations and patterns in historical datasets and uses these dependencies to predict future developments or events (Fig. 2). In this way, both scope and accuracy of information presented to decision-makers on a daily basis can be increased. Let's take a closer look at three practical examples of how this can be done.

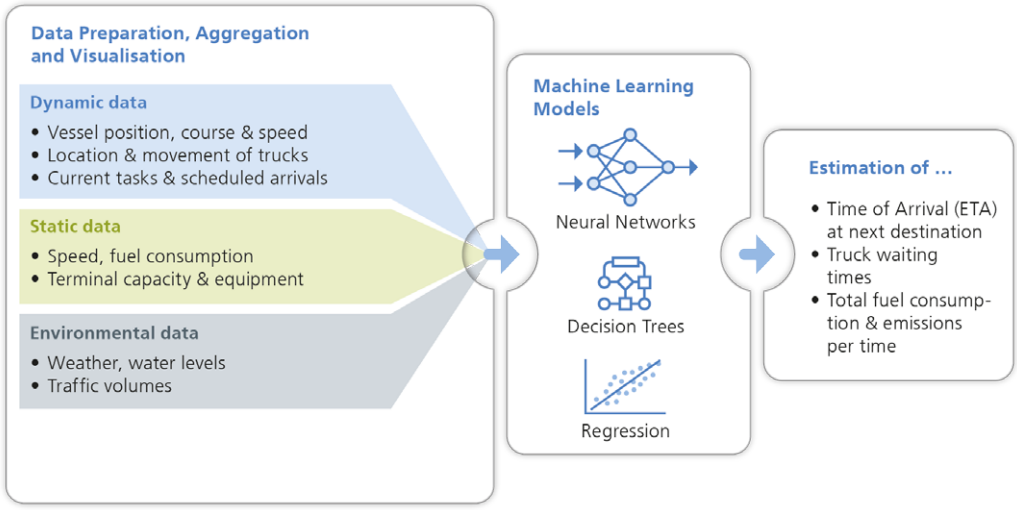
First, applications based on data from the Automatic Identification System (AIS). The introduction of the AIS was an important milestone of maritime digitalisation, with direct positive effects on maritime safety. Moreover, by recording worldwide vessel movement data on a day-by-day basis, a unique maritime dataset, associated with a multitude of potential use cases for machine learning, has been established. Fraunhofer CML has worked on several solutions based on AIS data. One particularly successful application concerns the prediction of ship-port arrivals. Technically, the implemented approach is based on a correlation of position and motion data from AIS with meteorological and hydrographic parameters, like wind, wave, current, and water level, using machine learning. Between three and four million AIS data records were processed daily to provide a forecast of up to 72 hours. Accuracy of predicted arrival times in all major German ports is in the range of +/-1 hr on a time horizon of 24 hrs, and +/-3 hrs when looking 72 hrs ahead, while departure times can be determined correctly in 90% of cases. Both accuracy levels surpass the minimum

Fig. 1. The modular approach to machine learning projects



Source for figs. 1-2: Fraunhofer Center for Maritime Logistics and Services CML

Fig. 2. Forecasting with machine learning



requirements previously defined by stakeholders for this particular problem.

Second, predicting truck arrivals and waiting times. Although truck waiting times at logistics terminals and in ports fluctuate and can seem sudden, in fact, they are usually far from unpredictable. In order to demonstrate that truck arrivals and waiting times can be predicted with machine learning, Fraunhofer CML entered into a co-op with a Hamburg-based container depot and service provider. Technically, the approach utilises a digital representation of the handling processes at the terminal. Historical and current data are processed by an artificial neural network (which can easily be modified to consider additional input data available for a specific location or terminal). The machine learning-based model has proven to be quite capable of forecasting expected truck arrivals and waiting times at the depot. Taking the predicted values into account enables trucking companies to make better dispatching and routing decisions. At the same time, the forecasts help the terminal to schedule sufficient equipment and staff to meet demand and better cope with peaks.

The last example is associated with worldwide empty container deployment. Similar to the previous two solutions, the idea is to use innovative forecasting methods to improve the basis for making logistics decisions. In this case, the goal is to predict the supply of and demand for empty containers per region in the form of a Container Availability Index. Technically, statistics and machine learning techniques are used to evaluate millions of individual container journeys in order to predict their future whereabouts. In turn, the availability forecast can be integrated into decision support systems as a basis to initiate, postpone, or cancel repositioning of container equipment.

Up-and-coming?

Not claiming to be a panacea, machine learning does, however, hold the potential to impact many business processes, increase efficiency, and reduce workloads. Early adaptions of the technology in the maritime sector are quite promising, as highlighted above. Nonetheless, a majority of maritime companies are only starting to explore machine learning in its different forms. Especially for small- and mid-sized companies, the implementation of machine learning projects can strain available personnel, time, or financial resources. Even more, often the sheer number of possible applications, algorithms, and data sources can be difficult to navigate. Thus, success in the field is by no means a given but requires careful selection of suitable use cases and pooling of necessary expertise either in-house or by involving external partners.

Fraunhofer CML has lately released the free to download ***Machine Learning in Maritime Logistics*** white paper that covers both the basics of AI and machine learning and goes through the important elements of a successful implementation of machine learning in maritime applications. The publication shows how data, technology, and machine learning interact to create innovative maritime solutions, providing an overview of machine learning use cases in the maritime industry. ■

The digital divide

by David Yeo, *CEO and Founder, Innovez One*

The shipping sector, navigating through the coronavirus pandemic disruption, has responded with many positive, progressive solutions. This broad adoption of various digital solutions seeks not only to mitigate short-term perturbations but also to align the maritime industry with the increasingly digital supply chain. About time!

Simultaneously, COVID-19 has exposed how shipping, an invaluable element of making modern life possible, still relies on manual or old computer legacy solutions for its most essential and fraught processes, including the critical first and last miles that occur when arriving at or leaving a port.

Anchored in the past – needlessly

There is no doubt that the maritime sector is familiar with the 'smart ports' concept. However, according to the consulting firm Deloitte, only the top few ports around the world, those Tier 1 ones with resources and financial muscle, can be said to be achieving the current working definition of a **'smart port,'** hence enjoy the benefits of digitalisation. This, in turn, creates an unbalanced landscape within the global port sector.

Staggeringly, just over 80% of ports in the world are in the 'Tier 2 and below' categories and either do not have access to this kind of digital technology or believe it is out of their financial and technical capabilities. This leaves them not only vulnerable to delay from supply chain disruption, as witnessed during the recent and still ongoing pandemic but perhaps more importantly, strategically – less able to compete in an increasingly digital maritime world.

As an industry, shipping is still playing catch-up with the large transport and logistics players when it comes to adopting digital solution applications, and this is particularly prevalent in the port sector. According to the Boston Consulting Group, many ports – particularly small- to medium-sized ones – **"remain firmly anchored in the past,"** with paper-based documentation and manual labour still the order of the day, which is inevitably consequential to the port's environmental performance as well as opportunities to boost revenues.

This cannot go on. It seems that a vast majority of ports have been unnecessarily denied the opportunity to enjoy the benefits of shipping's digital evolution. Especially when affordable technology, with a fast return on investment, exists and is readily available.

And miles to go

One area where we can make important gains is marine port services for the first and last mile, specifically – towage and pilotage. It's also the place where the divide is starkest between digital 'haves and have nots.' Pen & paper processes and Excel spreadsheets dominate this crucial first and last mile of shipping for many 'Tier 2 and below' ports. The 20% of ports for whom this is not the case have often been able to rely on their own in-house software and have access to capital for investments.

This gap means that the first and last miles of a journey at sea are weak links in the global logistics chain. When a ship makes a port call, the marine services provided by pilots, tugboats, and pilot boats need to be scheduled and dispatched for a vessel's safe approach into the port. A vast number of scheduling considerations need to be evaluated, including matching a pilot with a suitable license, finding an appropriate number of tugboats to provide the power to move the vessel, checking the weather conditions, tide considerations, etc.

Yet, port management innovation and software have so far primarily focused on the land-based side of operations. Marine services at ports, which should rely on port management frameworks, lack the ability to utilise the latest digital technology, know-how, and processes necessary to optimise the heavily manual and paper-based procedures that are in use in most port and pilotage operations today.

Innovez One's mission is to change this, among other things, by using deep

Photo: Innovez One

technology and Artificial Intelligence models to optimise and solve complex first and last-mile towage and pilotage challenges for every port. Efficiencies that save significant costs, time, and improve the sustainability and competitiveness of critical operations are needed to create a fair and level-playing field within the global ports' marketplace. Modern tech-solutions should be available to all ports, irrespective of their size and shape, as well as not requiring from them bottomless CAPEX and OPEX budgets.

This failure to digitise the marine side of operations, particularly in towage and pilotage solutions, can ultimately cause the risk of delays, both when it comes to ship calls and payments, and increased fuel consumption, hence in-port carbon footprint. In particular, towage operators can make substantial savings on their annual fuel costs (and associated emissions) by reducing the tugs pilotage while saving annual maintenance costs of their towage vessels.

The importance of interoperability

As digitalisation keeps marching forward, the port sector must develop solutions on a strategic management framework with common criteria. Shipping has no shortage of sophisticated high-end solutions, but it's still happening in silos. The problem is how to wrap it all together and make it work.

One of these core criteria will be to consistently ensure that management systems are based on common design criteria to support an open architecture. With a common language, we can enable different solutions and applications from various suppliers and vendors to co-exist and be interoperable with each other, doing all of this in real-time. However, we must handle this in an agile way to secure compatibility so that port management services can continue to provide uninterrupted services 24/7/365.

For the many

Digitalisation has the potential to dramatically change the competitiveness and profitability of ports regardless of size, stature, or location, as well as making strides in charting a pathway for shipping's sustainable future.

As cutting-edge digital solutions come to the fore in shipping's decarbonisation dilemma, you cannot expect ports to implement these solutions when relying on just manual processes for indispensable operations. However, there is no reason why every port should not proudly call itself smart – and the first and last mile is an excellent place to start. Shipping's digital evolution should be for the many, rather than just a few. ■

YouTube

innovez-one

The Singapore-headquartered Innovez One, with offices in Jakarta and London, has been delivering expert maritime software solutions for the world's busiest ports and towage operators since 2004. That year was also marked by the digitalisation of the Port of Singapore's pilotage and towage operations by the company. With a vision to automate complex maritime operations for ports, towage and workboat operators worldwide, the Innovez One team has engineered and developed the marineM platform that helps to optimise critical maritime resource allocations for operations carried out by ports of all sizes. Go to **www.innovez-one.com** to find out more.

Freight forward, look backward

by Kris Kosmala, *Strategic Advisor, BunkerMetric; Board Member, Holo Sail Holdings Inc.; Ambassador, Connected-Ports; and Partner, Click & Connect*

In light of the many stresses experienced by the supply chain and logistics planners in 2020, no freight forwarders managed to distinguish or significantly differentiate themselves from their competitors in the eyes of their customers. For all the freight forwarders' talk of agility, flexibility and differentiated customer care, in 2020, no shippers adjusted their view of the value created by freight forwarders to their supply chain operations.

In 2020, freight forwarders got lost among capacity limitations brought in by the carriers, skyrocketing sea freight rates, port congestion flare-ups, and repositioned manufacturing from China looking for new and efficient routes to market. Even on the most rudimentary freight forwarder's job, that is finding the lowest price possible from A to B, freight forwarders could only talk of those bad carriers rising rates, ports reporting longer wait times for berths, and drivers unwilling to work long hours for a pittance. While the finger-pointing was going on, not one of them offered any significant discounts on their services to retain their bewildered customers.

Retreat to legacy

Speaking of that rudimentary job of finding the cheapest and most efficient routing synchronized with their customers' supply chains' needs, in 2020, the freight forwarders lost more ground to the less competent but cashed-up providers of freight technology. For the clues on freight forwarders' future as finders of the cheapest rates, the forwarders should only look to the disappearing act performed by the travel agencies. Conveniently, the pandemic provided proof of the superiority of digital marketplaces over physical presence in the game of finding the lowest price of anything related to travel. Just walk through your neighbourhood and look at the abandoned offices of Thomas Cook or Flight Centre, while investors in Airbnb, Trip, Booking.com or Trivago enjoyed their sweet returns on human operator-free platforms.

While the incumbent freight forwarders attempted to replicate the low cost, low overhead simplicity of the digital marketplaces, they also hung on to their legacy business model and all its limitations preventing significant cuts to unit costs. How difficult that is, just look up to the value of Amazon and Walmart over the period of the pandemic. Both have attempted to provide commerce at the lowest cost (not without stellar success as the fortunes of Jeff Bezos and Greg Penner can attest), but the digital-platform-play, with a tiny attachment of hard assets, proved itself clearly much more valuable than the brick-and-mortar-play with its small digital commerce attachment.

Not discouraged

It is also the reason why venture investors keep piling into logistics digital marketplaces, where demand and supply are easily aggregated, transaction costs are low, and revenues per employee are far in excess of what even the best traditional freight forwarder can ever generate. The freight forwarders' argument for survival is, of course, that the B2B business is too complicated for digital platform players, but the message, if any, has not discouraged the disruptors from chipping more customers off the incumbents' old block. Countermeasures in the form of updated digital portals are too simple 'me too' tools to build significant moats against the digital invaders. Ossified internal processes, requiring awkward and expensive retrofitting of digital solutions, are also proving a major challenge, as demonstrated by widely publicized write-offs of IT investments by major logistics companies.

As a venture capitalist, I would worry about one thing while throwing fresh $50m-100m at another digital freight marketplace in 2021 – what is my exit

Photo: Wikimedia Commons

strategy? Alone, they will not survive. Theoretically, a marketplace could be sold off to one of the big enterprise software providers as an add-on to their TMS. Alternatively, it could be pitched to an existing freight forwarder as a substitute for a piece of their in-house system. The former solution seems to be more probable, but opportunities are running out. There may be too many FourKites, Project44, Forto (ex. FreightHub), Newtrul, or Vizion plays searching for that E2Open/INTTRA moment in 2021.

The latter is even less likely, as freight forwarders are terrified of becoming owners of technology choices and software development overheads decided by others, all too often undertaking their own in-house development. If you don't believe me, just check the announcement from J.B. Hunt that they will team up with… Google to build AI-whatever… freight matching platform.

Last but not least, 2020 was a quiet year for that hybrid freight forwarder experiment everybody loved talking about. In crisis times, that operations model combining traditional freight forwarder operations on top of a better digital platform has not demonstrated a clear advantage or ability to change either the analogue or the digital realm of the business.

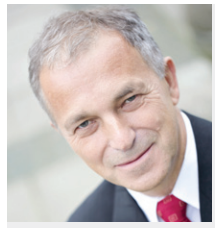
The most important asset

If the digital plays are not enough to ruffle freight forwarders' feathers, even more pressure will continue coming from the sea freight carriers building up freight forwarding capabilities through the acquisition of both digital and hard assets. They will keep cutting into freight forwarders' space because they were much faster appropriating the most important asset in the service game: the data.

While the freight forwarders are still debating the value of a common, shared data store, their data is already being leveraged against them on the two platforms owned by the sea freight carriers: Datalens and GSBN. Just wait until those platforms tackle air freight for integrated supply chain logistics orchestrations and incorporate trade financing for good measure. As if the threat from the carriers was not enough, I will be watching DP World spreading from their traditional port business into hinterland logistics and sea freight lines. DP World is slightly behind in the digital race as compared to PSA or the carriers' platforms. However, there seems to be more money and aggressiveness in the DP World build-out, so maybe it is just a matter of finding the right acquisition target in possession of integrated digital platform and consolidation of gains from their hard and soft asset acquisitions.

New battles but same ol' jagged blades

As the pressure builds and digitalization investments remain uncertain, expect freight forwarders to apply the old weapon to the new 2021 battles – consolidation. As the less agile operators with interesting customer bases falter, the ones with money will keep swooping in. Inevitably, those acquisitions will be paid with job losses as the acquirers remove duplication of positions and headcounts. That will be the inevitable price to pay in 2021 for hanging back and hoping for the best. ■



Kris Kosmala is a globally renowned strategy specialist in the fields of business and IT, technology and innovation, and digital business transformation, including Artificial Intelligence and optimisation. His works, alongside articles, posts, and comments, influence how transport & logistics is transitioning towards a more digital industry. Having worked for almost three decades for such heavyweights like Oracle, Flexera Software, NBN, Quintiq, and Royal HaskoningDSV, Kris is currently Partner at Click & Connect, a consultancy that helps uncover, evaluate, design, and implement innovative thinking in goods movement, supply chain organization, and transportation; acts as Connected-Ports' Ambassador, building universal, open-source API allowing port managers and port authorities to collaborate for greater efficiency; and has recently joined BunkerMetric, a Scandinavian software company bringing the power of advanced digital technologies to the marine bunkering segment, as Strategic Advisor.

Going through the changes – with gusto

by Liina Kumpula

Through its established and vast network of sea shipping services, plus efficient road & rail hinterland connectivity (along the Finnish coast and all the way up to Russia), the Port of Naantali serves a number of trade lanes, be they for taking care of liquid and dry bulk or general cargo goods. There are heavy-duty industries located just next to the port – such as an oil refinery, a lubricant factory, a power plant, a betaine producer, a ship repair yard, and grain silos – that generate large volumes for it to handle. Easy wintertime ice conditions and one of the deepest fairways and quays in Finland (up to 15.3 m) make it possible to regularly handle Aframax tankers and Panamax bulkers. Additionally, Naantali is located a stone's throw from Sweden, which, coupled with the frequent ferry connections, has made the port the most important hub for cargo traffic going to and fro Finland and Scandinavia.

For those reasons, Naantali is today the fifth busiest universal freight port in Finland. In 2020, over 8.0mt, brought on-board around 1,600 vessels, went through the port's quays, including 142,000 trucks and trailers. Especially in times of a pandemic, the ferry services act as a vital link in the country's emergency supply. This was reflected in last year's increase in cargo turnover of about 7% year-on-year, despite certain off-market odds.

"To make cargo traffic run swiftly"

According to Yrjö Vainiala, the port's COO & Commercial Director, the "rushed and excessive" decision of the National Emergency Supply Agency (NESA), from March 2020, to grant financial subsidies only to the passenger car ferries sailing between Sweden and Finland and cover their losses has affected the proportional market shares between shipping companies as regards cargo transportation. "Discriminatory activities and market-distorting state aid only for passenger shipping companies were unfair and based on the poor situational picture: there were enough lane metres and capacity available between Finland and Sweden, and still the subsidies were justified by the need to ensure emergency supply and critical transportation capacity," he points out.

For instance, a large portion of service transport to the Åland Islands is shipped through Naantali, including all fuel used in the region. The Åland-based shipping company Rederi Ab Lillgaard has been operating a six times/week service between Naantali and Långnäs, with the ro-ro vessel *Fjärdvägen*, since 1996. Finnlines, in turn, plays a central role in getting critical supplies, industrial and societal, to Finland, such as pharmaceuticals, foodstuffs, spare parts and components, machinery and equipment, consumer goods, etc. "The Naantali-Långnäs-Kapellskär route used by Finnlines is by far the most important western route from the point of view of Finland's emergency supply. A significant share of all truck transports between Finland and Sweden are carried on that route on-board Finnlines vessels," Vainiala underlines. With nearly 30 weekly departures and almost 45% market share, Finnlines is the leading cargo carrier between Finland and Sweden. Finnlines' ro-pax *Finnswan* alone carries 200 trucks on each departure, which equals the truck transport capacity of four passenger ferries travelling daily between Turku and Stockholm. In normal conditions and without the market-distorting effect of the subsidies, more than half of the truck traffic using ferries between Southwest Finland and Sweden are carried via Naantali on board Finnlines' ro-paxes. Vainiala continues, "Finnlines' Naantali-Långnäs-Kapellskär route and the vessels serving it have been planned, built and scheduled specifically to make cargo traffic run swiftly, unlike the competition's Helsinki-Stockholm and Turku-Stockholm routes. In that regard, they are superior. Moreover, cargo customers don't have to needlessly drive through congested city centres." He also emphasises, "In my opinion, heavy vehicles do not belong to city-centres – it's a thing of the past and makes urban planning very challenging. Furthermore, the solutions to the problems are increasingly expensive."

As the Finnlines morning ship arrives in Naantali at 7:15, the cargo units will already reach terminals of transport companies in the Turku region before the competitors' vessels even arrive in the Port of Turku. The units can also be delivered to the terminals along with Ring III in the Helsinki metropolitan area before the cargo units arriving in the morning on-board of the passenger car ferries from Stockholm to Helsinki. "The schedule of the Helsinki-Stockholm route is not ideal for cargo, either: departure in Helsinki at around 5:00 pm and

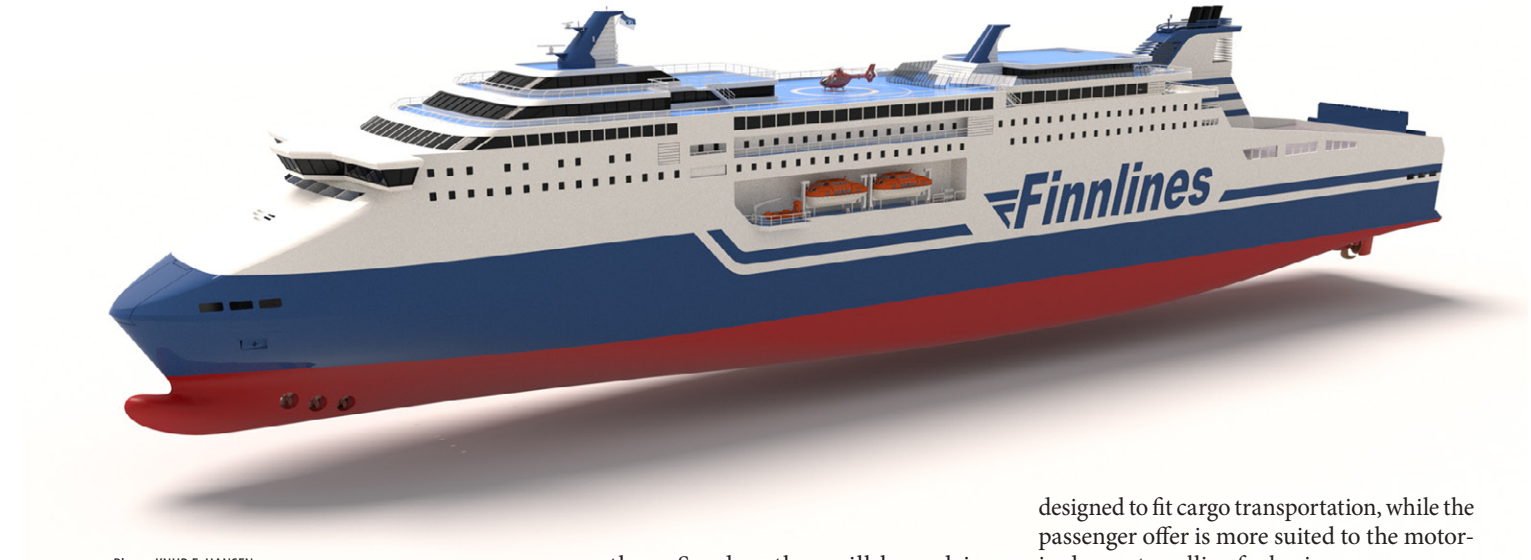


Photo: KNUD E. HANSEN

arrival in Stockholm at around 9:30 am. When you compare that to the Naantali-Kapellskär route, it's possible to start loading goods much later to a ship that departs from Naantali to Kapellskär at around 10:45 pm, but the ship will nevertheless arrive in Kapellskär at around 6:15 am, allowing for the goods to be driven to the Stockholm area before the ships coming from Helsinki even arrive in the capital of Sweden. If the trucks arriving in Kapellskär continue to southern Sweden, they will have driven around Stockholm and advanced over a hundred kilometres south before the trucks arriving with the Helsinki ferries have even made their way out of Stockholm," Vainiala details the logistics chain.

The Naantali-Kapellskär link offers many advantages. The sea voyage is short, and the route avoids time-consuming passage through the archipelago in Sweden and the associated issues like speed limits, shore erosion, damage to small boats and piers caused by ship stern wash, as well as the sea entrance point to Turku, which is difficult especially for large and long vessels to navigate through. "The ferries don't have much extra turnaround time in Turku or Stockholm, mainly due to the speed limits on the Swedish end of the route. Even small additional speed limits in the future, combined with possible rough seas, would lead to delays. In Naantali, Finnlines can set its schedule more freely and flexibly. The road connections to Naantali in terms of cargo are also at least equally good, if not better, compared to Turku, Helsinki and Stockholm. And the connections will be improved further when the Turku ring road, the Raisio crossing area and the E18 road will be completed," Vainiala lists.

The size of the ships sailing on the route in question has increased over the years, but at the same time, energy efficiency has improved, too, and the vessels are more environmentally friendly. Tallink & Silja Line, Viking Line, and Finnlines all have vessels operating between Finland and Sweden with bilingual Finnish-Swedish crews. The current ice class of all vessels is 1A Super or at least 1A. However, Finnlines' ro-paxes differ from the competition, as they are mainly designed to fit cargo transportation, while the passenger offer is more suited to the motorised ones, travelling for business purposes or taking an excursion aboard their own vehicles. "Unlike passenger car ferries, Finnlines' ro-paxes offer considerably more lane metres for cargo; the vessels can be driven through, they include a spacious cargo hold without dividers, the ramps and deck structures are strengthened to endure such special loads that are also allowed on the road. The vessels of Finnlines also have a large weather deck for tank truck transports of dangerous goods that require segregation. Furthermore, their ships can be loaded and unloaded efficiently through the upper and lower decks simultaneously, using the adjustable upper and lower ramps built in the ports of Naantali and Kapellskär. The vessels are also equipped with internal ramps and lifts which can be used by trucks," Vainiala highlights. He furthers, "Passenger car ferries have much fewer lane metres available in general, but especially for cargo. Moreover, not all lane metres can be utilised in the most effective way. On some passenger car ferries, part of the lanes have low ceilings and are intended for passenger cars, while there is not enough room for trucks. The load factor also depends often on how much cargo the trucks and trailers contain because, in some passenger ships, the Plimsoll line is reached easily. It is also decisive how vehicles are entering the ship and how the loading can be planned and optimised."

"We're ready to do our part"

In early 2020, Finnlines said it ordered two new ro-paxes, each worth some $135m, from China Merchants' CSC Jinling (Weihai). Dubbed the Superstar ferries, they are expected to be delivered by 2023. According to the shipowner, the vessels will be placed

Photo: Port of Naantali

on the Kapellskär-Långnäs-Naantali route. They will be larger than the existing Star-class vessels and will be Finnlines' flagships both in terms of size and technology. With a length of about 230 metres, their loading capacity will offer 5,100 lane metres for rolling freight, over 40% more stowage capacity than the current ships on the route. There will be room for around 1,100 passengers as well. The newbuilds will have the highest Finnish/Swedish ice class, and their design will incorporate the latest in environmental technology, something Finnlines has accustomed us to over the years.

To keep us with these offshore developments, the port is also investing in the development of the traffic between Naantali and Kapellskär. Over the past couple of years, the port has, among many, expanded the adjoining areas for trucks and trailers, put in place on its ro-ro berth douple-stack adjustable

middle (below) and over deck (upper) ramps to streamline the flow of ro-ro cargo units, and extended the entire ro-ro pier by 50 metres to a total of 228 metres. In addition, a new outdoor energy-saving LED lighting system has been installed, which also improved the quality of CCTV surveillance. Alongside cargo-wise investments, the port has been preparing for the future increase in passenger traffic. As such, a vessel waste-water (black and grey) reception facility, including two pumping stations and a sewer which are connected to the municipal sewage network, has been built (with the help of EU funds), rendering the use of tank trucks unnecessary; the total length of the drain pipeline is 2,877 metres. "The investments at the port will continue with the new Superstar ro-paxes. Last year, the port already renewed its gate systems, built a supply store for vessels, and check-in cabins and a cargo office for transports and personnel. Next, the ro-ro quay will be fitted with an automooring system that will ensure faster berthing and more efficient port operations. We will see this in reduced cargo handling times, as loading and unloading of the cargo will take less time. The new vessels will also use the eco-friendly onshore power supply (OPS) solution during port calls, which will reduce noise pollution as well as enable zero-emission port operations. This will require updating the port's electricity supply network, including transformer, dispensers, and a connection cable between the OPS system and the vessel, but we're ready to do our part," Vainiala says. The ports of Naantali and Kapellskär have been granted EU funds from the Connecting Europe Facility for the set-up of OPS installations. "Once the project has been implemented, we will fulfil the requirements of the EU Directive on the deployment of alternative fuels infrastructure (2014/94/EU). In addition, the Port of Naantali received support for building the automooring system and modification of ramps for larger and wider vessels. In addition to these ongoing projects, we also have preliminary plans for the upgrading of existing infrastructure for passengers travelling with or without a vehicle. Our common goal with Finnlines is smooth on-boarding via optimised port facilities," Vainiala adds.

Last but not least, the port is building up its presence in the Baltic as well as across Europe within the EU Trans-European Transport Network (TEN-T) as a Core Port (one of four such in Finland), part of the Scandinavia-Mediterranean Core Corridor. Together with the Ports of Stockholm, Naantali is at the moment involved in the Intelligent Sea – Integrated Digital Services for Efficient and Safe Maritime Navigation EU-backed project.

In two ways

Naantali is approaching port development in a twin-track manner – while taking care of its regular traffic – day in, day out – it, at the same time, prepares for what lies just round the corner. "We are always repairing the port's old infrastructure or building something new. Port operations are highly capital-intensive. The investments, however, are always made for the benefit of the port and its customers in order to ensure the competitiveness of both," Vainiala sums up. ■

The two first commercial container transports along the queen of Polish rivers

Vistula Cargo 2021

by Leszek Turowski and Sabina Woch,
the Association of Polish Regions of the Baltic-Adriatic Transport Corridor

Even with its convenient network of domestic waterways, inland navigation continues to be the missing link in Poland's transport system. For many years different stakeholders, including the Association of Polish Regions of the Baltic-Adriatic Transport Corridor, have been working hard to promote the commercial use of rivers and turn things around for inland navigation. Acting within their remit, their near future goal is to increase the freight role of waterborne transportation throughout the EU TEN-T Baltic-Adriatic Core Corridor. Better waterway exploitation, such as improved flow of goods, will translate into economic as well as environmental gains.

Delivered by the regional government of Kujawsko-Pomorskie (a member of the Association), the project EMMA Extension (part of the INTERREG programme for the Baltic Sea Region) is one of the ways to disseminate knowledge about waterborne transportation. Project partners from Germany, Sweden, Finland, Lithuania, and Poland have showcased the benefits and advantages of shipping along inland waterways, a trend which is in line with the EU's guidelines and its policy of developing a competitive and resource-efficient transport system set out in the European Commission's *White Paper on Transport. Roadmap to a Single European Transport Area: Towards a Competitive and Resource Efficient Transport System*.

On 6-9 April 2021, as part of the EMMA Extension project, the Vistula River saw its first-ever commercial transports of containers. The shipments, altogether 12 forty-foot boxes carrying 300t of goods on-board a barge pushed by a tug, went from the Port of Gdańsk to a factory located in the Kujawsko-Pomorskie region and vice versa. The operation's main objectives were promoting inland waterway transportation in Poland as the most economical, safe, and environment-friendly mode; providing new knowledge to freight owners and shipping companies about inland navigation services and infrastructure; as well as putting the planned construction of the Bydgoszcz logistic hub on the map, including its recognition as a node of the TEN-T Core Network.

Head-to-head

The transport of containers on the lower Vistula was divided into two stages. First, an import shipment from Gdańsk to Chełmno. On the backhaul, export goods – components from Kujawsko-Pomorskie medical, furniture, and food factories destined for European and global markets – went from Chełmno to Gdańsk.

The import service began on 6 April on the Szczecińskie Quay in Gdańsk. The containers were brought in by road from the Port of Gdynia, where they had arrived by sea. After a night stopover in Tczew, the barge headed for Chełmno and arrived there in the afternoon. The pusher tug-barge set covered the whole section, about 150 km long, from the Port of Gdańsk to Chełmno in 17 hours. The operation went smoothly thanks to stable hydrological conditions (sufficient water depth) and clear navigation signage. On 8 April, the containers were unloaded on the Vistula Quay in Chełmno and then loaded again for the service to set off back to the Port of Gdańsk.

The Vistula Cargo operation made it more than evident that water transportation is highly efficient, economical (read: cheaper), but above all, environmentally friendlier compared with truck transport. Going upstream from Gdańsk to Chełmno, the set consisting of the *Tur* tug and *Galar 2* barge used 850 litres of fuel to get the six forty-foot containers/150t load to its final destination. Going back with a similar load, the fuel consumption totalled 270 l. The average fuel consumption was, therefore, about 42 l/hr for the entire journey. However, the operation was extended by a few hours to carry out the promotional activities. The actual time for the barge to go from the Port of Gdańsk to Chełmno is 15 hrs, and the return route is only eight hrs.

The *Tur* tug can push barges that carry up to 2,000t. The amount of fuel consumed does not change significantly for bigger loads and more barges. The efficiency of a set consisting of two barges carrying 30 containers at 24t is much higher compared to truck haulage – and on many fronts. A pusher with two barges carrying 30 containers (720t) would use about 750 l of fuel during a 15 hrs-long service to Chełmno. This means some 25 l per one forty-foot box. The return service carrying the same load would use about 216 l (7.2 l/container). The figure also includes fuel used by the power generator during night-time stopovers.

In contrast, a 720t-heavy road shipment would have to be transported from Gdańsk to Chełmno by at least 30 trucks, in total consuming 1,575 l across the 150 km stretch (a truck's average fuel consumption is 35 l/100 km). Another 1,500 l would be burned on the backhaul. Let us also do not forget that each and every truck would have to be manned, which gives us 60 drivers on a single round trip.

The final transport mode choice boils down to picking between what is more efficient cost- and environment-wise versus what is quicker and gets the goods directly to the end customer without the additional load- and unloading operations.

To the fullest

The Vistula Cargo operation fitted in very well with the country's transport policy and the work done by the Ministry of Infrastructure that's designed to promote the use of alternative transport modes. This is to be achieved by shifting some of the shipments from road to rail and water transportation, along with building modern inter- and multimodal terminals to improve the efficiency of the existing supply chains.

As well as promoting inland navigation, the shipments were to help better understand the possibilities of water transportation and cargo handling within the Baltic-Adriatic corridor. In the future, domestic water transports could take over a noticeable portion of overland freight traffic, just as is the case in the other inland waterways-rich TEN-T corridors like those going via Belgium, the Netherlands, and Germany.

The competitiveness of domestic water transportation depends on the technical parameters of the waterways. If regular

Photos: Association of Polish Regions of the Baltic-Adriatic Transport Corridor

Photos: Andrzej Goiński/Marshal's Office of the Kujawsko-Pomorskie Region

services on the Vistula are to be launched, in the first place from Poland's seaports to the Bydgoszcz logistic hub (incl. periods with low water levels), the waterway must meet the parameters set out in national regulations. The Vistula along this section is recognised as having grade II navigability (navigation width of 30 metres and transit depth of 1.8 m). With parameters like these, the waterway can be operated throughout the navigation season. To ensure optimal technical conditions of the waterway, river engineering structures will have to be restored and navigation bottlenecks removed. As well as ensuring the right technical conditions of navigation, more improvements are required, such as radar navigation and night-time shipping. With the right navigation conditions in place, the fleet can be used to the fullest, which will directly translate into the vessels' size and carrying capacity.

Broaden the horizons

An online campaign was launched to promote the event. There were press releases and videos to encourage the public to learn more about the topic of inland navigation and follow *Tur* and *Galar 2* as they made their way up and down the river. Infographics were used to present the opportunities and advantages of domestic water transportation as well as the need for setting up a modern multimodal logistic hub in the region of Kujawsko-Pomorskie.

As well as good publicity and awareness, the Vistula Cargo operation also attracted very positive feedback from many stakeholders who, in the not-so-distant future, can keenly tap into regular inland navigation services. The interested parties include transport, shipping and logistics companies, the maritime industry in Poland and abroad, and all the clients who run their businesses in the regions of Pomorskie and Kujawsko-Pomorskie. Knowing more about waterborne transportation can only broaden the horizons. ■

Stampanorama

by Marek Błuś

PostEurop, the association of European public postal operators, carries out an annual project that sees its members publish a joint stamp issue guided by a chosen theme. Such stamps bear the official EUROPA logo, a registered trademark, and are meant not only to promote philately but also point to Europe's culture, history, and the roots we all share in common.

Photo: Hellenic Post

Photo: Åland Post

Photo: Gibraltar Post

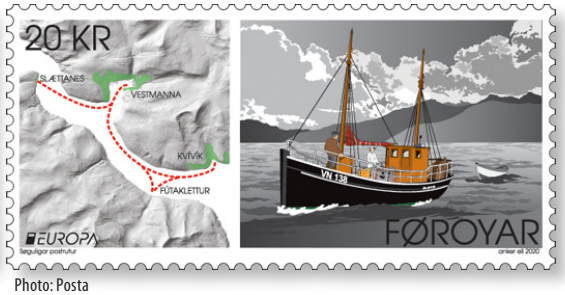


Photo: Posta

The 2020 theme was 'Ancient Postal Routes,' a more than obvious connection (pun intended) to transport, especially if we consider sea postal links (here, too), with packet (mail) ships that, along with passengers and cargo, also carried postbags. It's also quite obvious that postal offices of maritime nations selected ships and boats as the motif for their stamps. As such, the Åland Post pictured the contemporary Postal Boat Race across the Sea of Åland, while Posta, the postal service of the Faroe Islands, reminded the post boat *Ólavur* which served localities around the strait of Vestmanna from 1930 to 1965 (no worries, she's still in good shape!). Two other postal administrations, from Greece and Gibraltar, showed pairs of steam sidewheelers, which in the first half of the 19th century made postal services more reliable and less weather-dependent.

Nevertheless, we will focus on the releases of the two independent post offices of Guernsey and Jersey. The two created a common picture of their joint link with the United Kingdom around a set of four EUROPA stamps (two per post/year are allowed only). To this, each post added four stamps, creating a gallery of 12 packet ships that had served postal service to and fro the UK since 1794, when it was established, till 1975, when all mail hoped onto aeroplanes. Such an approach increases the educational value of the theme. If one or two stamps can inform about a narrow segment of the matter at hand or put a single case in the spotlight, an entire series makes it possible to paint a wider panorama and tell a fuller story. To this, one can also add souvenir sheets and presentation pack covers. A genuine piñata for collectors! Yet, we won't repeat here the stories of particular ships; those can be found in the **Islands' encyclopaedia**. Rather, this wealth of stamps requires a comment or two, plus some reflections.

Both series start with pioneering sister ships, the sailing cutters *Earl of Chesterfield* and *Rover*, built around 1790, and conclude with another pair of siblings, the turbine steamers *Cesarea* and *Sarnia*, constructed in 1960 and designed to carry up to 1,400 passengers across about 100 bunks in private cabins. But wait a minute?! Are these really 'ancient?' Maybe Guernsey and Jersey should end with the last paddle ships that plied the Channel till the very end of the 19th century? It, like many things in life, depends. The first three generations of PlayStation are, from today gamers' perspective, real dinosaurs; the same can be told about, say, VW Golfs I-III, first LCD screens and smartphones, or the front covers of the early editions of the *Baltic Transport Journal*. In sea shipping, too, what was modern till the 1970s is seen nowadays as a bit moss-grown. That decade, full of economic and social changes, was indeed a turning point in shipping technology, just to recall the oil crisis that killed oil-consuming steam drives off. The *Sarnia-Cesarea* duo were the last pure passenger ships in ferry traffic built according to the transoceanic liner pattern, with two small holds fore and aft only. They were also the swan song of steam and steam turbines in Europe (in the US, the twilight lasted for another decade). Such vessels were suddenly ousted from the market by internal combustion engine ships with ro-ro holds and ramps (in the 1980s, *Sarnia* had been carrying pilgrims in the Red Sea). The Island Wiki lists 110 mail ships, out of which 12 were sailing vessels, 41 paddle steamers (18 with wooden hulls), and 57 screw steamers (39 multi-screw). The time-lapse shows progress in technology and comfort, but transshipment was what really united them all – passengers boarded by gangways, while cargo, including cars in the 20th century, was handled in the lo-lo mode only. So, yes, ancient by all means.

Each of these beautiful series is supplemented by souvenir sheets (available also in presentation packs). In the Jersey

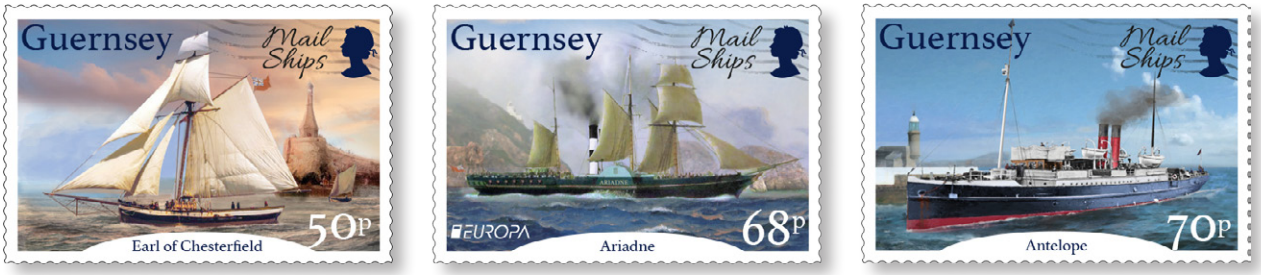


Photo: Guernsey Post

Photo: Jersey Post

Photo: Turkish Post

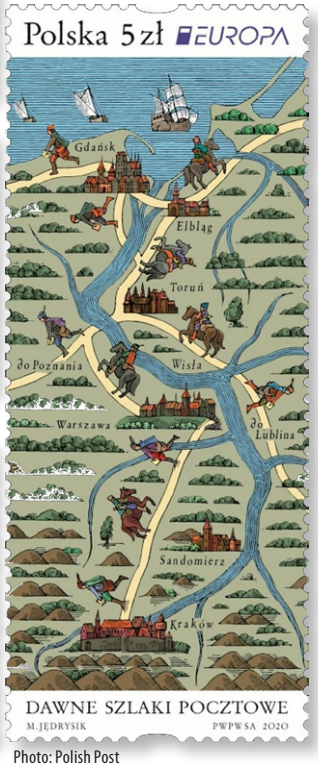


Photo: Polish Post

Post case, their covers depict two additional vessels – the sidewheeler *Dispach* and the steamer *Roebuck* (sadly, whoever edited it forgot to include captions). All Jersey artwork is the making of the famous Martin Morck's stylus. Andrew Robinson contributed to the Guernsey Post series, making wonderful use of old pictures and postcards (especially in the ten stamp sheets). Both posts are in the fantastic habit of publishing postcard sets that feature the magnified images used on the stamps. Adding sweetener to sugar, Guernsey offers them in the form of maxicards, too.

Sadly, the EUROPA stamps issued by the Channel Islands weren't appreciated in the competitions organised by PostEurop. The Internet pool was won by a colourful Turkish stamp depicting a chart of the Turkish Straits and the Sea of Marmara (with figurines of runners and riders). A jury of philatelic experts, in turn, selected a Polish stamp showing the stylised chart of the Vistula River (with figurines of runners and riders…). Suspiciously, the Turkish Post had come atop the online vote six times since 2011. Perhaps it doesn't sound like a Cambridge Analytica scandal; yet, it seems that an organised team might be 'pumping' the voting process. Just saying. The professional choice is a mystery, too, because the Vistula was never a postal route, contrary to the description found in the PostEurop catalogue… That said, one thing is clear: if you try to show everything on a single stamp, with maps, figurines, etc., you'll probably end up showing nothing. ■

A new safe haven

The Gothenburg-based logistics company Greencarrier has taken over the Swedish East India Company from the Ostindiefararen Götheborg foundation, including the replica of *The Swedish Ship Götheborg* (hence the name *Götheborg III*, as *I* was the original 1738-launched-1745-sank vessel while *II*, a different unit). The aim is to use the ship as a sailing marketing tool in promoting Swedish business and culture, particularly in Asia and with a special focus put on China. Stena AB, Business Region Gothenburg, the Port of Gothenburg, and Gothenburg & Co. have already subscribed to the idea (but it's up to the pandemic to cut the painter). Having some 900 m left till its berthing place in Gothenburg, *Götheborg I* went under by hitting a rock (later named "the East India shallow"), most probably due to an aptly named navigational phenomenon: dead water. Nobody was hurt, and because the vessel didn't sink immediately, a considerable portion of its exotic cargo (tea, porcelain, spices, silk) was salvaged. Modern excavations took place during the summers of 1986-1992 (a total of 5,750 finds was fished out). An idea to build a replica emerged, too. Keel laying took place in 1995, commissioning in 2003 and christening one year later. *Götheborg III* went on the maiden voyage in 2005. In the years 2005-2007, she toured in Southeast Asia and China, afterwards ploughing the seas of northern Europe only. Greencarrier & partners now plan to take *Götheborg III* on a new global trip. Lycka till!

Photo: Wikimedia Commons

Photos: Greencarrier

Photo: Wikimedia Commons

Photo: Wikimedia Commons

High level postcard


Photo: Adam Daszewski's collection

Finding a ship at sea together with a passing aeroplane on a single postcard is like going on a walk in an urban setting and not seeing a car as you stroll – virtually impossible! But one such rarity can be found in Adam Daszewski's 20k+ postcard collection. Yet, the picture wasn't taken accidentally; just look at the vessel's desolated decks, a dead straight photo opp! The icebreaker is resting in thick ice, a photographer and his escort are waiting for the appointed flight, and the ship's forecastle is free from onlookers, a rather usual likewise unwanted "fauna" in such situations. Our top models include the Russian diesel-electric icebreaker *Moskva* (built 1959 in Helsinki) and Il-14. Both are no more; *Moskva* met her maker, that is, breaker in 1992, while the beginning of the 1990s saw the twilight of Ils 14, up in the air making commercial flights since 1954. The postcard wasn't published by anybody, but the Soviet Ministry of Shipping (Morflot) itself, a striking event, just like the sight encapsulated in the postcard!

Trunk in the trunk

The picture taken in Turku in 1961 reminds us of a forgotten technology of maritime transport, namely timber floating. In contrast to *Moskva* and Ils 14, river rafts are still a thing, jollying up festivals or providing a rather unique cruise opportunity (where's the open bar?). Of course, there are raftsmen monuments, too (were there no raftswomen?). Timber floating was heavy-duty business – just imagine 'trains' in the form of chain-tied trunk bundles dragged by ships (up to eight tugs!), consisting of up to 500 units, each 1,200 m^3. That would roughly equal to 15k TEUs! There's a lot of talk nowadays about incidents involving modern mega container ships, but 'timber vehicles' were not only slow and fragile; their floating was, how to put it diplomatically, intrinsically adventurous. That is, perhaps, a story for another *Transport miscellany*…


Photo: V. K. Hietanen/Museovirasto

Tradition anew

Photo: Nordic Seaplanes

In the previous instalment of this column, we recalled the brief 'marriage' of air- and seaport, the Lindarängens Flyghamn situated till 1952 in today's Frihamnen. That said, such cohabitation exists and will continue to do so as long as people operate passenger aeroplanes on floats. However, in the contemporary Baltic only two such examples co-exist. The Nordic Seaplanes airline has been regularly flying between Aarhus and Copenhagen since 2016. In the Danish capital, the landing pier is situated 300 m from the statue of Edvard Eriksen's Little Mermaid; in Aarhus – it's adjacent to the APM's container terminal, which means a little longer walk to the town centre (nope, no gantry, reachstacker, or a terminal tractor will help you with your luggage, sorry!). According to Nordic Seaplanes, their Twin Otter is the fastest means of carriage between the two. Tradition in a new guise, both in the teeth of and in accord with our rush for ever greater capacity and speed!

Photo: Wikimedia Commons

WHO IS WHO

JAMES ALEXANDER TYRRELL
Board Chair, North P&I Club

Tyrrell, a Director of Arklow Shipping, took the role in early February, having previously served as Vice-Chair of the North board. His appointment continues an unbroken tradition for the North chair to be appointed from a Club Member. "Our ability to help Members trade with confidence continues to be reflected in their commitment to the Club, and so we are delighted to announce a respected figure like James as our new Chair," Paul Jennings, North's Chief Executive, commented.

IOANNA PROCOPIOU
Board Vice-Chair, North P&I Club

The Managing Director of the bulk carrier specialist Sea Traders S.A., a North Member, a Board Member of the Union of Greek Shipowners Association and of the Cypriot Shipowners Association, Ioanna Procopiou, already a Member of North's Board of Directors, become the Club's first female Vice-Chair. She's a Bachelor of Engineering in Electrical and Electronic Engineering from the University of Bath, holds a Master's degree in Shipping, Trade and Finance from City University London, and has completed the Harvard Business School's Program in Leadership Development.

MATHIAS KARLSSON
Digital Strategist, Kvarken Ports

The port authority that runs the harbours in the Swedish Umeå and the Finnish Vaasa has tasked Karlsson with investigating and developing digital solutions for port operations. Karlsson, who has a doctorate in the field of digitalisation of transport hubs, with a special focus on data sharing across organisational borders in the port environment, also works at RISE Viktoria and is an Industrial Doctoral Student at Umeå University's Swedish Center for Digital Innovation. He has a BSc in Shipping & Logistics from the Chalmers University of Technology.

PETER MÖRTLUND
CEO, ShoreLink AB

The Swedish company specialising in stevedoring and sea & overland shipping has entrusted Peter Mörtlund to run its business. Mörtlund comes from the position of General Manager and CEO at Boliden Bergsöe. He earlier worked for LKAB in various occupations, i.a., heading the company's sales in the US as well as its Magnetite division. "We are extremely pleased to have recruited Peter Mörtlund. We feel confident he'll take ShoreLink into the future, where effective logistics will be increasingly important for the development of regional industrial activities," Patrick Bäckström, the company's Chair, said.

ALEXANDER ENSTRÖM
VP and Head of Marine Business, Hempel

Enström, who has more than 14 years of experience in the coatings industry, working for Jotun in various positions and across multiple locations, has joined the coatings manufacturer Hempel to lead its new global marine organisation, as the company looks to build on its leadership position in the marine industry to double revenue by 2025. He also became a Member of Hempel's Operational Management Board. Enström graduated from Uppsala University as a Master of Science in Material Chemistry.

ALEKSANDR SMIRNOV
General Director, Rosmorport

The Saint Petersburg State University's law graduate will now head Russia's agency in charge of the country's ports. In the period 04/2010-10/2014, Smirnov was first the country's Deputy Justice Minister and then First Deputy Justice Minister. From 12/2014 to 12/2017, he worked as Deputy Director of the Administrative Department of the Government of the Russian Federation. Smirnov joined Rosmorport on 12/2017, where until March this year, he held the position of Deputy General Director.

ROBERT MIANOWSKI
NECE Sales & Marketing Director, GEODIS

Mianowski, who has 25 years of industry experience, will now be responsible for GEODIS' sales and marketing strategy across the North, East & Central Europe regions. After studying journalism, political science, and business administration, he started his professional career in 1994 at TNT Express. There, he held a number of management positions in Central and Eastern Europe, most recently Managing Director at TNT Express Eastern Europe. Before joining GEODIS, Mianowski was Vice President Operations DACH (Germany, Austria, Switzerland) at FedEx Express.

VAIDOTAS ŠILEIKA
President, Association of Lithuanian Stevedoring Companies

The Klaipėda Container Terminal's CEO, now in its 19th year in that role, has been elected to preside over the 1999-founded, 19-member-strong Association of Lithuanian Stevedoring Companies. Šileika, who has a Master's degree in Mechanical Engineering from the Kaunas University of Technology, had already led the Association in the years 2013-2017. In his new-old role, Šileika and the Association will contribute to the development of the port industry in Lithuania, particularly in the fields of infrastructure and smart and green technologies.

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