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Harbours review

european port sector forum

HARBOURS 360

The Harbours 360 Conference

featured summary

DAY 1
Container
Intermodal

Port strategies – responding to new challenges
Bigger ships, bigger ports

SUMMARY

Alliancing in the ports
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featured summary

Going round ports

by **Przemysław Myszka**

The Harbours 360 Conference

October 20-21 2015
BE/Antwerp

SUMMARY

The core idea behind the brand-new event was to highlight ports as well as port-related trends and businesses from many – sometimes very different – angles, hence the "360" part added between the two other. Therefore, the first edition of the Harbours 360 Conference touched upon both "must-have" themes like shipping alliances and container terminal expansion projects, but also dug deeper in search of not-so-obvious topics which would make the event stand out from the crowd, i.a. next-gen trucks, how to increase rail capacity without laying new tracks, e-ferries, pros & cons of automation, not to mention a very successful in-depth session and panel debate on the new Silk Road.

> **"Thanks to uniting diverse port stakeholders in one place and at the same time, one can break through the so-called "silo thinking" and build a better mutual understanding of the whole transport and logistics web inside as well as around harbours.**

The two-day event, swiftly organized by our partners from Actia Forum and hosted by the Port of Antwerp in its seaside head office, kicked off with opening speeches delivered by three Secretary General Musketeers, namely Isabelle Ryckbost (ESPO), Lamia Kerdjoudj-Balkaid (FEPORT) and Patrick Verhoeven (ECSA), supported by Antwerp's CCO Luc Arnouts and *Harbours Review*'s Przemek Opłocki. All have underlined not only the originality of the conference's name, but also its relevance, because thanks to uniting diverse port stakeholders in one place and at the same time, one can break through the so-called "silo thinking" and build a better mutual understanding of the whole transport and logistics web inside as well as around harbours.

Challenges ticked off

In his welcoming speech, Luc Arnouts focused on the port's cargo generating power by getting the sea-hinterland connectivity in place, meaning not only trouble-free ship-rail/truck/barge transhipment within the harbour, but also reaching farther e.g. all the way to China in building sound relationships in the wake of new opportunities such as the new billions of dollars Silk Road (one of the reasons behind setting up by Antwerp its own taskforce in this field).

Isabelle Ryckbost presented a list of the main challenges seaports are currently facing, among many cargo volumes being concentrated in port clusters, opportunities and threats arising from the energy transition, the new TEN-T policy, removing barriers standing in the way of a single internal EU maritime transport market (e.g. the lack of EU port policy), or the ongoing economic war with Russia. Patrick Verhoeven supplemented this list with the ship-owners' bullet-points, incl. what we have learnt from SECA implementation which in turn can help policymakers and the industry itself to better prepare for other emission and eco-rules lurking on the horizon (GHG, NO_X, ballast water, etc.), operational difficulties with scrubbers (e.g. sludge discharge), the need for one EU-wide single window, overcoming the abovementioned "silo thinking", while on the global agenda – the necessity for Europe to manage its way in negotiations with China and the US.

Lamia Kerdjoudj-Balkaid highlighted the somewhat up-and-down dependency modern terminals have to deal with. On the one hand, they are subject to policies

forged (or not) at the top EU level, while on the other hand – terminals must adapt to downstream market trends, particularly container ships it seems growing beyond belief with every new order. Lamia also mentioned the "prisoner's dilemma" occurring in the world of seaport terminals, when each and everyone is calculating what's best for him or her – to cooperate or to defect? – when it should be pretty clear that the first ought to be the go-for option.

There's no other way than forward

Having mentioned bigger and bigger ships, the first session of Day 1 – exceptionally moderated by MTBS's Director, Steven Bouckaert – was opened by Drewry's Consultant, James Kyritsis and his presentation on bigger ships and bigger ports. James talked in detail about today's TEU arms race resulting in a ship cascading effect, more pressure put on terminal capacity in light of increased call sizes, push for the lowest costs in times of all-time low freight rates, as well as the formation of alliances or mergers as in the Chinese COSCO and CSCL case.

"Never waste a good crisis," was on the other hand the key takeaway from Chris Coek's speech, Port of Antwerp's Manager Policy & Strategic Projects. For Antwerp this means shifting towards the supply chain way of thinking, when the port authority is an active landlord bringing together various transport modes to form one swift network of moving goods to/from/within the port, whereas in the "good-ol' never to come back days" it was only about the end of one's nose. The post-crisis times also extorted a clearer focus on anticipating the future but also on resilience from port authorities, Chris underlined.

Lars Nennhaus, Vice President Port Development from Duisport, presented not only Europe's largest dry port, but explained how Duisburg has risen and maintained its position over the years. Once a coal and steel hotspot, Duisport cooperated closely with industries deploying demand-focused investments to become a container major, thus prevailing on the market when more and more goods came in box-stuffed. Lars also talked about peculiarities of developing an in-city port, where e.g. one needs to reach for brownfields to keep pace with market drifts. Asked about Duisburg-China rail services and their economic sustainability when the Chinese are subsidizing them, Lars compared these services with start-ups, which also need a helping hand in the early days in order to grab a firm foothold in the long-term. Harbours Review's contribution to Day 1 was the presentation Top 20 European box seaports 2009-2014 full of statistics for the past six years (Fig. 1 and 2).

"Never waste a good crisis." The post-crisis times extorted a clearer focus on anticipating the future but also on resilience from port authorities.

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The first session was followed by a panel discussion on ports and terminals' responses to market affairs. Luc Arnouts talked about the need to increase hinterland accessibility by helping market players leave their "trenches" and see the bigger picture with the potential for win-win opportunities. Maria Dolors Lloveras, the Port of Barcelona's Market Analysis Manager, presented in detail barriers standing in the way of developing intermodal services in Spain, ranging from different gauges and electrical systems to inland terminals not interested in services to/from seaports, something nowadays luckily undergoing a positive change thanks to i.e. Barcelona's efforts. Luc and Lars Nennhaus agreed with Maria that start-up promotion of intermodal is often more than needed and here port authorities can help by deploying financial aid in the form of taking minority stakes in inland terminals. Steven Bouckaert summed up the discussion, "To be a successful port nowadays is to be a gateway port, not dependent on one business leg," (e.g. alike some ports on container transhipment, one of the takeaways from the *Top 20 European box seaports*' figures).

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Shipping line consortia and vessel sharing

featured article

Global shipping alliances

by **Chris Welsh**
Secretary-General of the Global Shippers' Forum

Chris Welsh was appointed Secretary General of the Global Shippers' Forum with effect from 1 July 2011.
From 1997-2002 Chris was Secretary General of the European Shippers' Council (ESC) where he played the prominent role in deregulating EU shipping and air cargo markets, spear-heading a series of successful maritime legal cases culminating in the repeal of anti-trust immunity for liner shipping conferences in trades to and from Europe in 2006.
Chris has held a variety of senior management roles for the UK Freight Transport Association, and is currently Director of Global and European Policy and is a member of FTA's Leadership Board. In 1992 he established FTA's Brussels operations and in 2010 set up FTA Ireland, a new independent multimodal logistics trade association for Irish shippers and logistics interests.
Chris holds a Master's Degree in Business Administration (MBA), is a Chartered Member of the Chartered Institute of Logistics and Transport (CMILT) and a Member of the Chartered Management Institute (MCMI).

Shipping line consortia and vessels sharing agreements (VSA) have been a common feature of the maritime industry since the beginning of the container shipping era in the 1960s, and possibly even before that. Until relatively recently, they have largely been trade-specific and historically usually operated alongside and within the overall framework of liner conference agreements. The case of P3 has vividly brought about all the shades of such undertakings.

Liner conferences like consortia remained unregulated in Europe until the mid-1980s, but following a lengthy review, the European Commission (EC) adopted the consortia regulation in 1992. The new rules provided a limited exemption under EU competition rules for consortia and VSA agreements with market shares of up to 35% (now 30%) but significantly excluded price cooperation. That was an important signal to the shipping industry of the EC's intent to deal with price fixing. It also importantly recognised that consortia and VSAs potentially presented other competition problems, like the ability to influence prices by virtue of their market power.

Since the late 1990s the scale and scope of cooperation traditionally associated with consortia and VSAs has changed dramatically. The emergence of a new breed of global deals such as the Grand Alliance or the New World Alliance, and more recently the blocked worldwide P3 Alliance, have pointed to larger and more integrated forms of cooperation which are potentially game-changing for the liner shipping industry and its customers.

The new direction suggested by the doomed P3, and possibly by the G6 and CKYH agreements, appears to follow that of the main aviation alliances. No doubt many would argue that what's good for the airline industry is good for the container shipping sector. Supporters of such maritime and aviation alliances cite the benefits of code and vessel sharing, reduced costs arising from joint operations, common investments and purchasing, cheaper fares and rates as well as a wider range of services for customers. Similarly, market dominance concerns are dismissed on the basis that there is no evidence of excessive profits or exorbitant prices. Another common factor appears to be a desire to cooperate rather than compete head-on for enhanced market shares through, for example, a merger and acquisition.

In the main these benefits are championed by the global alliances themselves and those that have sanctioned them. Customers are generally supportive of consortia and VSAs because they want to share in the potential benefits. However, they have to take these assertions wholly on trust (although to its credit the US Federal Maritime Commission did propose some quite stringent monitoring conditions for the P3).

Before the Chinese blocked the P3, the EC indicated that it did not consider there were any present grounds to intervene under EU competition law, effectively leaving the door open to taking action at a later date, if necessary. However, there appears to have been no serious intention to undertake a competition analysis of the P3's compatibility with EU competition rules or, indeed, respond to questions submitted by the Global Shippers' Forum (GSF) concerning some of the legal issues raised by the P3, particularly those

> **"Economics and efficiency is another kettle of fish in the case of terminal automatization; for some it's more or less a must, whilst for others it is rather a case of ambition, where bottomless pots of gold and the "Because I can" and "I will be the first" attitude tilt the scales even if it will take ages for labour costs to match capital and operational expenditures of a fully-automated container sea terminal.**

> **"Chris' question at the end of his presentation, "When will the first mega alliance crumble?," echoed unanswered the most, everybody having in the back of their minds the news on the COSCO (member of the G6 Alliance) and CSCL (Ocean Three) merger announcement.**

After the panel discussion, Chris Welsh, Secretary General of the Global Shippers' Forum, addressed the topic Container carriers – depressing freight rates, ship cargo capacity arms race, and the rise, downfall, and resurrection of shipping alliances. Chris gave a shipper's perspective on the falling freight rates across the spot market, the sharp decrease in bunker prices, extreme volatility on the container shipping market with cost cuts not matching drops in revenues and with megaships further aggravating the unstable situation. Chris also asked, "Is the alliance model the right one?" The shipping alliances, as they seem today, do not particularly add to market competition, if not the opposite due to less flexibility, lower reliability in regards to delivery time, as well as less innovation. Nonetheless, Chris' question at the end of his presentation, "When will the first mega alliance crumble?," echoed unanswered the most, everybody having in the back of their minds the news on the COSCO (member of the G6 Alliance) and CSCL (Ocean Three) merger announcement.

Dennis Kögeböhn, Partner at HPC Hamburg Port Consulting, took up the question, "Is terminal automation the answer to all issues?" What's sure, for the time being there's not a thing like "one size fits all" concerning terminal automation, because there are both different levels of automatization as well as various investment motivations, not always being pure balance sheet calculations. Labour costs, an ageing population, but most importantly the need for stability and reliability (as terminals are parts of production lines) are the key drivers for automation, which – surprisingly at first glance – do not automatically stand for higher container moves performance than traditional man-in-STS facilities. Economics and efficiency is another kettle of fish here; for some – like HHLA's Container Terminal Altenwerder – it's more or less a must, whilst for others it is rather a case of ambition, where bottomless pots of gold and the "Because I can" and "I will be the first" attitude tilt the scales even if it will take ages for labour costs to match capital and operational expenditures of a fully-automated container sea terminal.

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Logistics

Cleaner trucks: saving lives, saving fuel

To round a virtuous cycle

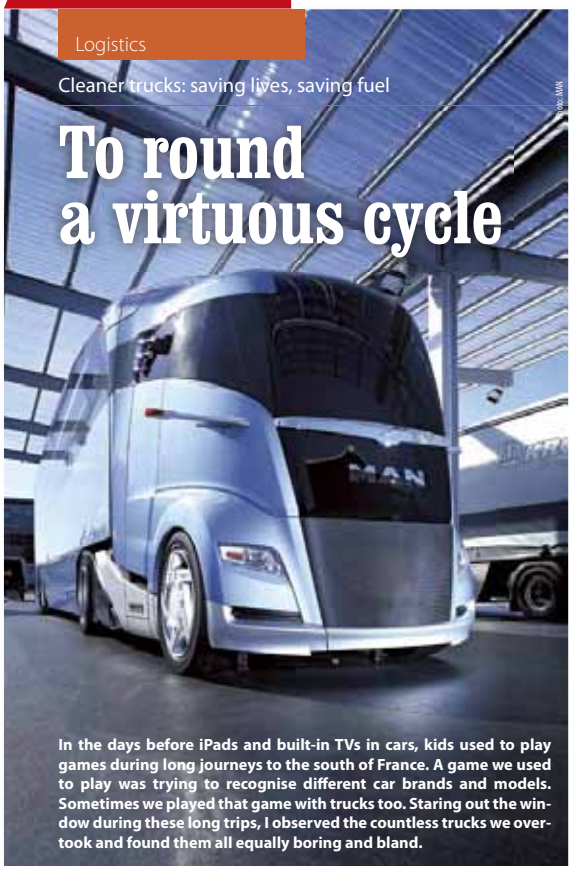

Photo: MAN

In the days before iPads and built-in TVs in cars, kids used to play games during long journeys to the south of France. A game we used to play was trying to recognise different car brands and models. Sometimes we played that game with trucks too. Staring out the window during these long trips, I observed the countless trucks we overtook and found them all equally boring and bland.

Sure, there was a difference between Mercedes and DAF but compared to the flashy American trucks I had seen on television, these shoeboxes were rather uninteresting and so we quickly turned to sports cars again. I did wonder why our trucks were so boring but didn't really give it much thought at the time.

It was only later when I started working in the transport sector that I found out why American lorries are so different from European ones. It doesn't have anything to do with aesthetics or European truckmakers being less creative than their American counterparts. It isn't even related to the American preference for big things in general. The truth is more prosaic: Europe has a dimensions law that limits the overall length of trucks while the US only limits trailer lengths.

Shoeboxes

Vehicle-length restrictions were first introduced in the 1950s in Germany, allegedly to protect the national railways from the competition of ever longer and heavier trucks. Other countries introduced similar restrictions. Often safety concerns played a role too. When the EU decided to create the single market in the 1980s, it needed to create common standards for good transport and it copied the system that existed in member countries.

This decade-old choice for a length limit that applies to the whole vehicle has had a profound impact on the way trucks are designed in Europe. The nature of the haulage market is such that cargo space always gets priority, so European truck makers created an ultra-compressed cab-over-engine design that allows maximum space for the trailer.

The shoebox shape of European trucks did evolve. In the early 1990s lorry cabs had become so short and uncomfortable that drivers and trade unions started protesting. A relatively swift review of the dimensions law followed to increase cab length to approx. 2.3 m to make working conditions more acceptable for drivers. The dimensions law has not changed since.

Today Europe's trucks are safer, cleaner and more efficient than their American counterparts, and only kids dream of American-style trucks on European roads. But it is also increasingly clear that the space constraints caused by the dimensions law are hindering progress and that Europe's truckmakers have more or less made the most of the current design.

There will be further demands to improve the fuel economy, air pollutant emissions, noise levels and, in particular, safety. Indeed, with just 3% of vehicles, trucks are responsible for 25% of EU road transport emissions and every year around 500 mln barrels of oil are needed to fuel European lorries, at a cost of around EUR 60 bln. The total health cost associated with air pollution from trucks is estimated to be around 45 bln with infrastructure, congestion and noise costs adding another 130 bln in external costs. Finally, trucks are twice as dangerous as cars per kilometre driven; 4,200 people died in lorry crashes in 2011.

Round nose eco perk

We, at Transport & Environment (T&E), believe European trucks need to continue improving. Shifting goods to other modes is a laudable ambition and one that we wholeheartedly subscribe to, but it is equally clear that trucks will

> **"The role of new truck designs in axing transport emissions cannot be overemphasized, as heavy goods vehicles are just too big to be ignored when combating climate change.**

"Delayed, but on their way," said William Todts from the Transport & Environment delivering a presentation on next-gen trucks, which are to be safer (both in the eventuality of car crashes and pedestrian hits) as well as more efficient (-5% fuel consumption), thus cleaner, thanks to better aerodynamics. The EU is currently working on new weight and dimension rules for trucks and trailers, making it possible to witness rounder lorries in a couple of years (2020-2022). William emphasized the role of new truck designs in axing transport emissions, as heavy goods vehicles are just too big to be ignored when combating climate change.

> **Across the EU there's a lot of talk about an eco-friendly road-to-rail modal shift, but rail operations are business ventures, therefore in order to attract cargo owners, cost reductions must be implemented. But how to do it when as of today a freight train in Europe cannot exceed 750 m, way below kilometres long double-stacked train sets seen in the US? As a response, the Marathon project has successfully carried out field tests of 1,500 m mega-trains in Europe, highlighting both energy and manning savings this solution delivers.**

Next, Franco Castagnetti, Marathon Project Leader as well as NewOpera Aisbl President and Capacity4Rail Partner, showed how European railways can gain more capacity without putting new tracks on the ground. Across the EU there's a lot of talk about an eco-friendly road-to-rail modal shift, Franco said, but rail operations are business ventures, therefore in order to attract cargo owners, cost reductions must be implemented. But how to do it when as of today a freight train in Europe cannot exceed 750 m, way below kilometres long double-stacked train sets seen in the US? As a response, the Marathon project has successfully carried out field tests of 1,500 m mega-trains in Europe, highlighting both energy and manning savings this solution delivers. Moreover, Franco proposed other measures as a way forward, incl. combining containerized and conventional cargo on the same train, deploying automation when feasible as well as investing in a resilient infrastructure to minimize the negative impacts of i.e. extreme weather phenomena.

Day 1 was concluded by Alexander van den Bosch, the new Director of the European Federation of Inland Ports, who said that intermodality is not a question of "If?", but "When?", taking into account its efficiency, lower transport costs and eco-friendliness perks, particularly in light of ambitious EU emission targets, not least because of European economies' competitiveness. What is needed to support intermodality, though, is more innovations and cooperation.

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1,500 m long mega-trains in Europe

Linking stock, joining forces

by Franco Castagnetti, *NewOpera Aisbl President and MARATHON Project Leader*

Up to now the European braking and signalling requirements have limited a freight train's size. However, this can change sooner rather than later thanks to the development of new technologies.

Policy-makers' and R&D's focus is nowadays being shifted to such issues as energy savings and environmental protection. Moreover, economy-driven improvement of existing infrastructures' utilization is inevitable in order to both fight congestion on roads and reduce operating costs. Fortunately, successful 1,500 m long freight train trails carried out by the EU co-funded MARATHON project have shown that Europe is heading towards fulfilling 21st century competitive demands by introducing efficient as well as flexible & eco-friendly solutions.

The very first 1,500 m long freight train was pulled from Lyon to Nîmes by two Alstom/Akiem electric locomotives covering the full distance of 300 km and reaching a top speed of over 100 km/h.

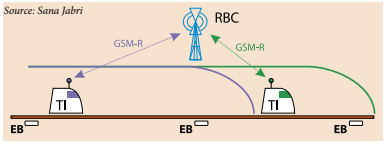
MARATHON project partners wish to make rail freight transport more competitive, by allowing operators to run longer trains in compliance with safety rules, adding therefore extra capacity without actually putting new tracks on the ground. The project's mission also covers streamlining rail freight services through nodal points and encourages a more cooperative attitude among rail operators. In short, longer trains will very much relieve EU countries' budgets from capital-intense and long-drawn rail infrastructure investments, improve air quality and make roads safer.

Breaking the way

Looking at the way traffic is managed across rail networks, preserving enough braking space in front of a mega-train is a must. This can be accomplished by two ways. One, by dividing the network into sections (blocks) protected by traffic lights between which a train can run at normal speeds (when the next block is empty) or stop if necessary (Fig. 1). The second option is a bit more sophisticated (Fig. 2) – by knowing the real time position of the preceding train the following set is able to stop on time. This solution is based on the mobile block principle which in the long-term is the target of the level 3 European Rail Traffic Management System (ERTMS).

A new mega-train braking system has therefore been developed, whereas a new computerised interface manages radio signals between the coupled trains with special new antennas used to ensure that messages can be sent uninterruptedly between trains through tunnels, forests and mountains, independent of weather conditions. The project team has packaged these innovations into a technology kit, which the partners hope to roll out for commercial use by 2016 (provided that relevant authorities will give their approval and that all procedures will be satisfied).

Fig. 2. ERTMS level 3 rail signalling system



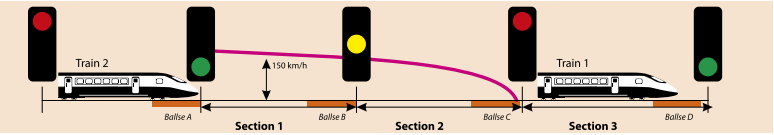
On the 18th of January, 2014, the MARATHON team tested the very first 1,500 m long freight train. It was pulled in France from Lyon to Nîmes by two Alstom/Akiem electric locomotives covering the full distance of 300 km and reaching a top speed of over 100 km/h. Three months later, on the 12th of April, the test was repeated on the same stretch, this time using two Vossloh diesel locos. The MARATHON train, with 1,524 m – the longest set in Europe to date, consisted of 72 wagons and a maximum load of 4,036 tonnes. Before launching the train received an approval from the French National Safety Authority EPSF as well as passed all possible extreme conditions stress tests in laboratory conditions. As was foreseen, the mega-train was able to pass successfully all braking procedures in the normal as well as in the degraded mode, proving its absolute safety just as an ordinary train would do.

Combining benefits

The MARATHON train is a combination of two standard 750 m or three 500 m long trains with a master locomotive in the front and a slave loco in the middle, radio commanded by a driver sitting at the head of the set with the use of a remote control. During the pilot test, it took less than 15 minutes to couple the trains – a major step towards efficiency – with transportation cost savings of up to 30%. These stem from transporting more than twice the payload of a classical train, by using only one driver to control the two or three coupled trains as applicable, by making fewer train passes on the existing infrastructure and last but not least – by consuming less energy.

Luckily, there's no need for constructing new and expensive rail infrastructure for these longer trains, because MARATHON aims at making the most out of the infrastructure already in place in a traditional way. In this case the best way for optimizing the use of railroads is to totally fill in the 1,500 m block. Different types of trains

Fig. 1. Traditional rail signalling system



> **Intermodality is not a question of "If?", but "When?", taking into account its efficiency, lower transport costs and eco-friendliness perks, particularly in light of ambitious EU emission targets, not least because of European economies' competitiveness.**

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Photo: Wikimedia Commons

One Belt, One Road

by Maciej Bochra

China is going global. After a rocketing GDP transformation made in-house, the Chinese state and privately-owned enterprises are turning towards foreign direct investment. The so-called One Belt, One Road initiative will create a New Silk Road Economic Belt, which will not only rail & sea connect the main industrial cities in China with the biggest trading centres, but will also bring new development opportunities, including for countries of the Baltic Sea region.

The One Belt, One Road (OBOR) concept was announced at the end of 2013. The chief aim of this project is to link China's industrial and manufacturing hotspots with the main trading centres of Africa, Asia, Europe and the Middle East. It includes a rail route based on the historic Silk Road and a new maritime string (known as the Maritime Silk Road) stretching from South-East Asia, through the Indian Ocean, up to the Port of Venice in the Mediterranean Sea.

China's outward foreign direct investment (FDI) has risen dramatically over the past decade. Close to nothing in 2003, it now amounts to over USD 100 bln.

The OBOR initiative is part of President Xi Jinping's 'Chinese Dream' also announced in 2013 to, as he stated, "Reclaim national pride and enhance personal well-being." China doesn't want to play the role of a global manufacturer anymore and seeks to unleash its regional and domestic potential, focusing more on consumption.

This process has already started. China's outward foreign direct investment (FDI) has risen dramatically over the past decade. Close to nothing in 2003, it now amounts to over USD 100 bln. According to the Chinese Ministry of Commerce, the outflow of outward FDI has been ranked third in the world for the third consecutive year and is expected to grow 10% per annum over the next five years.

Unlimited resources

The OBOR initiative will have access to bottomless capital, such as the USD 40 bln Silk Road Fund, USD 100 bln from the Asian Infrastructure Investment Bank (AIIB) and another USD 50 bln from the New Development Bank (NDB). Moreover, the CITIC Group (former China International Trust and Investment Corporation) recently declared its support for the OBOR trade strategy with a further USD 113 bln. Those funds will be used to build roads, railways, ports, maritime facilities and gas pipelines across Eurasia.

In general, the Chinese aim is to build closer economic ties with regions that are up-to-date more of receivers of China-produced goods. On March 28th 2015, President Xi Jinping said, "The programs of development will be open and inclusive, not exclusive. They will be a real chorus comprising all countries along the routes, not a solo for China itself." Thus the Chinese government predicts that the initiative will benefit about 4.4 bln people (around 63% of the global population). The Xinhuanet news website has added that according to the plan, "Countries along the Belt and Road should improve the connectivity of their infrastructure construction plans and technical standard systems, jointly push forward the construction of international trunk passageways, and form an infrastructure network connecting all sub-regions in Asia, and between Asia, Europe and Africa step by step."

At Europe's gate

Building of the New Silk Road Economic Belt has already begun in some undeveloped parts of Asia. China is now looking for new investments in Europe, especially in rail freight. Currently, just around 3.5% of China's export travels overland to Europe, but an enhanced rail connection is not a new idea (most probably the 2011 Chongqing-Duisburg being the first regular one). For instance, in September 2013, the 13-day in one direction (11.2 thou. km) Suzhou-Manzhouli-Warsaw rail service was established, bringing in container tablets and LCD panels on the way to Europe, taking on the backhaul leg vehicles and spare parts (securing laden boxes in both ways being a crucial economic issue for setting-up such a venture). Other services include Chengdu-Łódź, Zhengzhou-Hamburg, Beijing-Hamburg, Kunming-Rotterdam, Harbin-Hamburg (the latest one), not to mention the world's longest rail freight service Yiwu-Madrid, which covers over 13.0 thou. km.

However, it seems that the Chinese would like to have one junction point on the way to/from Europe in order to split up larger sets into particular destination-wise ones on the westbound leg, while uniting them on the way towards the East. In this context, the Polish rail freight haulier PKP CARGO signed a letter of intent in June 2015 with the Zhengzhou International Hub from China's Henan Province, foreseeing a set-up of a 50/50 joint rail venture. The Chinese partners see PKP CARGO's dry port in Małaszewicze on the Polish-Belarusian border as a key for future investments since it's where the standard European 1,435 mm and the 1,520 mm wide track railways meet. The development of Małaszewicze will allow it to accept larger volumes and provide other logistics services. PKP CARGO estimates that the number of trains visiting its inland terminal will increase by 300% year-on-year as a result of the cooperation.


Photo: Wikimedia Commons

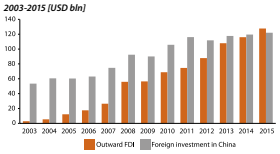
And through the Baltic States

Estonia, Latvia and Lithuania are also eying how to take advantage of the presented opportunity. Besides hosting an EU-Asia summit in April 2015, Latvia has started cooperating with China across other fields. In February 2015, a Chinese government delegation visited Riga and signed a deal between the Latvian milk producer Food Union and the Shanghai-based Bright Food, the country's third-largest food producer. Furthermore, last autumn the China Harbour Engineering Company and the Riga Coal Terminal signed an expansion capacity contract. China has already enlarged the amount of staff in its embassy in Latvia's capital in Riga.

Estonia's road to cooperation with China seems to be a little bit rockier. In 2011, China froze its economic relations with Estonians, when the Dalai Lama was welcomed to the country. Tallinn officially apologized in 2014, which led to signing a cooperation agreement between agriculture ministers of both countries. Estonia will send its farm products to China and the Port of Tallinn, thanks to Chinese funds, will be expanded and modernised (incl. e.g. a deal on industrial parks facilitation for Chinese exporting companies signed between the port authority and the China National Corporation for Overseas Economic Cooperation in November 2012).

Lithuanians faced the same problem when they endorsed the Dalai Lama and Tibetan separatists. However, in February 2015, relations between Lithuania and China warmed a bit. Both countries are interested in exporting Lithuanian agricultural products to China. In May this year, Li Jianhong, the Chairman of the Board of China Merchants Group (one of the biggest state-owned corporations) visited Lithuania. With Lithuania's Ministry of Transport and Communications and the Lithuanian Government, they talked about investment opportunities in the country, specifically in the Klaipėda Container Terminal and in the Kaunas Free Economic Zone, as well as about potential development of the rail corridor Klaipėda-Minsk. The Kaunas Intermodal Terminal and the aforementioned rail line are clearly the key to success of the project, as Lithuania is focusing on freight transportation. Lithuanian Prime Minister Algirdas Butkevičius summed up the efforts, "The Silk Road is an opportunity to cover the main Central and

Fig. 1. China's outward FDI and foreign investment in China during 2003-2015 [USD bln]



Remark: Financial investment is not included in the data for 2006 or before; the data for 2015 are predicted by EY Knowledge
Source: National Bureau of Statistics of China, Ministry of Commerce


Photo: Bombardier Rail

> **The second day of the conference was by all means dominated by the new Silk Road, also known as the One Belt, One Road initiative, a development strategy of the Chinese government to offshore their GDP growth by – to put it vividly – rail-binding the country with Europe.**

一带一路

The second day of the conference was by all means dominated by the new Silk Road, also known as the One Belt, One Road initiative (一带一路), a development strategy of the Chinese government to offshore their GDP growth by – to put it vividly – rail-binding the country with Europe. The first session started with Thomas Kargl, CEO of the Far East Land Bridge (FELB) company, giving his insights on balancing traffic to and from China. Last year, FELB carried around 30,000 TEU over the Eurasian Land Bridge, with some 38-40,000 TEU expected for this year, up-to-date effectively balancing east- and westbound carriages (only some 300 TEU of difference in west flows' favour).

Next, DHL Freight's Business Development Manager China Rail, Göran Engström, shared the view of a logistics company. Göran also underlined the time advantage rail has over sea transports, as well as lower costs when juxtaposing with air freight. Taking into consideration all the uncertainty and volatility of the sea container market, clients are today searching for flexibility and here alternative rail choices step in (e.g. less-than-container load up to block train offer). Asked about business contacts and setting up a rail venture in China as well as reliability of Chinese Railway, Göran admitted the key role of DHL's Chinese branch, while the state-owned rail company functions as a Swiss watch as such conduct simply guarantees money.

> **Taking into consideration all the uncertainty and volatility of the sea container market, clients are today searching for flexibility and here alternative rail choices step in (e.g. less-than-container load up to block train offer).**

The panel discussion, moderated by Harbours Review, gathered in one row rail and logistics representatives, the bulk of which had first hand know-how and rich experiences in setting up and day-to-day management of Europe-Asia services – Aleksandra Kocemba (Raben Transport's Intermodal Transport Manager), Sławomir Knap and Jakub Gartska (Hatrans Logistics' Director of Multimodal Transport, and Representative of the Board, respective), Martin Ritterhaus (Head of Maritime Accounts 2 at DB Schenker), and last but not least, Alexandre Gallo (Eurorail International's General Manager). Sławomir and Jakub talked about putting in place the first Chengdu-Łódź train; it took one year and in contrast to how things run in Europe, in China one has in the first place to build a business case and then have it accepted by the government, which – if everything goes well – will support the undertaking. Aleksandra shared her experiences with the Polish

part of the Silk Road, because in PKP CARGO's Małaszewicze on the Poland-Belarus border the European standard and the wide gauges meet. Today the terminal enjoys a sort of transhipment monopoly as an effect of the ongoing war in eastern Ukraine, which makes it impossible to ship freight through Ukrainian Railways' network up to the Euroterminal Sławków in central-south Poland, which is also wide gauge-connected. All of this makes it clear why the Chinese have set up a joint venture with PKP CARGO aimed at developing Małaszewicze towards serving Silk Road trains. Asked about widening the competitiveness of rail transports, so that it will become a sounder cost-time option compared both to sea and air freight, the panellists responded that actually Europe-China rail services weren't designed to bite into them, but to serve a market that has emerged as a consequence of transport and logistics developments. For instance rail services are ideal for intermediate goods as well as for just-in-time deliveries, which – as the panellists underlined – do not equal as soon as possible, but rather when the client really needs them. Asked about securing backhaul cargo to Asia, participants harmoniously pointed at EU food products, demand for which is particularly high in China due to their quality. However, maintaining the right temperature throughout the whole journey can be quite challenging and long distance rail reefer technology must advance to ensure reliable services. All in all, DB Schenker's Martin Ritterhaus summed up the discussion, there are still a lot of challenges to overcome, but in the best case scenario we'll have rail services going across the new Silk Road with no financial support from the side of the Chinese government sooner rather than later. Aleksandra added that China is evolving towards a new market for more and more goods made in Europe, a potential win-win situation for rail and logistics companies from the Continent and Chinese consumers as Europe remains flat, while the Middle Kingdom's demand for high quality products is on the rise.

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BPO BALTIC PORTS ORGANIZATION

Smart, Energy-Efficient and Adaptive Port Terminals

Eco your equipment

by Maciej Kniter

The EU co-funded EUR 6 mln in total SEA TERMINALS project (standing for Smart, Energy-Efficient and Adaptive Port Terminals), is a follow-up of the TEN-T GREENCRANES initiative. The project has already been up-and-running for 10 months since its launching on the 10th of December 2014 in Valencia. The initiative aims at boosting the evolution of the port industry towards a more progressive and effective low-carbon emission model by integrating and implementing smart and energy-efficient technologies. Technical and communication issues are led by Fundación Valenciaport.

Among the project's specific objectives is to introduce purely electric terminal tractors and hybrid rubber tyred gantry (RTG) cranes, including the 100% electrical SEA-eTractor, the SEA-EcoRTG based on engine downsizing and hybridization, the SEA-RTG Dual Fuel based on LNG/diesel, the SEA-EcoRS reachstacker, the SEA-EcoLift forklift as well as an LNG supply station specifically designed for port equipment, and finally the SEA-Lightning real-time dynamic terminal lightning system. "The prototypes of the vehicles are now finished and they are currently being tested in the Noatum Container Terminal in Valencia," Marina Sáez Prado, Valenciaport Foundation Director of Communication, commented on the project's tangible developments.

Secondly, the SEA TERMINALS' proposal is to expand the real-time operational management model that minimizes existing bottlenecks in the operations of terminals by assigning different operational modes. The SEAMS Platform will be capable of receiving live information from equipment and from the terminal operating system, calculating in turn the best mode of operation for each type of equipment at any given moment.

The Baltic Ports Organization, as a communication partner of SEA TERMINALS, organized a seminar in March 2015 devoted to technical aspects and general views on the whole initiative, as well as a workshop during the BPO Conference in Riga (September 2015) on energy efficiency management in port terminals. The project was also one of the main issues discussed during the LNG Transport Forum in Valencia (October 2015). ■

Charging stations installed in Noatum, photo: Bartek Jakubowicz/Valenciaport

Arrival of the 100% electric terminal tractor to the Noatum terminal

Unloading of a reachstacker prototype upon arrival at the Port of Valencia

> "It seems that the terror inspiring date of the 1st of January 2015 appeared to be toothless hitherto, however, not because everyone prepared themselves well in advance, but thanks to shocking low oil indices, making this year's prices of low sulphur bunker land below those of non-compliant heavy fuels one year earlier.

> "Johan Roos, Executive Director of Interferry, expressed the voice of the ferry industry on what went wrong with SECA and how such experiences can help to steer clear from making the same mistakes with rules on monitoring, reporting and verifying CO_2 emissions.

> "Sea terminals have directly linked eco-efforts to economic gains. By investing in both wind/solar power as well as in less fuel consuming equipment, terminal operators cut their bills on energy.

After the panel discussion, a session on new technologies and innovation in ports kicked off. Conor Feighan from FEPORT analysed emission reduction schemes undertaken by sea terminals, which have directly linked eco-efforts to economic gains. By investing in both wind/solar power as well as in less fuel consuming equipment, terminal operators cut their bills on energy. Real life demonstration of such an approach was presented by Eduardo Olmeda, Valenciaport Foundation's R&D Project Manager, who in the course of the SEATERMINALS project oversaw the creation and deployment of eco-enhanced terminal handling equipment such as a fully electric tractor, a hybrid diesel-electric RTG, an LNG-powered reachstacker, not mentioning a real-time dynamic terminal lightning system, all proven to reduce emissions without any additional operational difficulties (or with even better performance as in the case of the electric tractor, more peppy than its traditional counterpart).

The Harbours 360 Conference was closed by the session on the latest ro-ro & ferry and SECA developments. Actia Forum's Head of Consulting Department, Maciej Matczak, elaborated on half a year into the Sulphur Directive enforcement and up-to-date consequences of it. It seems that the terror inspiring date of the 1st of January 2015 appeared to be toothless hitherto, however, not because everyone prepared themselves well in advance, but thanks to shocking low oil indices, making this year's prices of low sulphur bunker land below those of non-compliant heavy fuels one year earlier. In this regard, Johan Roos, Executive Director of Interferry, expressed the voice of the ferry industry on what went wrong with SECA (e.g. IMO and the EU's vigorous support for the new regulations without any in time support for the shipping companies nor long-term analysis of what actually the new rules may bring about on sea and land) and how such experiences can help to steer clear from making the same mistakes with rules on monitoring, reporting and verifying CO_2 emissions.

> **One future way of dealing with SECA or any other emission restrictions is placing a bet on fully electric ferries.**

One future way of dealing with SECA or any other emission restrictions is placing a bet on fully electric ferries, something brought closer by Eliza Gagatsi, E-ferry project Impact Manager. Apart from new rules-caused motivations, there are other reasons for taking the e-revolutionary step like "plug-in" power cheaper and cleaner that bunkers, first mover perception or potential benefits of using new ship building materials (the use of which the E-ferry project in also investigating) resulting in lowering the weight of a vessel, hence a drop in propulsion power demand. Members of the E-ferry initiative are currently designing their fully electric ship to be built for domestic operations in Denmark; the impacts of the demonstration will subsequently be evaluated for market uptake (e.g. across the Greek archipelagos) and upgrades.

Clocking up till next year

Contrary to the popular saying, the first edition of the Harbours 360 Conference wasn't a spoiled pancake, quite the opposite thanks to the first tier speakers, sharp-eyed moderators and an active audience.

> **We're now waiting to roll the year round to once again circle 360 degrees around ports, putting the spotlight on both the most burning questions as well as on niche topics.**

We're now waiting to roll the year round to once again circle 360 degrees around ports, putting the spotlight on both the most burning questions as well as on niche topics. ■

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Fully electric ferries for domestic waters

The plug-in Holy Grail

by Henrik Hagbarth Mikkelsen, *Green Ferry Vision's Project Coordinator*

Fossil fuel-generated pollution in general is unquestionably one of the most serious issues negatively impacting the health of both our societies and the ecosystem. While many are doing a great job to improve traditional combustion engines to further cut fuel consumption by another one or two percent, there is yet a completely different path to follow. Ferries 100% plug-powered are moving from being a sci-fi titbit, to becoming a ready-to-use concept.

Photo: Green Ferry Vision

Indeed, the potential is tremendous. A 2010 early survey conducted by the Zero Emission Resource Organisation (ZERO) has estimated that at that time in Norway 47 out of 125 so-called "Samband" ferries were suitable for fully electric operation, while another 34 could become possible candidates. A similar Danish study undertaken by Insero in 2013 concluded that 30-36 out of 54 Danish domestic ferry routes could benefit from fully electric outfits. These early studies, however, were based on somewhat restrictive assumptions. Firstly, that charging can only be done with power of up to 1 MW. Secondly, by making a distinction of routes below and over 30 minutes of sailing time.

Change the approach, ascend higher

The 'E-ferry' concept & design of the Green Ferry Vision project changes the above premises by simply turning up the 'amps'. The possible charging power and battery capacity of any known electric ferry have been multiplied by a factor of four making the technology beyond state-of-the-art. Suddenly, the target routes are not only short ferry links as evaluated in the early surveys but also medium-range island connections and inland waterway routes of up to 10-13 nautical miles. Given the high charging power and extremely low energy consumption, the 'E-ferry', in many cases, only needs to charge at one destination port allowing for electric operation to/from remote islands with little or no electrical power grid in place.

We have carried out a case study for the island of Ærø, situated in the Baltic Sea in the southern part of Denmark, and optimised the car & passenger 'E-ferry' design for a full working day on routes from 9 to 13 NM long, based on the available electrical grid powers the island has today. In line with the design, the engine room will be almost non-existent, substituted by two independent battery storages, delivering altogether a record-breaking 3,800 kWh. The batteries will be charged from a port's power grid both at night and during day port calls; the batteries' size will make it possible to have a 'lunch break' charge necessary for longer trips.

Two electric motors of 750 kW will be enough to give the 'E-ferry' a speed of up to 15.5 knots; this may not sound impressive, though still it will be a faster vessel than most island and inland waterway ferries, typically navigating at around 9-13 kn. Only little battery packs and electric motors maintenance will be needed thus making the engineer redundant. Overall, the crew size of an 'E-ferry' is expected to be smaller, saving crew costs.

Get (eco)fit!

According to the case study, four smaller 'E-ferries' can replace the existing three conventional diesel-propelled ships for the island's seaborne service. The electrical operating profile speaks in favour of more but smaller ferries opposed to the normal economies of scale approach. This is both in order to deal with the weight issue and to compensate for the extra charging time in the port. Using four small vessels instead of three larger ones will increase both departure frequency and allow for a more scalable ferry service during the summer and winter seasons.

Whilst the electric ferries will have no combustion engines together with most of the corresponding tanks and the piping system, the battery rooms will add 51 tonnes to the ship's weight. In order to mitigate the extra load, the unit's other machinery and equipment will be all based on lightweight electrical components instead of hydraulics. In addition, carbon-fibre-reinforced (CFR) composites are used as the shipbuilding material where appropriate to make the ship more "slender".

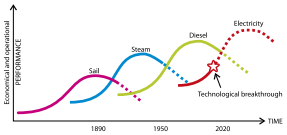
Naturally, the investment cost of four 'E-ferries' with expensive batteries and onshore charging stations will be higher than the expense of three conventional ferries, nonetheless, savings on running costs will repay this difference during the ships' economic lifespan according to the case study calculations. In this regard, energy savings will be the most important. Energy efficiency of electrical operations is by far better compared to conventional combustion engines as losses from the batteries and the electric drivetrain are marginal. At the same time, the price of electricity from the local power grid is very competitive if exempted from energy taxes equivalent to the bunker fuel for ships. In Denmark, Sweden and Germany tax exemptions are now in place but energy tax regimes are quite diverse throughout Europe and in the long-run a revision of the EU Energy Taxation Directive is needed.

A significantly lower carbon footprint and dramatic emission reductions are an inherent property of electricity energy production in Scandinavia. In Denmark, Sweden and Norway the power generation mix is much in favour of renewable energy sources (RES) and therefore severe emission cuts can be achieved in the case of replacing fossil fuel vessels with 'E-ferries'. Actually, the plan is to buy electricity from wind turbines, hydro and solar RES plants, making Ærø's ferry transport a zero emission product. This will single-handedly remove 25% of the total CO_2 emissions from the island of Ærø with its 6,500 inhabitants (today the island's electricity and heating is already almost 100% RES-covered using the wind, sun and bio fuels).

Gains over losses

The newbuilding cost of an 'E-ferry' is expected to be some 33% more than a conventional ferry. To this add an extra 15% required for establishing the necessary land installations. Savings on running costs are thus indeed more than advisable. Fortunately, the case study indicates that these will be present as energy savings, bonuses of lower electricity prices as well as reduced costs of both manning and maintenance. Meanwhile, an efficient hull design also promises faster speeds in shallow waters, e.g. in navigating channels; this is an important feature on most island routes in Europe. For the full implementation of the 'E-ferries' as investigated in the Ærø case study, the total savings will be around 15-20% compared to existing operations, not to mention better transport quality and a substantial lower social cost thanks to reduced emissions.

Fig. 1. Different ship propulsion systems



While developing the idea, the partnership behind the 'E-ferry' concept is becoming more trans-European, involving also Greek and Dutch partners together with the international Interferry Association. In order to finance a full-scale demonstration project, a second stage application to the EU Horizon 2020 call "Towards the energy efficient and emission free vessel" was submitted in August 2014.

All in all, we stand by the position that with lower battery prices and higher battery performance, electric ferry transport will impact short sea shipping the same way computer processing has reformed almost all other industries. Fully electric ships will change the cost structure of the ferry sector, creating new business opportunities and delivering better transport quality to customers. Eventually, when everything is settled, we will truly find the Holy Grail of eco-friendly shipping. And that's only something to get started. ■

The objective of the Green Ferry Vision project is to perform a feasibility study on the design, production and operation of an innovative coastal and inland waterways low weight car & passenger ferry, powered solely by green electricity stored in batteries on-board. Most recently, the project was shortlisted as one of the finalists of the 'Ship Efficiency Awards 2014'. For more information about the Green Ferry Vision initiative, its partners and associates, visit the www.greenferryvision.dk website.

Photos: Wikimedia Commons

HARBOURS 360 CONFERENCE

New horizons for European ports

20-21/10/2015, Port of Antwerp

HARBOURS 360

EVENT AGENDA

DAY 1

Container
Intermodal

Port strategies – responding to new challenges

Bigger ships, bigger ports

DAY 2

Ro-ro & ferry
Intermodal
Silk road

Alliancing in the ports

Taking advantages of technology and innovation

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Port of Antwerp

Organizers

actia FORUM

Harbours review
european port sector forum

EVENT AGENDA

HARBOURS 360

DAY 1: 20/10/2015
Container & Intermodal

08:30-09:00 **Registration + welcome coffee**

09:00-09:30 **Opening speeches**

Moderator: **Steven Bouckaert**, Director, MTBS

Isabelle Ryckbost, Secretary General, ESPO
Patrick Verhoeven, Secretary General, ECSA
Przemysław Opłocki, Head of Marketing & Sales, Harbours Review
Luc Arnouts, CCO, Antwerp Port Authority
Lamia Kerdjoudj-Belkaid, Secretary General, FEPORT

09:30-10:50 **SESSION & PANEL: Port strategies in Europe**

Keynote speech: New challenges for ports in Europe; bigger ships, bigger ports
James Kyritsis, Consultant, Drewry Shipping Consultants

Strategy of the European hub port – Port of Antwerp Case study
Chris Coeck, Manager Policy & Strategic Projects, Antwerp Port Authority

Overview of the container market in the EU – top 20 box seaports
Przemysław Myszka, Editor-in-Chief, Harbours Review

Solutions of an inland port to meet the challenges of the future – the Duisport case study
Lars Nennhaus, Vice President Port Development, Duisport

10:50-11:15 **Coffee break** kindly sponsored by VRT When Details Matter

11:15-12:30 **PANEL DISCUSSION: Catching up the future market in Europe**

— How different ports are responding to bigger ships-trend?
— EU port market: North and South and regional markets
— Building new terminals or optimizing existing capacities
— Building alliances in the port industry – is this a future?

Panellists:
Maria Dolors Lloveras, Market Analysis Manager, Port of Barcelona
Lars Nennhaus, Vice President Port Development, Duisport
Luc Arnouts, CCO, Antwerp Port Authority
James Kyritsis, Consultant, Drewry Shipping Consultants

12:30-13:30 **Lunch break**

13:30-14:30 **SESSION CONTAINER MARKET: Facing the market challenge**

Container carriers – depressing freight rates; ship cargo capacity arms race; and the rise, downfall, and resurrection of shipping alliances
Chris Welsh, Secretary General, Global Shippers' Forum

Is terminal automation the answer to all issues?
Dennis Koegeboehn, Partner, HPC Hamburg Port Consulting GmbH

14.30-16:00 **SESSION INTERMODAL: Effective transport solutions on land**

Next-gen trucks – longer, safer and more efficient
William Todts, Programme Manager, Transport & Environment

Increasing rail capacity without laying new tracks
Franco Castagnetti, NewOpera Aisbl President, Capacity4Rail Partner and Marathon Project Leader

Three-in-one – rail+barge+truck – the inland ports case study
Alexander van den Bosch, Director, EFIP – European Federation of Inland Ports

16:00-16:15 **Summary & end of the first conference day**

16:15-17:00 **Drink & snack / networking**

EVENT AGENDA

HARBOURS 360

DAY 2: 21/10/2015
Silk road, intermodal, ro-ro and ferry

08:30-09:00 **Registration + welcome coffee**

09:00-11:00 **SESSION INTERMODAL: Connecting Europe with Asia – Euroasian Landbridge**

Moderator:
Alan Arent, Event Director, Harbours 360 Conference

Is it start or the end route?
Nicolai M. Noeckler, Director, Business Unit Asia & Pacific, Trans Eurasia Logistics GmbH

Boost of traffic in one or both directions on the Euroasian Landbridge?
Thomas Kargl, CEO, Far East Land Bridge

Transport from Europe to Asia
Göran Engström, Business Development Manager ChinaRail, Head Office, DHL Freight

Optimising the distribution of goods to their final destination
Pascale Pasmans, Senior Advisor Intermodality & Hinterland, Port of Antwerp

11:00-11:30 **Coffee break** kindly sponsored by AVRT When Details Matter

11:30-12:30 **PANEL DISCUSSION: Sea transport vs. Rail transport**

Panel moderators: Przemysław Myszka, Editor-in-Chief, Harbours Review
Przemysław Opłocki, Head of Marketing & Sales, Harbours Review

Panellists:
Alexandre Gallo, General Manager, Eurorail International
Aleksandra Kocemba, Intermodal Transport Manager, Raben Transport
Aart Klompe, CEO, DB Schenker Netherlands
Sławomir Knap, Director of Multimodal Transport, Hatrans Logistics
Jakub Garstka, Representative of the Board, Hatrans Logistics

12:30-13: 30 **Lunch break**

13:30-15:00 **SESSION: New technologies and innovation in ports**

Are European ports modern?
Lamia Kerdjoudj-Belkaid, Secretary General, FEPORT

How European Commision is assisting port industry?
Remi Mayet, Deputy Head of Unit, Ports and Inland Navigation, DG for Mobility and Transport, European Commission

SeaTerminals Project
Eduardo Olmeda, R&D Project Manager, Valenciaport Foundation

15:00-16:00 **SESSION RO-RO: Meeting the SECA challenge**

Half a year into the SECA enforcement – aftermath
Maciej Matczak, Head of Consulting Department, Actia Forum

Can MRV implementation learn from our SECA experience?
Johan Roos, Director of Regulatory affairs, Interferry

E-ferry project; to design, to build and to demonstrate
Dr. Eliza Gagatsi, E-ferry Impact Manager, E-ferry

16:00-16:15 **Summary & end of the conference**

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Events. We organize both our own events (such as Transport Week) as well as 100% ready projects if you plan to launch a conference, a meeting, a seminar dedicated to the transport sector or make a spectacular opening ceremony with a twist – just name your needs and leave the logistics to us.

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DE/Bremen

4th Annual Small Scale LNG forum
25-26 November 2015
BE/Antwerp

Inland Terminals: 10th European Conference & Exhibition
26-27 November 2015
BE/Antwerp

Transport Security Expo 2015
2-3 December 2015
UK/London

Maritime Reconnaissance & Surveillance Technology
15-16 February 2016
IT/Rome

Border Security
17-18 February 2016
IT/Rome

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17-18 February 2016
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