PORT TECHNOLOGY

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THE E-JOURNAL OF PORTS AND TERMINALS

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FROM THE EDITOR

In this edition of the Journal, we look beyond the ports to explore the wider supply chain from intermodal terminals, to rail networks and port call optimisation solutions.

A developing trend is the focus on the supply chain as a whole, not just parts of it, with shippers and forwarders assessing how best to get value and reliability from the routes they choose.

The disruption to the supply chain caused by the COVID-19 pandemic has made many reconsider their approach as smooth sailing is no longer a guarantee.

In an interview for the Journal, Aymeric Chandavoine, Head of Logistics and Services, A.P. Moller-Maersk, noted that the threat of disruption has forced stakeholders to move away from single suppliers and to rethink their dependence on 'just-in-time' supply, where components are delivered to factories exactly when they are needed.

This will ultimately have a ripple effect throughout the supply chain with higher levels of inventory being kept in on place.

Another element of the supply chain that is gaining increased momentum is the rail sector, regularly being touted as a more eco-friendly solution than truck cargo.

But, as we hear from HPC in their contribution to the Journal, there is a long way to go in order to digitalise and guarantee reliability in this sector, which is ultimately the key for customers.

A delay in any part of the supply chain impacts the entire operation, and solutions are being offered up to iron out inefficiencies.

Infolayer discusses how its proprietary TerminalSENSE offering provides end-to-end terminal performance insights with rapid time to market advantage, enabling cross terminal operational transparency, performance improvement, cost optimisation and revenue/margin enhancement for the sector.

Additionally, PortXchange provides a review of its achievements in port call optimisation, another solution embarking on efficiency throughout the supply chain, as it looks to include more partners in its solution offering.

Finally, the International Port Community Systems Association (IPCSA) provides insight from its members on how collaboration and working with the community can result in effective end-to-end supply chain solutions.

Beth Maundrill
Head of Editorial

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Cover image: HPC Hamburg Port Consulting

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END-TO-END SUPPLY CHAINS THROUGH COLLABORATION AND WORKING WITH THE COMMUNITY

Richard Morton, Secretary General, International Port Community Systems Association (IPSCA)

A simple way of explaining the concept of a Port Community System (PCS) is the spider's web: a PCS is at the centre of the web, enabling stakeholders (port authority, terminal operator, Customs and other authorities, shipping line, agent, haulier, rail operator and so on …) to exchange real-time information via a secure and neutral platform, thus driving and supporting the smooth and swift flow of messages and cargo.

There is more – of course there is! Within IPCSA, our members share knowledge, expertise and experience and that is based on the fact that they provide similar services and have similar challenges. However, no two PCS are exactly the same. We share our differences, too!

Ports are the vital link in millions of supply chains. Many PCS operators have expanded their services to support companies and stakeholders along those chains.

Among our members, India's Kale Logistics, with its technology and solutions for the supply chain; France's MGI, providing connectivity between hinterland road, rail and barge; and Australia's 1-Stop, with its solutions for vehicle and terminal booking to optimise flows and throughput; are three great examples of what is being achieved through collaboration, communication and community to increase efficiency and information flow through the supply chain.

COLLABORATION

Kale Logistics has taken the UN Recommendation 33 for Trade Facilitation and 'redrawn' it to look at the basic building blocks of the supply chain. That approach includes Customs management system; regulatory supply chain; air and sea port community and free zones; marketplace – insurance, freight forwarding, etc.; and cross-border, including Kale's involvement in IPCSA's Network of Trusted Networks (NoTN).

When one considers the marketplace and movements of goods cross-border,

there are a wide number of elements to consider before the goods are even handed over – price discovery, capacity discovery, traceability, etc. Free zones are often forgotten, but they are usually next to the port or airport and require a high level of synergy. There is also the question of communicating with the next port or airport along the supply chain – for example, between two Customs authorities. Kale sees all of these solutions coming together as building blocks in an end-to-end supply chain.

As Vineet Malhotra, Director at Kale Logistics, said: the definition of a PCS is very broad, and everyone has a different take on it. What is clear is that Port Community Systems, as neutral platforms, will be able to offer a lot of added value services along the supply chain in the coming years.

Kale's approach is about connectivity and collaboration. "While 20% of stakeholders are responsible for 80% of the transactions through a PCS, 80% of stakeholders will be much smaller, accounting for 20% of transactions. But if you do not bring in the smaller ones, you are not a community," Malhotra said.

"Large stakeholders have all the IT connectivity they could need. But smaller stakeholders – agents, importers, truckers, warehouse operators – often do not have that ability. Bearing in mind these 'have nots', our system design ensures they can participate in any manner possible without altering anything they are doing currently."

For 'less connected' users, Kale offers access via a portal and via standard connectors. And there is another option aimed at companies that are only creating a few documents and exchanging them with several people, such as Customs. The system allows for that same document to be uploaded on to Kale's portal like an attached PDF; a combination of Optical Character Recognition (OCR) and machine learning is used to extract the information from the document and put it into the PCS. Kale processes 1,500 documents a day in this way, helping smaller operators (who might otherwise feel daunted) to play their part in optimising supply chains.

COOPERATION

When it comes to supply chains, no port is an island. Hence it makes sense for PCS to consider ways to optimise sections of the supply chain in both directions from the port outwards.

IPCSA member MGI, based in Marseilles, goes much further than port limits with its Ci5 network. This PCS already interconnects with the IT systems of barge and train operators to offer traceability of goods across a wide hinterland (which stretches as far as Lyon via the Rhone), tracking the information of containers loaded or unloaded on barges or trains.

Having clear information in advance about which goods will arrive when at the terminal is a major focus in the world of logistics. Work is under way to connect Ci5 to the Cooperative Intelligent Transport System, which provides drivers with real-time traffic information on the highways. This could provide drivers and terminals with even more precise arrival times, depending on factors such as typical traffic loads, congestion, traffic incidents and even weather, and is another way to link trucks, barges and trains to ports and airports to create streamlined supply chains.

MGI also wants to be more interconnected to the city's IT system to provide information in both directions. "The city is really interested in the data we are capturing into the PCS, for example for them to give information to citizens on activity at the port so that they know, for instance, when there will be more port traffic," said Dominique Lebreton, Member of the Executive Board of MGI.

Catherine Mégélas, Head of Corporate and Internal Communication, added: "We are going a lot further than most PCS – we are a Port Community System, but we are expanding to become a whole community system."

At present, by connecting the various stakeholders and IT systems in its ecosystem, Ci5 provides traceability and fluidity of information on what is arriving in the terminals. The more it connects to the hinterland, the more it will be able to improve the attractiveness and performance of the logistics chain.

By delivering rapid information exchange, PCS can speed up goods transit, track cargoes and enable productivity increases – and there are environmental advantages too. If trucks spend less time waiting to load or unload cargo, emissions are reduced. That's important too, in a world where multinationals are seeking greener supply chain solutions – and increasingly taking an interest in each link along the way.

COMMUNICATION

Optimising flows and throughputs at ports and terminals is essential to avoiding long queues of trucks clogging up the terminal or waiting outside the port gates (all the while wasting time, fuel and money, and throwing out exhaust fumes).

In Australia, 1-Stop had slightly different origins to a traditional PCS, working with the supply chain community to understand their pain points and build products and solutions to create paperless ports, information validation and messaging services to track and trace containers, as well as to comply with regulatory processes such as the Maritime Security Access Card (MSIC) and local port requirements.

1-Stop's flagship product, the Vehicle Booking System (VBS) was created to maximise terminal operations and coordinate the efficient flow of trucks through a facility. Over the past 16 years, 1-Stop has continually reinvested in the VBS to ensure the supply chain is optimised in order to make cargo move smarter. The use of 1-Stop's VBS in conjunction with other 1-Stop solutions has reduced dwell time by 50%, increased yard utilisation by 47% and enabled operators to grow their capacity by 30% with no further investment. The VBS is now being implemented in non-containerised ports to connect to the wider supply chain community.

The next step for 1-Stop is combining and analysing information gathered to provide users with new levels of visibility, improve efficiency and reduce congestion – not just at the terminal but at all container and rail facilities, all based on real-time data. It is another example of extending value along the supply chain and increasing efficiency far beyond the port gates.

1-Stop's goal is to bring everything on to one platform, providing real-time traffic and other important information to help hauliers plan their journey to pick up or deliver a container. It could advise, for example, if traffic is building up on one route, or if it would be more efficient to collect one container before another. In the terminal, it could raise the alert if a truck were five miles away but the container it was coming to collect was still at the bottom of the stack. It's all about helping users make the best decision for optimum efficiency.

1-Stop could see the power of the data and started talking to the industry about what else. Why wouldn't they take the opportunity to create further efficiencies?

"WE ARE GOING A LOT FURTHER THAN MOST PCS – WE ARE A PORT COMMUNITY SYSTEM, BUT WE ARE EXPANDING TO BECOME A WHOLE COMMUNITY SYSTEM."

- Catherine Mégélas

ABOUT THE AUTHOR

Richard Morton has been Secretary General of the International Port Community Systems Association (IPCSA) since its beginnings as a European organisation in 2011. As an expert in trade facilitation and the exchange of electronic information, Richard is in demand across the globe as an adviser and speaker. He is a member of the Experts Committee of the APEC E-Commerce Business Alliance and an Expert at UN/CEFACT.

ABOUT IPCSA

IPCSA is an international association of sea and air port community operators, sea and air port authorities and single window operators that is recognised across the globe for providing advice and guidance on the electronic exchange of information across borders and throughout the whole supply chain. The association has nearly 50 members from across the globe who handle the exchange of information for Business to Business, Government to Business and Government to Government processes and facilitate the smooth cross-border movement of goods. This equates to the electronic exchange of information relating to more than 500 million TEU movements and 10 billion tonnes of cargo for air, sea and land transport – estimated to be in excess of 50 billion million exchanges every year.

SUPPLY CHAIN IS KING FOR CUSTOMER BUSINESS MODELS

Interview with Aymeric Chandavoine, Head of Logistics and Services, A.P. Moller-Maersk

The COVID-19 pandemic could be a driver for supply chain innovation and make the world's major carriers accelerate plans to become end-to-end logistics providers, according to A.P. Moller-Maersk (Maersk).

Supply chains across the world have come under strain since the outbreak of the pandemic, with customers turning to e-commerce and demanding better logistics processes, including receiving goods quicker than ever before.

Speaking to PTI, Aymeric Chandavoine, Maersk's Head of Logistics and Services, said a crisis such as the pandemic can help "sharpen needs" in logistics operations and that supply chain flexibility will define companies' business models.

"Our plans have been accelerated by COVID-19 as the supply chain has become central to customer business models — if they cannot meet customer demands for speed, choice, and innovation in delivery, they go elsewhere. Supply chain is king."

Maersk has been moving away from a purely ocean-based business model to an integrated container logistics business since 2016, a move Chandavoine said was based on the "needs of customers".

FROM JUST-IN-TIME TO JUST-IN-CASE

Logistics disruptions, according to Chandavoine, make customers look for a strong partner that can support their supply chains end-to-end and secure a "flexible, robust and easy to use solution".

The threat of disruption has forced stakeholders to move away from single suppliers and to rethink their dependence on 'just-in-time' supply, where components are delivered to factories exactly when they are needed.

Instead, they are embracing 'just-in-case' supply chains, which mean they keep much higher levels of inventory to avoid being caught out. According to Chandavoine, Maersk is investing in ways to offer customers long term contract that offer "reliability, transparency and flexibility".

Chandavoine said companies across the world have had to fast-track plans to adopt new technology to simplify supply chains. The rapid growth of e-commerce has done in six months what was previously expected to happen in a decade.

The supply chain has struggled "for a long time" with fragmentation of data, low visibility and a lack of collaboration between stakeholders, and this has made it vulnerable to disruption. Black swan events such as the COVID-19 pandemic and the obstruction of the Suez Canal in March 2021 have reinforced this trend.

Delivering goods from a manufacturer in China to a consumer market in the US involves multiple steps and numerous players, including air and ocean carriers, trucks,

trains, customs brokers, warehousing operators and last-mile distribution experts.

"Designing, monitoring and controlling the most efficient supply chain solution for each customer in today's world is a very manual process that sometimes involves hundreds of specialists around the world.

"As an integrated logistics partner with ownership of a global network and control over all parts in the logistics chain, we are taking accountability to eliminate the complexity of logistics for customers."

DIGITAL TRENDS

In addition to the importance of end-to-end logistics, the pandemic has also encouraged development and adoption of smart technologies in the supply chain.

"The COVID-19 pandemic has accelerated digital trends in many industries, including supply chain and logistics where we have seen the importance of investment in well-functioning IT platforms."

Maersk has seen a considerable increase in demand for digital services, especially TradeLens, its blockchain-based system for electronic Bills of Lading (e-B/L).

Pandemic-led disruptions, such as the shift to work from home, suspension of courier services and grounded flights, upset the processes of receiving original Bills of Lading (B/L), processing them, and delivering them to counter parties.

Since its launch in 2018, more than 500 TradeLens e-B/Ls have been issued, transferred and surrendered through the platform, according to Chandavoine.

"Physical paper remains an impediment and a source of waste and inefficiency in our industry. Blockchain holds an immense opportunity to not only make the B/L fully electronic, such as with TradeLens, but it could also be manifested through forwarders cargo receipt, delivery orders, invoices and other cargo documentation.

"We offer innovation, Artificial Intelligence (AI) and new technology services, speeding up the pace of change in an industry that needs to respond to the changing needs of global traders in innovative ways.

"Our top strategic priority is boosting resilience thanks to the utilisation of data and the development of end-to-end information flow."

Chandavoine said customers have become even more focused on "transparency and resilience" in their supply chains and that there is a chance to deploy and better utilise technology.

"We see a huge opportunity in leveraging technology in order to streamline, automate and autonomously design complex supply chain solutions for Maersk's customers," the company said.

"Technology will also enable us to make optimal decisions, in real time when necessary. My goal is to accelerate the platform business model appeal, performance and customer experience."

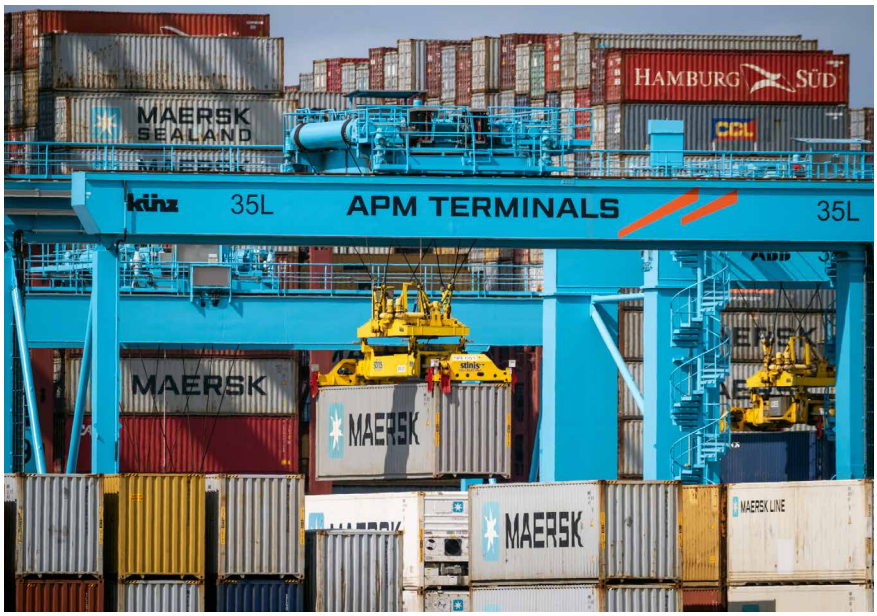
Maersk is looking to predictive technologies to streamline services and get goods to market quicker and overcome uncontrollable problems, such as changing weather on the Pacific or port strikes.

"Predicting arrival time accurately when so many players and steps are involved is not an easy task. We are looking to leverage Machine Learning (ML) technology to help us predict arrival time accurately around the world," Chandavoine explained.

The importance of logistics was evident in Maersk's 2020 financial results, which saw its profit from its logistics division double. According to Chandavoine, this means it will be able to continue to invest in its end-to-end strategy.

"We are well equipped to deal with the ongoing market volatility and also benefit from a world that hopefully starts to reopen at some point this year."

Written by Max Schwerdtfeger



"MY GOAL IS TO ACCELERATE THE PLATFORM BUSINESS MODEL APPEAL, PERFORMANCE AND CUSTOMER EXPERIENCE."

LONG TERM VISIONS NEEDED FOR INTERMODAL AND RAIL SUCCESS

Interview with Felix Kasiske, Managing Director, Partner, Intermodal Rail Sector Lead, HPC Hamburg Port Consulting

With pressure being put on the supply chain through increased consumer demand, shippers and forwarders are exploring all options in order to move goods efficiently and reliably beyond the ports.

Rail by its very nature is an extremely asset-intensive industry and investors in intermodal terminals must aim for long-term results.

In a recent interview with PTI, Felix Kasiske, Managing Director, Partner, Intermodal Rail Sector Lead , HPC Hamburg Port Consulting, talked about some of the trends in the rail and intermodal industry and the industry's biggest challenges.

Kasiske said there is a need to distinguish between short-term effects and long-term trends.

"Talking short term effects, would anyone have expected the surge in containerised transport we see right now with vessels on the global main routes running at capacity? Let's put these aside, even though they may blind us from time to time and may take our attention away from the real underlying developments," he said.

Kasiske emphasised the need to focus on long term developments at intermodal terminals as typically the investments HPC deals with have a 30-year timeframe. HPC has already realised more than 120 projects for intermodal terminal operators, mostly in Europe and North America.

He was also clear that there is a stark difference between who is investing in rail operations in the US versus Europe.

In the US investment tends to come through private channels and the railroads themselves. In Europe, however, there is a high level of investment subsidiaries from government funding. All this leads to different approaches to investment trends.

The common goal of both models is to create greater visibility and reliability across the supply chain.

"There is still a lot of traditional approaches in many railway-related processes," Kasiske said, adding that there is a growing focus on "automation, artificial intelligence and predictive analytics".

"[Predictive analytics] in particular could help the intermodal facilities to improve their housekeeping, the sorting of containers in a manner so that you don't have to go searching when trucks arrive, so you are prepared, ultimately saving time and effort."

Kasiske said that HPC has a lot of experience within the realm of predictive analytics for stack optimisation capacity management.

THE RIGHT SOLUTIONS

As with many aspects of the supply chain, the intermodal terminals and rail industry is

in the early stages of digital transformation compared with other major industries.

However, Kasiske said that the uptake of digital solutions is certainly gaining a lot of momentum now.

Part of this slow adoption of new technologies is due to the lack of availability of technology that is "rail-proof". With so many moving parts in rail, there are very specific requirements.

"What we see now is that on the manufacturer side, or the supplier side, people are advancing and looking at intermodal more than they did in the past. That has certainly helped to get the technology to the status that intermodal operators can think about it."

Kasiske also noted that it is important not to think of intermodal from just a rail perspective, "it is actually a logistics solution with a rail piece in the middle".

Intermodal solutions need to have a level of reliability which logistics managers expect from other modes of transport that they are used to.

"If you wanted to compete with road transportation you need to at least provide a certain level or reliability. It's not necessarily all about speed."

"Anything that improves punctuality and reliability helps. The European network companies are investing heavily which is a good sign. Unfortunately, with the huge backlog in investment in infrastructure in Europe, and particular Germany's rail network (being in the heart of Europe), we will see only partial short-term improvements with lots of distortion for quite some time. But better late than never," he said.

Kasiske said that European intermodal terminals could learn a lot from the North American approach.

"We looked at more than 40 intermodal terminals in North America. We in Europe can learn a lot from simple straight-forward solutions applied there, like easy and fast automated truck gate solutions with apps for truck drivers really benefitting the terminal and the truckers at the same time, just to name one example."

He also sees that there could be lessons the other way, with the North American intermodal sector benefitting from the European way of area utilisation by stacked operations with preferably at least semi-automated handling solutions to increase safety and reliability.

"Also, some essential aspects of the PSR (precision scheduled railroading) philosophy still reshaping the North American railroad industry sound very familiar to someone being used to European Railroads.

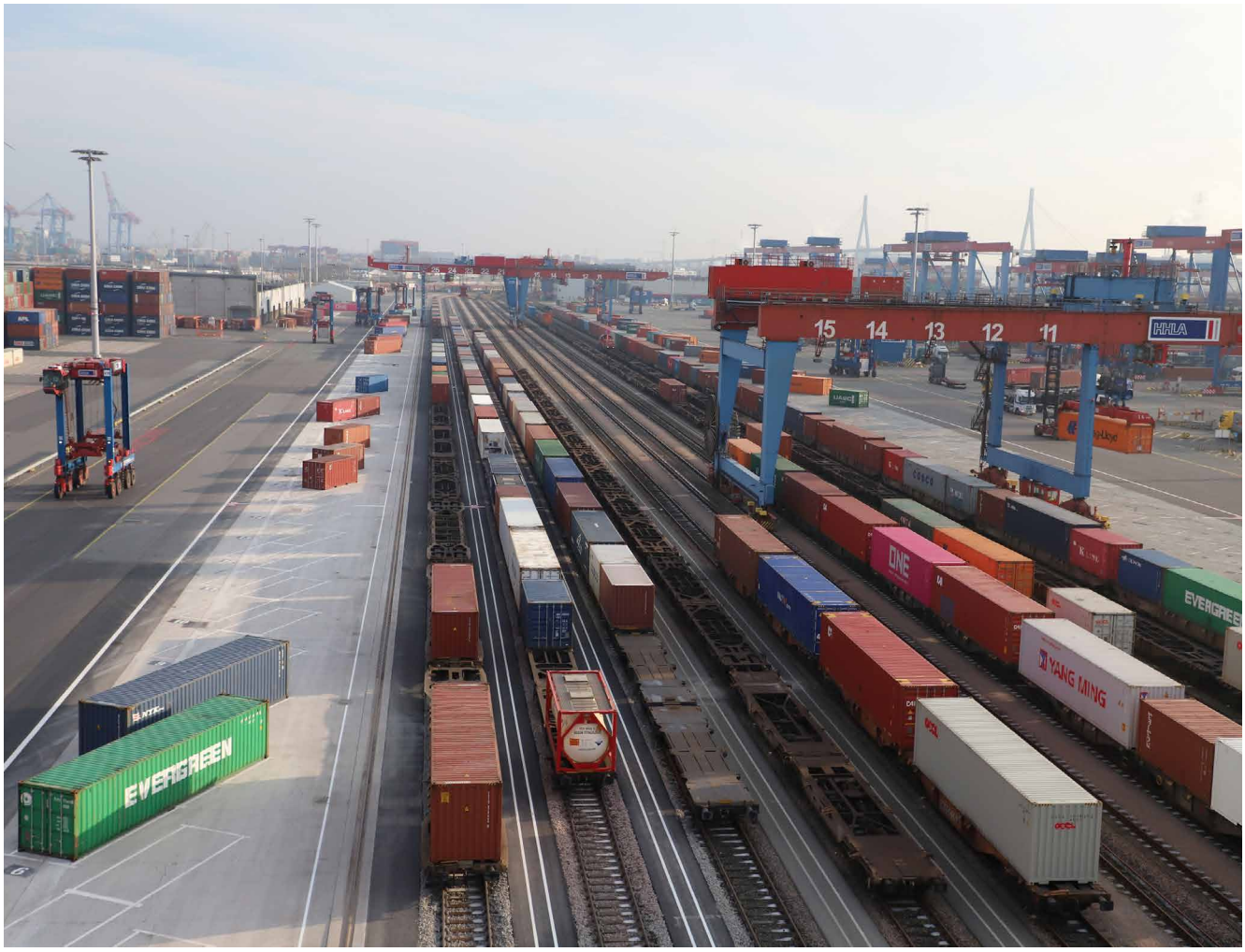
"At the end, it is like always, trying to question the way you do things, compare with others, adapt better solutions to your framework conditions and integrate it to be more efficient is what counts, no matter the origin."

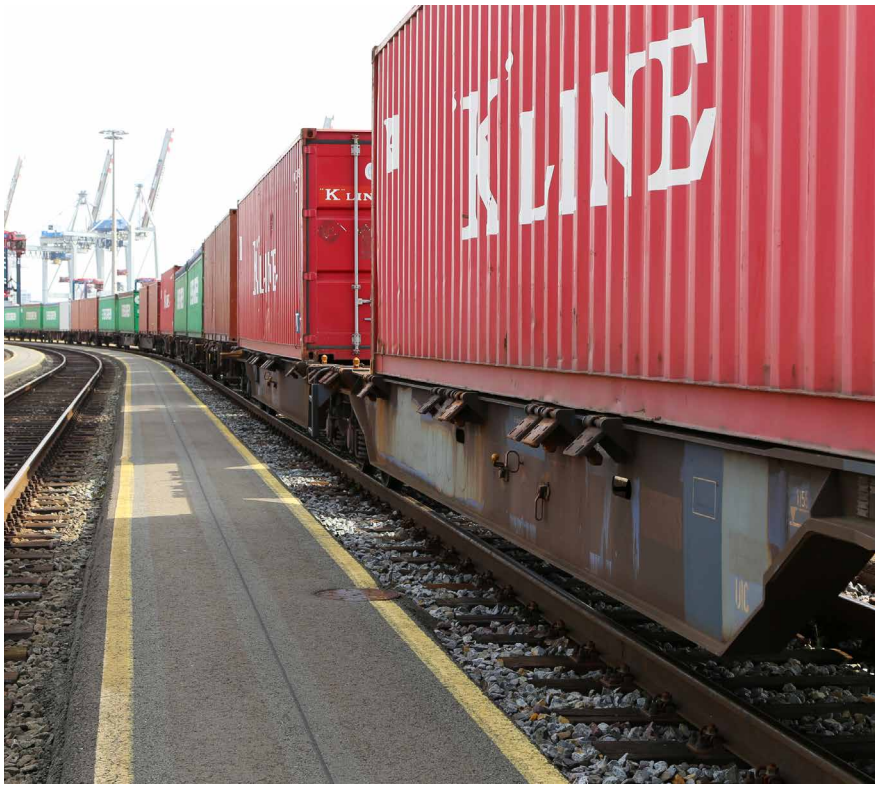
ONGOING PROJECT

A recent project announced by HPC is its plans for further development of the rail terminal Combi Cargo Terminal (CCT) Villach Süd, Austria.

The facility operator Terminal Service Austria (TSA), a subsidiary of the Austrian Federal Railways (ÖBB) and specialists for the handling of unaccompanied combined transport (UCT) and rolling motorway (RoLa) trains at seven Austrian stations, intends to expand the intermodal terminal.

CCT Villach Süd has great potential to participate in the increasing intra-European traffic and ferry port-hinterland traffic because of its good geographical location in the tri-state area bordering Slovenia and





"IF YOU WANTED TO COMPETE WITH ROAD TRANSPORTATION YOU NEED TO AT LEAST PROVIDE A CERTAIN LEVEL OR RELIABILITY."

Italy, as well as on the Baltic-Adriatic and Mediterranean transport axis.

TSA has appointed HPC to conduct a terminal planning study to analyse various alternative models for modernisation and expansion and rank them by priority.

HPC said that the decisive condition for the approval of developing a target model was a high degree of flexibility and security, even during the expansion phases, to preserve the ability to adapt to changing market environments.

According to HPC, the most scrutinised question was how the cargo handling volumes would evolve and affect storage capacity and cargo handling equipment, to preserve the effective handling of various load types, including containers, swap bodies and semi-trailers. Furthermore, the relation between the terminal infrastructure and the expansion of rail track capacity is being examined.

LOOKING AT LONG TERM INVESTMENTS

Looking at long-term solutions is key in this industry and Kasiske said that long term we should be able to move to a new level of intermodal nodes with logistics parks associated taking advantage of green and autonomous trucking.

"These could be the nucleus points for fully automated and emission free logistics parks providing the opportunities we need in order to have our limited truck driver work force being used for what they are really good in - getting along with the irregular - instead of having them run back and forth between a loading dock and an intermodal ramp."

There are also long-term climate goals to consider which the logistics parks could go some way towards helping to achieve.

"I know, this sounds a bit visionary, but in North America we see active investors already challenging railroad companies' senior management with environmental related policy expectations and it is only a matter of time until senior management will turn around and ask intermodal division managers for their contribution."

As the trucks sector looks at the development of running on renewable energy and has good potential to manage it successfully given massive investments we see in this industry, rail could lose one of the biggest environmental advantages.

In North America in particular, there is ongoing exploration of the use of alternative fuels, such as liquified natural gas (LNG) for rail which is most traditionally run on diesel, unlike in Europe which is typically electrified.

"This leads us back to the homework needed to be done. We need regulatory and permitting framework conditions which encourage investors to develop with the speed the technological development allows; not with the speed we have currently for infrastructure investment permitting. If state-set framework conditions, particularly in Europe, prevent us from modernising the way we execute logistics we will also miss opportunities for more environmentally friendly solutions," he said.

Written by Beth Maundrill

ABOUT THE INTERVIEWEE

Felix Kasiske is Managing Director and Partner at HPC Hamburg Port Consulting. As head of HPC's intermodal rail segment, he has shaped HPC's competence in intermodal terminal planning, design and operations as well as equipment, IT and integration related services for 15 years. In addition to a series of marine terminal project works, he contributed to 50+ intermodal terminal projects around the globe. Prior to HPC he was involved in supply chain and intermodal transportation topics in research and consultancy and in strategic advisory to rail cargo operations of DB German Rail.

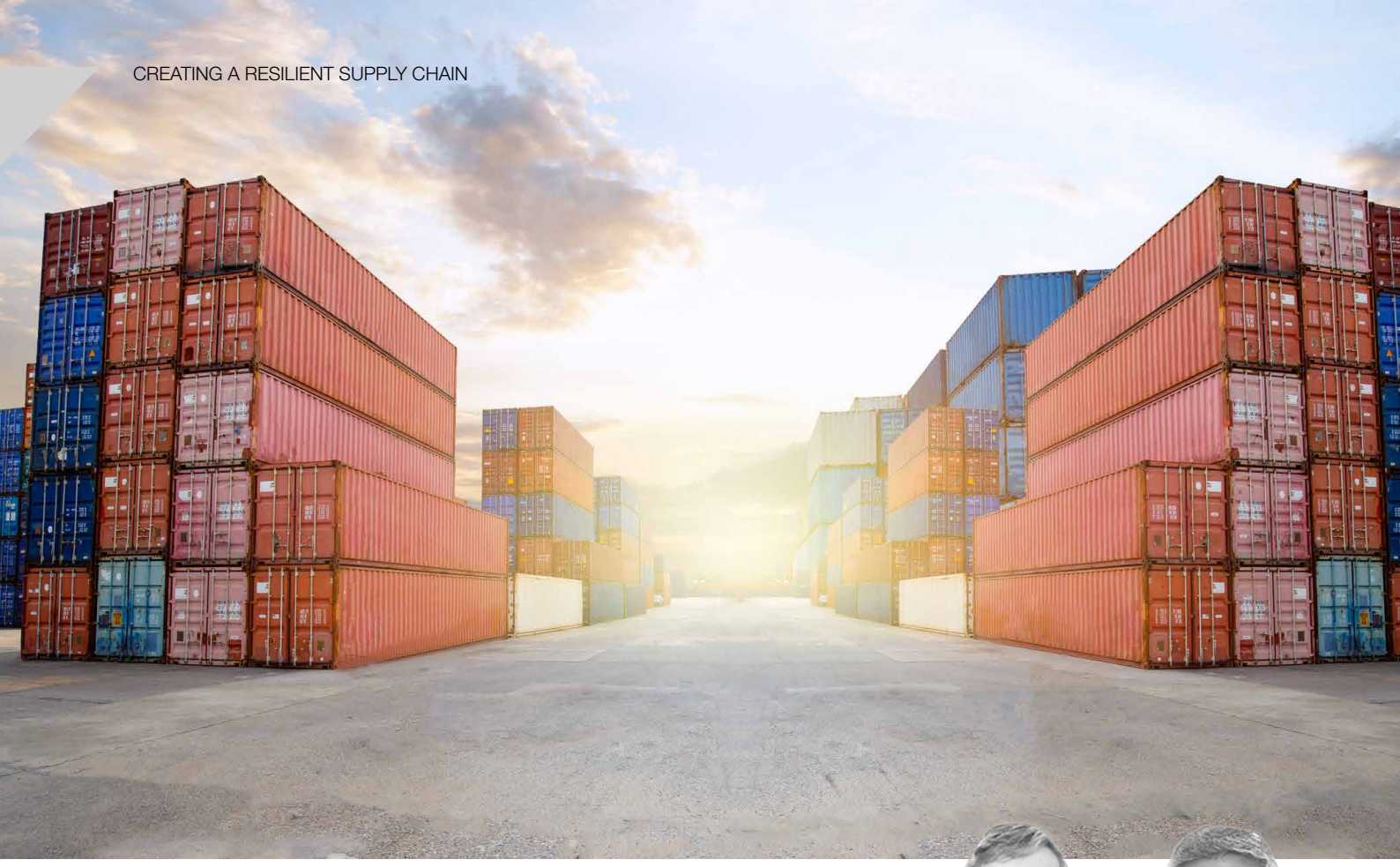
ABOUT THE ORGANISATION

HPC Hamburg Port Consulting is a logistics consulting company specialised in strategy and transformation services for ports, marine and inland terminals as well as intermodal rail.

Established in 1976, the Hamburg-based consulting company has delivered approximately 1,700 projects across 130 countries spanning six continents along the full port project development cycle.

HPC employs about 100 domain experts with a background as terminal operators, software engineers, logistics managers, transport economists and mathematicians. As a subsidiary of the Hamburg Port and Logistics Corporation (HHLA), HPC has its roots in port handling of containers, break bulk and multipurpose as well as hinterland operations.

Today, HPC belongs to the leading consulting companies when it comes to digital transformation in the terminal and port sector.



TERMINALSENSE FOR SMART PORTS

BUSINESS INTELLIGENCE IN A CONTAINER TERMINAL

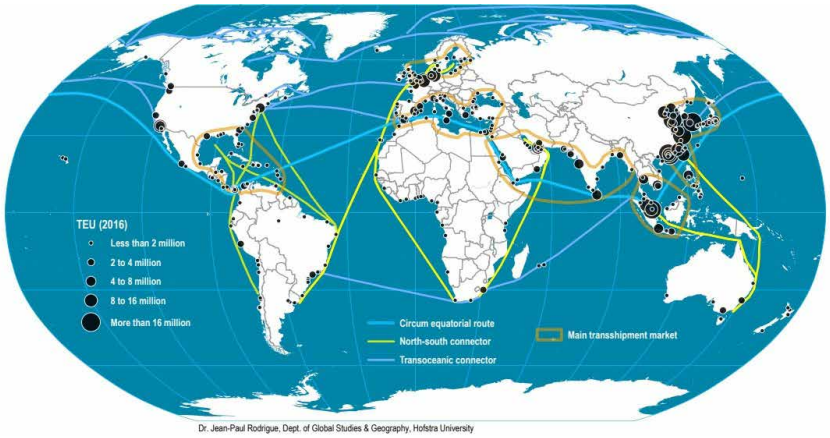
Maurice Winn, Chairman, and Jayachandran Kasimani, CEO, Infolayer Ltd

CONTAINER TERMINALS ARE A VITAL LINK TO GLOBAL SUPPLY CHAIN

Containerised shipping has been around since the late 1960's driven by the need to efficiently move ever increasing volumes of cargo across the world. This has driven the need for container terminals to be developed to handle the specialised needs of containerised cargo handling. The container terminals facilitate seamless cargo movement between hinterland and the maritime shipping. The maritime cargo flow requires not just efficiencies of operations, engineering and labour but also need agile alignment of the port capacities to the shipping line's supply chain demands.

DIGITISED SUPPLY CHAIN USING LARGER SIZE VESSELS

Over the years, what started out as a gentle shift from general cargo ships to specialised containerised cargo ships, has accelerated



Global maritime trade network

until the bulk of what was formerly general cargo is now despatched inside standardised containers.

Container vessels began by carrying just a few hundred TEU. The latest container ships coming into service are carrying over 20,000 TEU, with even larger ones on order to be built.

The growth in ship size has been in line with the increase in worldwide trade and the necessity to move the containers in the most efficient manner between the world's markets. This has meant that the container terminals have had to continuously increase their capabilities to match the new vessels in terms of vessel size, number of containers to be handled across the quay and the minimal time which the vessel will stay 'in port' to exchange containers.

This has led to a large expenditure in dredging channels to enable the deeper drafted ships to reach the terminal, larger quay cranes to reach above and across ever larger ships, more equipment to move the containers between the quay cranes and the stacking areas. The stacking areas had to be redesigned and sometimes re-equipped to utilise the same land area more efficiently by stacking denser and higher, which in turn can lead to re-investment in new equipment to achieve these ends.

A new terminal development has the opportunity to design around a specific target requirement, but even then, might find itself having to make adjustments five to 10 years down the track as the continued evolution of trades, growth in volumes, need for transport efficiencies, and new technologies make the terminal market ever more competitive.

The costs of new terminal equipment, extra land and labour is expensive and consequently it is important to understand how the current equipment is performing and at what cost, in order to ensure further investment provides sufficient returns. For example, the cost of Quay Cranes can be up to £10 million ($14 million), horizontal transport (CHE) £400,000 ($560,000). Thus for three extra cranes and 10 extra CHE brings a bill of £34 million ($47.6 million). This is without adding in operational costs such as extra labour to drive the equipment and engineering maintenance and support requirements. Thus, it is important to understand the current operational KPI's, the Costs and Revenue leading up to such a major investment.

DAILY UNCERTAINTIES IN USING INTER-DEPENDENT TERMINAL FUNCTIONS

In an established Terminal challenges are a constant threat to their viability in the marketplace. There is a constant need to ensure that the service provided meets current needs and that service levels and capacity are expanded in line with the projected and actual growth and change in the market.

Container terminals are very sophisticated operations and have stringent Service Level Agreements (SLA) to meet in order to satisfy all their customers, from Truck driver through to Vessel Operator. Delays and slow working in any part of the operation impacts the whole operation. Any allowances or the safety margins the terminal managers make can significantly increase the total cost of operations. It is essential to have tight control of every aspect of the terminal operation. It must function as a well-oiled piece of integrated machinery. There is a need to monitor trends and to ensure the terminal can be upgraded to meet these and future needs.

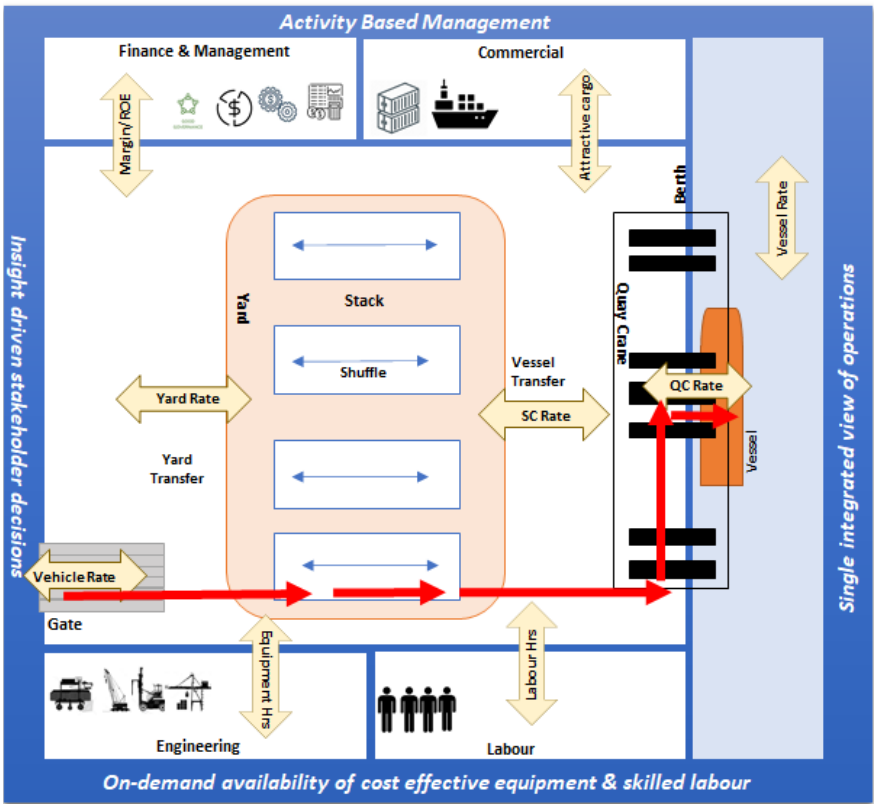
STRATEGIES FOR A SMART AND EFFICIENT TERMINAL OPERATIONS

Synchronise Terminal Operations:
Replace safety margin with insight sharing

Terminal operations include multiple support functions that must be aligned to the core operational functions. The overall port improvement requires collaborative effort across operations, engineering, labour, and commercial organisation. Any issues on equipment and labour availability will impact the overall productivity of the vessel. An issue on planning can potentially create additional requirement for equipment and labour, so increasing the overall cost of operations. As the shipside operation grows in terms of throughput and speed of load and discharge there is a knock-on effect in other areas of the terminal. Stack con-

gestion needs to be avoided, delivery and receival of containers from the landside interface has to be improved in line with the shipside operation. Truck and rail handling needs to be streamlined. The Port, as a critical link to maritime and inland logistics, needs to align operations for cargo owners by reducing the overall transit time and meeting the customer cargo commitment. The requirement for the port to align to inland and maritime logistics needs is also very dynamic. During the year, the flow and direction of cargo could significantly change due to varying market demand.

The terminal operators include additional safety margins on berth hours, equipment hours, number of straddle cranes, labour etc. Smart Ports rely on accurate information sharing across the organisation to manage operational demand and uncertainties including re-configuration for market needs. The transparency of current vessel, quay, yard, and gate activities sets a realistic expectation on marine, engineering, and labour requirements. Also, accurate information on equipment and labour availability enables operations to prioritise the activities to meet the overall customer targets. Overall transparency and collaboration and coordination on real-time insights significantly improve the alignment both within the terminal and with supply chain partners.

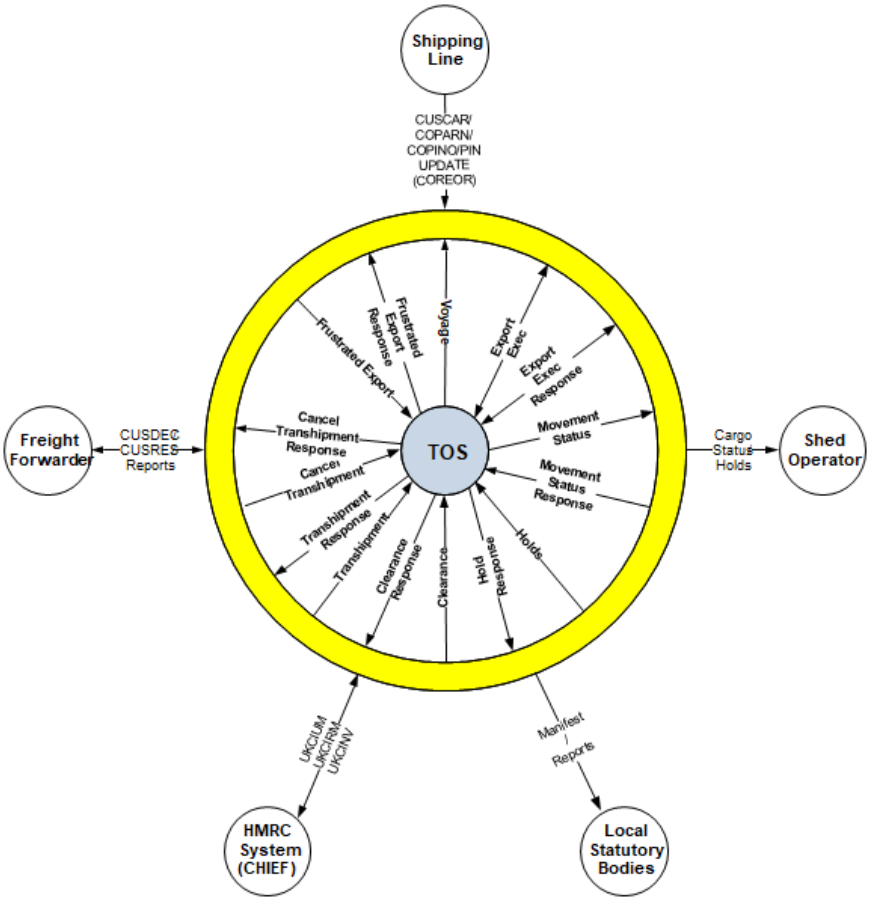


Smart Port operating model

DIGITISE OPERATIONS FOR ALL STAKEHOLDERS

Data to reflect operational realities

Terminals interact with stakeholders such as shipping lines, truckers, train operators, Freight Forwarders, harbour control, and Revenue and Customs, amongst many others. The diagram shows the typical information flow between Port and Stakeholders. The mode of communication is varied from mail exchanges, through EDI messaging to Port Community Systems acting as sophisticated message routing engines. As the automation integrates the stakeholders, the overall dependability of partners and stakeholders will improve and positively contribute to overall terminal efficiencies, helping to promote the long-term viability of each of the partner engagements. Smart Ports have significantly invested in automating all stakeholder touchpoints, driven by mutually agreed, and continuously improving, SLAs. The level of automation must be in step with the overall terminal efficiency. For example, terminals will have to invest in a Vehicle Booking system to manage truck appointment to balance the truck traffic in and out of terminals. The need to change cargo routing, aligning to market demand, must be streamlined in order to support smoother cargo operations at terminals.



Port stakeholders and relationship

CONTINUOUS LEARNING OPERATIONS

Empowering employees for data driven decisions

Smart Ports invest in systems and technologies which empower employees to follow a path of continuous improvement of their operations. The improvement decision horizon typically ranges from real-time, or event driven to tactical and long-range planning. The control room is alerted to queues and bottlenecks, caused by delays slowing down operations, so that terminal managers can intervene early on to smooth the flow. Tactically planners typically need to decide on the number of cranes, crane hours, heavy crane choice, straddle assignment, yard allocation, stowage plan, and other such parameters. Smart Ports typically learn from their experiences so that they continuously improve their outcomes and sustain their improvements. In case of repetitive operations, the past learnings will feed into operational policies and rules for self-learning and autonomous operations.

Port stakeholders and relationship

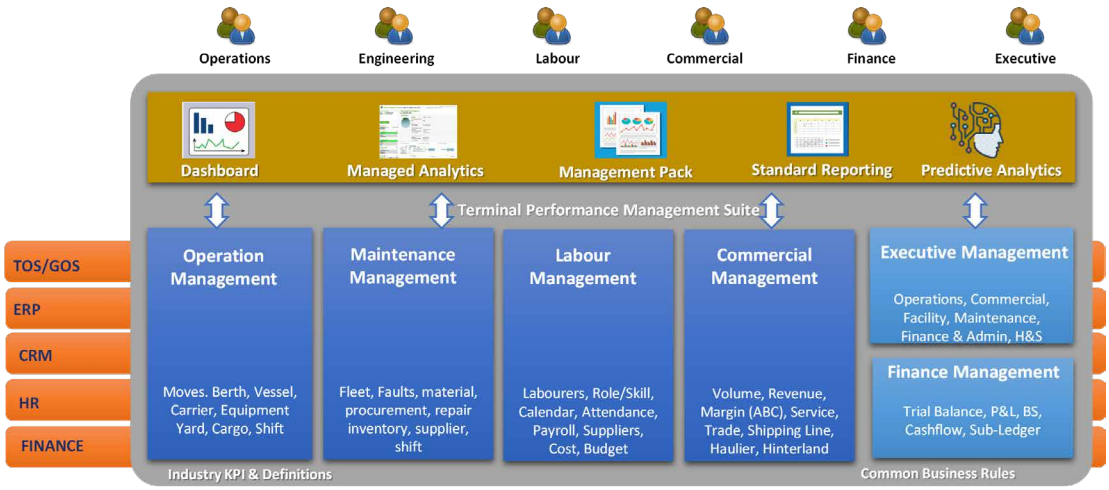
TERMINALSENSE – BUSINESS INTELLIGENCE PLATFORM FOR SMART TERMINALS

The **TerminalSense** platform suite provides essential information, which is taken from the Terminals own systems, to understand the cross-terminal performance and effectiveness and help identify actionable decision-making opportunities to improve cost efficiency and increase profit margins.

Almost all container terminals operating, over say 100,000 TEU per year, will have several computer systems to control various parts of the operation. Typically, at the centre of the physical operation is the Terminal Operating System (TOS) providing the tools to allocate and control the equipment and to record all container movements. There will be an Engineering Management System (EMS) to track equipment maintenance and repair, a Labour Management System (LMS) to track the allocation and usage of labour, a Finance Management System (FMS) to track the costs and the charges to be made to customers. There might well be many other separate systems such as: Gate Operating System (GOS), Vehicle Booking System (VBS), Crane Operating System (COP) and Port Community System (PCS). The more a terminal develops and grows the more diverse systems it uses to help manage and run the show. This involves an investment in specialist software which is small in comparison to the capital and operational costs incurred in setting up and running a Port.

All these systems, almost as a by-product of their operational use, produce a mass of data relating to how the container terminal operates. This data is however embedded within the different systems and so provides no single terminal level view readily.

However, Infolayer has developed **TerminalSENSE** to provide exactly this. The **TerminalSENSE** platform suite non-invasively extracts data from all the current terminal systems, at regular intervals, into its own SENSE Information Model (SIM) to create its own **TerminalSENSE** Data base. The **TerminalSENSE** modules access the SIM DB to provide extensive terminal level reports and KPI's. The data is granular down to an extremely low level allowing a large range of views of the terminal performance and operation, from the highest level down to individual transactions. **TerminalSENSE** provides the terminal executive, management team, and operations users with an integrated view of how the total business is



TerminalSense Performance Management Platform

performing now, and how it has performed in the past. It is then possible to carry out 'what if' scenarios on the SIM DB to determine the requirements to meet future growth and expansion plans. For a Port with multiple 'facilities' (several terminals) the product collects data for each 'facility' so that analysis at 'facility' and corporate level is possible.

These products are terminal ready, only requiring interface configuration to extract data from the terminal's own systems to populate the SIM model. Once this has been done the products can be made available to all terminal users. Access is typically controlled by user role.

The standard **TerminalSENSE** platform suite comprises the following functionally focussed modules:

- **execSENSE** – Aimed at executive management, this cross functional module provides periodic views of functional and financial performance in terms of industry standard KPI's covering vessel, container, truck, train, yard, equipment, and labour operations, which can be viewed, analysed, and drilled into.
- **opsSENSE** - Aimed at operational users, this product offers periodic views of all completed activities that have occurred to a unit, equipment, carrier, and yard. This is achieved by combining TOS, GOS, and vehicle booking information, for external and internal reporting of volume, productivity by shift, vessel service, operator splits and many others.
- **liveopsSENSE** – Provides operational users with near real time performance monitoring allowing bottlenecks and potential problems to be identified early in the operation and therefore can be rectified before they cause a serious problem. Predictions are made of performance over the next few hours, based on recent performance, for example, to predict when a vessel will finish working relative to the planned completion.
- **enggSENSE**- Aimed at engineering users, this module offers periodic views of all equipment Including fleet status, maintenance activities against operational requirements, planned vs unplanned maintenance, procurement, and stores, reporting on TOS, ERP systems
- **LaborSENSE** - Aimed at operational and labour users, reporting on labour pool, skill, availability, deployment, labour hours and costs, including shift and vessel level costing thus leading to cost-effective labour solutions for engineering and operations.
- **revSENSE** – Aimed at commercial users, this analytics module offers periodic views of operational and invoice details from TOS and billing systems, reporting on volume and productivity, revenue by period, carrier and customer service including invoice accuracy and operational reconciliation.
- **finSENSE** – Aimed at Finance users, this analytics module offers periodic views of GL information, reporting on financial accounting systems, providing trial balance, balance sheet, P&L and cash flow by period, legal entities, and account code.

Once the standard Terminal Sense platform suite is installed and information gathering proceeds this allows the implementation of Equipment Costing Systems, Advanced Resource Planning (demand versus available supply), Direct Cost and Contribution reporting, by using Activity Based Management.

KEY BENEFITS

1. Standardised Processes: Each module is optimised for functions such as Operations, Engineering, Labour, Commercial, delivering full insight requirements for a 'standard best practice' operation, integrating all relevant data sets across TOS, EMS, HR, CRM, and manual data sources. Process owners can review, refine, and document standard operating procedure across Berth Planning, Vessel and Yard Planning, and Shift Operations.
2. Insight Driven innovations: The modules empower stakeholders to review current performance enabling root cause analysis and so eliciting opportunities for functional process improvement initiatives. The initiatives can be prioritised for adoption, improving overall functional outcome.
3. Process Excellence: The repetitive standard processes can be easily rolled out across functional roles using relevant information for progress monitoring, review and autonomous coordination and collaboration, achieving consistent and sustainable improvement in process outcomes.
4. Performance Driven Winning Culture: The continuous use of information by employees to perform their day-to-day activities, and the clear and direct impact of this on productivity and efficiency improvement, breeds a performance driven culture across the organisation.
5. Improved operational reputation: A continuous and sustained improvement in operations creates a positive image of the terminal among its partners, stakeholders, and prospective employees.
6. Port of Choice for Shipping Lines: A Port with consistently high performing operations enables commercial management to leverage the port location to gain long term competitive advantage.
7. Increased Shareholder return: The cost of sales will continue to be optimised during the process improvement journey delivering attractive returns to shareholders.

ABOUT THE AUTHORS

Maurice Winn is a Co-Founder and Chairman of Infolayer Ltd with 30+ years' experience in the Ports and Terminals business. Maurice joined with Jeyachandran (JC) Kasimani in 2014 to establish Infolayer Ltd with the aim of utilising their joint knowledge and deep domain expertise to capture and use the huge volumes of data gathered in the port industry to rationalise and improve their performance.

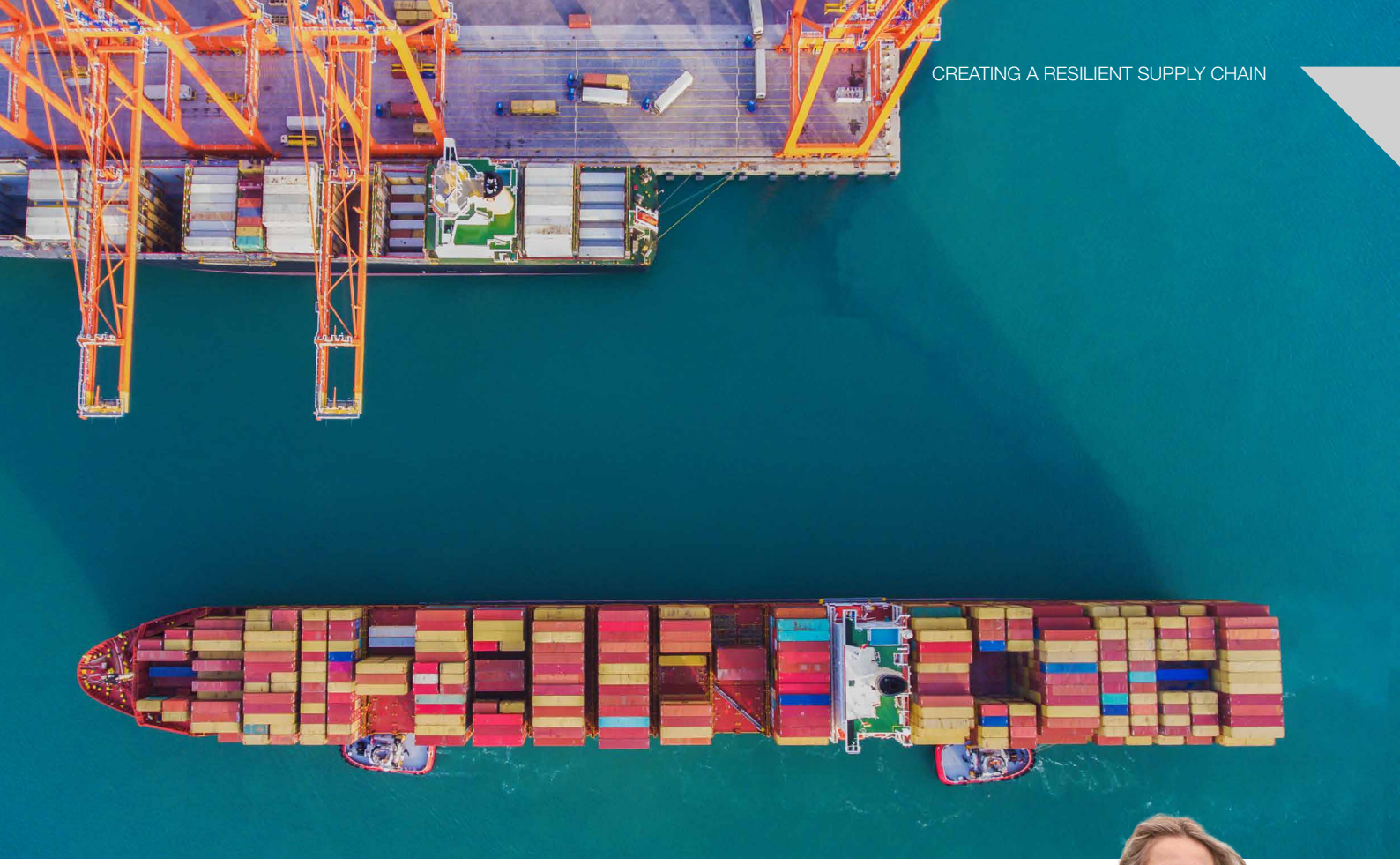
Jayachandran (JC) Kasimani is the Founder and CEO of Infolayer Limited and a data & insights specialist for over 20 years across Ports & Terminal, Logistics & Transportation, Manufacturing & Financial Services sectors. At Infolayer, JC is leading the Data & Insights Platform/Solution strategy & professional services delivery. JC and his team are working closely with clients to conceptualise and deliver data & insight platforms (BI in a Box) along with key accelerators to democratise both data and analytics as well as empowering their employees to increasingly rely on insight driven management decisions to drive performance and growth.

ABOUT THE ORGANISATION

Infolayer Ltd are a UK based data analytics specialist with deep domain expertise across Ports & Terminals, Shipping, Logistics and Energy. We offer and configure (in weeks) Insight platforms (BI in a BOX) and innovative solutions, which deliver real-time data driven actionable insights, enabling clients to focus on improving process and business performance within Operations, Engineering, Labour, Commercial and Finance of any organisation.

Our proprietary **TerminalSENSE** offering provides end-to-end terminal performance insights with rapid time to market advantage, enabling cross terminal operational transparency, performance improvement, cost optimisation and revenue/margin enhancement for Ports & Terminal Sector.

We work closely with each client to ensure staff enablement continues the improvement process and we support each community along the journey.



PORTXCHANGE: LESSONS LEARNED AND THE JOURNEY AHEAD

Interview with Dita Bruijn, Director of Operations, PortXchange

As PortXchange concludes pilots of its optimisation solution in Algeciras and Houston, it is inviting other groups interested in port call optimisation to join the club. The platform has been built and tested in Rotterdam and then trialled in other ports by different parties.

Speaking to PTI, Dita Bruijn, Director of Operations, PortXchange, described some of the lessons that have been learned since it was established in 2019.

"Every port and even every terminal in a port is different and has a different operational process to a certain extent," Bruijn said.

"By now, we have dealt with many different flavours and we can say our platform is port agnostic yet able to adapt to local business rules and processes. For example, we know the role an agent plays can vary per port or carrier.

"In order to help facilitate the right information at the right moment to the carrier and agent, it is important to know who does what and when.

"Despite the lessons we learned in the past three years working in this domain, we always start a project with an open mind and a decent diagnosis of the situation to make sure the solution we implement is fit and will lead to the desired impact. We don't know and don't assume how things work locally and tailor the platform to the port community."

PortXchange provides digital solutions to optimise operations and reduce emissions from the shipping industry. After success in Rotterdam, PortXchange was launched in the ports of Felixstowe, Moerdijk, Algeciras, and Houston. Trusted by industry leaders worldwide to optimise over 100,000 port calls.

On the development of PortXchange Bruijn acknowledged that she and her team knew that it would not be a "fast and easy ride". PortXchange itself was borne

"NEXT FOR PORTXCHANGE IS A MORE GLOBAL DEPLOYMENT OF THE PLATFORM BASED ON THE GOOD RESULTS AND LEARNINGS FROM THESE DIFFERENT TRIALS."

out of a project (PRONTO) initiated by the maritime industry.

"We base ourselves on the communication standards from the industry and Just-in-Time (JIT) arrivals is highly recommended by the International Maritime Organization (IMO). We developed our platform together with many others in the industry.

"And when we took PortXchange beyond the borders of the Port of Rotterdam we had two launching customers being Shell and Maersk. In other words; the industry is getting ready for this and we can only hope the adoption speed will continue to accelerate."

EXPANDING BEYOND CONTAINERS

PortXchange is also now looking beyond container shipping and is beginning to target the bulk and liquid bulk markets. When asked why this may be of interest, Bruijn said, "Because we look at the port and shipping industry as an eco-system, in which specific trades cannot be isolated to optimise."

The only way to make shipping cleaner and more efficient is to optimise port calls for all trades, she explained.

"A container vessel may very well depend on a bulk vessel for its departure from the port. The majority of the experience of PortXchange has been on the container side of the industry, which makes the platform very fit for container carriers, terminals, etc..

"In bulk we have less experience but the same ambition, we are learning - together with the industry - how to optimise bulk port calls and achieve just in time arrival which operationally, commercially and contractually just works very differently in the bulk trade."

As PortXchange looks to conquer the bulk shipping industry, Bruijn said that some of the learnings in that sector turn out to be great improvements for the container side of the platform also.

"We are never done learning and improving, we take input from every project we do and every customer we work with even though we see that with every project we do we are faster at building the platform with the community and reaching impact," she said.

THE CASE FOR ECO-EFFICIENCY

In addition, JIT arrivals can make a big impact on a global scale, Bruijn said, before claiming that should become part of the business case for port call optimisation.

"The supply chain is connecting the world and putting 1.1 billion tonnes of CO2 into our atmosphere each year. If shipping on its own were a country, it would represent more emissions than the whole of Germany in a year.

"I strongly believe we have to use the knowledge and technology we have available to us in 2021 to reduce emissions in any way we can and we know JIT arrivals could make a big impact on a global scale."

She noted that if an entire sector were to decide not to embark on the JIT concept it would result in a huge lost potential for cutting emissions.

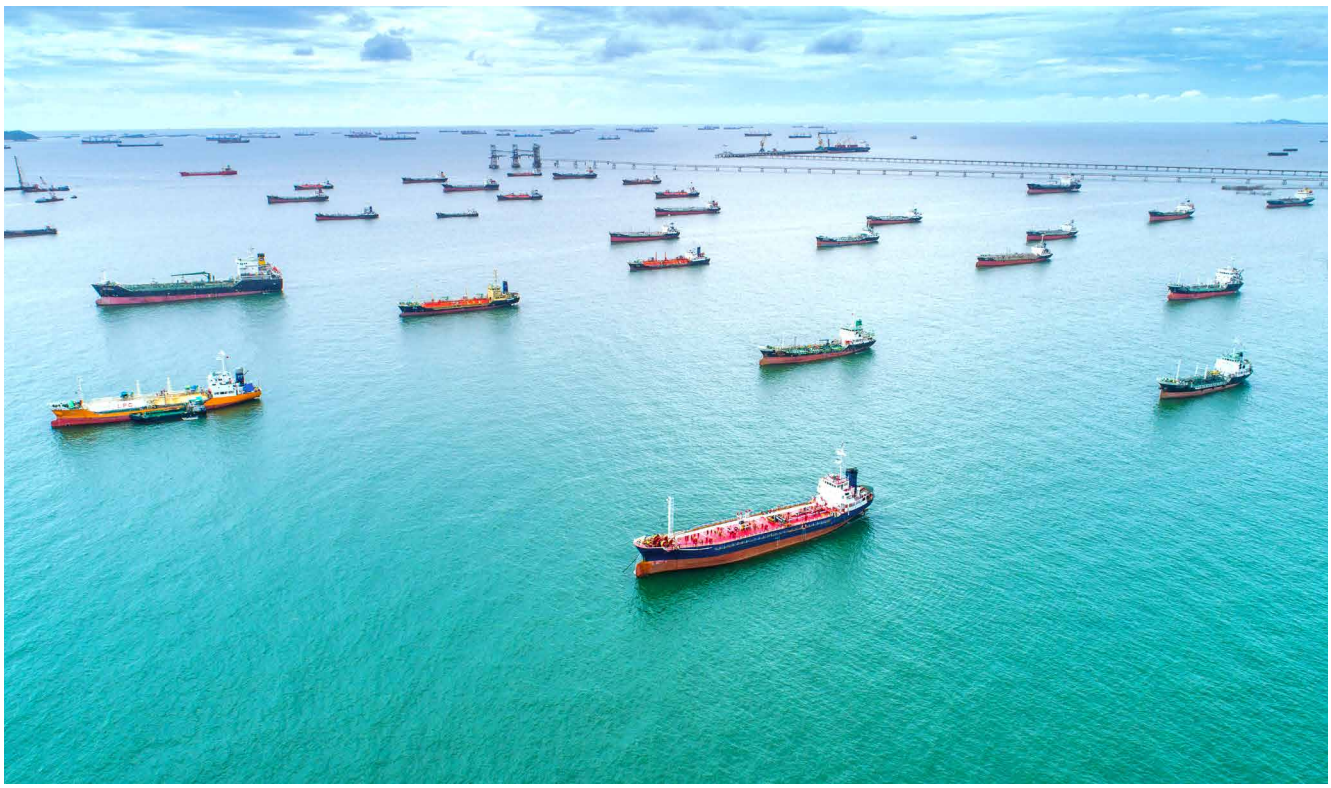
"We truly hope that GHG becomes a part of business cases just like money is on the very short term, so that all factors are taken into consideration when deciding to let a vessel speed up to a port and then wait. JIT arrivals is a low hanging fruit when it comes to measures that can be taken to make shipping greener, yet it is a digital transformation.

"You need communication standards, APIs or other ways to send your data and most importantly: you need to collaborate with other organisations. PortXchange is an impact driven organisation that wants to facilitate this collaboration and digital transformation organisations will need to make."

Looking ahead there are plenty more trials ongoing with PortXchange and the organisation is looking to get more maritime stakeholders on board.

"Next for PortXchange is a more global deployment of the platform based on the good results and learnings from these different trials. In 2021, we will move from doing trials, to doing regular onboardings of ports and parties to increase the impact," Bruijn, told PTI.

"We cannot disclose any names yet as the details are being finalised, but we do invite parties interested in port call optimisation to let us know so they can become part of the "coalitions of the willing" for pushing innovation and reducing emissions in the industry," she said.



PORT CALL OPTIMISATION: A PORT AUTHORITY'S POINT OF VIEW

Dr. Francisco de los Santos, Chief Information & Innovation Officer, the Port of Algeciras

Port authorities should embrace technology and strive to become ecosystem orchestrators, fostering cooperation, improving efficiencies and boosting sustainability as a result.

Managing the port call process, coordination among all parties involved is crucial. There are multiple actors involved in the process — the terminal, pilots, port authority, maritime authority, stevedores, shipping lines and others. Coordinating so many parties has in the past, been challenging. Over the past decade, however, we have seen technology make an enormous contribution to improving port call efficiency in this respect.

Technology is now able to provide us with more data and numerous ways to be more effective in the operational coordination or the synchronisation of the various actors involved. This is not only the case insofar as operational processes go, but also in terms of the exchange of data, our ability to check important information, in order to reduce idle time, reduce waiting times, and have more situational awareness, resulting in safer management of large vessels entering or departing a port.

In addition to increasing the operational efficiency of the port call process, we have also implemented new methods to improve port-to-port connection within the global maritime logistic chain and are gradually improving further upon that goal. In these ways, innovative technological tools are helping us to avoid or reduce emissions. The challenge we face, however, is that there are numerous legacy processes to look at anew and many actors from whom we need to seek consensus, in order to coordinate the whole global ecosystem.

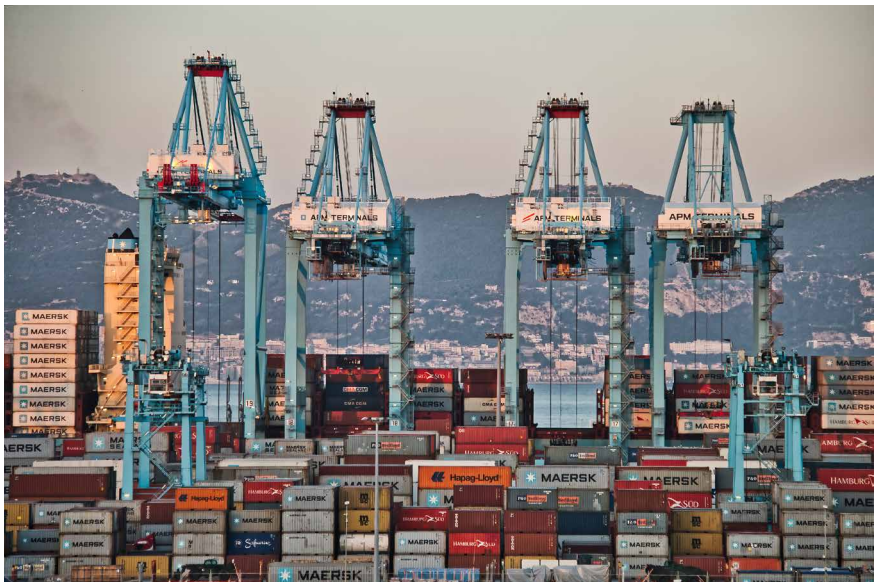
SPEAKING THE SAME LANGUAGE

The first step in achieving that aim was developing a common language, with the standardisation of data and a common view of the business process, agreed by all stakeholders. That was essential, before we could then begin to apply technology to the process. We have come a long way in the past ten years in areas such as real-time communications and algorithms that allow us to more accurately forecast arrivals or departures. Today, technology of this sort allows us to be far more synchronised, coordinated, safer and efficient than we were even just a few years ago. The ultimate result is a more sustainable maritime supply chain.

The collaboration between Port of Algeciras and PortXchange has helped us take great strides in this regard. With the user-friendly PortXchange technology platform and the company's ongoing guidance in its adoption, we are no longer operating on the basis of opinions and conjecture. Instead, making verified data accessible

to each of the various actors involved, we are empowered to make better informed and strategic port call decisions. As a consequence of this improved accuracy and transparency, providing a consolidated and integrated view of port planning data within one central point of truth, vessels' idle and waiting times can be substantially reduced.

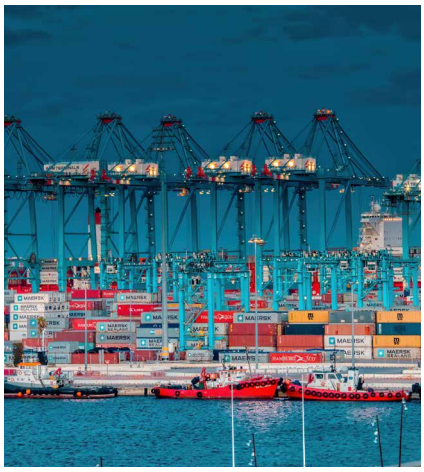
One of our main objectives at Algeciras Port is to eliminate waste within port operations. In pursuing operational excellence, our intention is that idle and waiting time on arrival and departure should tend to zero. To that end, we envisage that the collaboration with PortXchange and the implementation of the tech platform in our port community — offering a real democratisation of data — could help to reduce waiting and idle time, achieve a better utilisation of port assets, and minimise emissions of CO2 and NOX.



CONSIDERING INNOVATION

Embracing innovative tech with the aim of improving service has been an ongoing process for the Port of Algeciras. In 2014, we implemented the Algeciras BrainPort 2020 programme, with the aim of becoming a 'next generation' port — more competitive, intelligent and sustainable. This program, at its core, focuses upon the continuous development of a robust digital ecosystem for orchestrating port operations, maximising the impact of innovation projects throughout the port community, and by considering innovation as a core business process.

Indeed, we have worked hard to consolidate a culture of innovation within this organisation. In recent years, we have collaborated with around 40 start-ups and tech companies, one of the most significant collaborations being with PortXchange. It was fulfilling when the open innovation program that we have pursued, focused on encouraging start-ups to collaborate and co-create the next generation Algeciras Port, was recognised by the ESPO award in 2020.



It is too soon to cite figures evidencing the success of the initiatives we have put in place at Algeciras Port in the past few years, but suffice to say, we can clearly see a positive impact. For example, our goal is to reduce idle and waiting times for vessels calling our Port and improving it year by year — we are monitoring the idle time on arrival and departure per port call and have observed marked improvements in the container sector. Naturally, there is still an adaptation period to become familiarised with a new digital tool for port planning and execution, and to adjust port procedures and manoeuvres. At this stage, however, all signs are positive and we are confident of a good return on investment.

At the Port of Algeciras, we are not pursuing a philosophy of innovation and collaboration with forward-thinking start-ups because it is fashionable to become modern. From the most pragmatic standpoint, we do it because we believe this is the surest route to remaining competitive in the sector, to differentiate our offering in terms of the quality of service and to do so in a sustainable way. But we do possess other, more altruistic motivations as well.

This industry is famously resistant to change, which presents challenges for individuals in a role such as mine, devoted to exploring new technological solutions and innovative ideas. Nevertheless, it is imperative that we continue to seek inventive answers to the problems that have long beset shipping — not least, inefficiencies in the port call process. Above and beyond improving our businesses' bottom lines, our goal must be to leave a better planet for our children, for the next generations. With effort, cooperation and the right mindset, that is possible.

"WE HAVE WORKED HARD TO CONSOLIDATE A CULTURE OF INNOVATION WITHIN THIS ORGANISATION."

ABOUT THE AUTHOR

Dr. Francisco de los Santos is Chief Information and Innovation Officer at Algeciras Port Authority. His main responsibility is to lead the digital transformation of Algeciras Port and consolidate Innovation as a core business process. He holds an MSc in Civil Engineering, an Executive Master in Telecom Management and IT, a PhD in Port Engineering, and an Executive MBA from IESE Business School.

ABOUT THE ORGANISATION

Algeciras Port Authority, located at the Strait of Gibraltar, is the first Spanish and fourth European port in terms of total cargo. With more than 110,000 ships/year crossing the Strait of Gibraltar and 7,500 ha of deep and sheltered waters, Algeciras is promoting a one-stop-shop port concept for vessel services (bunkering, repairs, ship supplies and others).

PORT OF GDANSK DISCUSSES GROWTH THROUGH COOPERATION AND INVESTMENT

Interview with Lukasz Greinke, CEO, Port of Gdansk Authority

The Port of Gdansk, one of the largest seaports on the Baltic Sea, is stepping up infrastructure development, growth and connectivity.

The Port has recently announced over €1.3 billion ($1.58 billion) in infrastructure projects set to be completed in 2021.

PTI spoke to Lukasz Greinke, CEO of the Port of Gdańsk Authority, about the Port's overall growth path from the container terminal, DCT Gdansk, to rail and road investment.

At the end of 2020, the Port announced that it expected to handle more than 48 million tonnes of cargo in 2020, this despite the disruption to global trade caused by the COVID-19 crisis.

The performance means the Port of Gdansk has broken into the top 20 biggest ports in Europe for the first time ahead of Genoa and Dunkirk, which Greinke said was the Port's greatest achievement of 2020.

"Investment and cooperation" are the two words Greinke chose to describe how the Port achieved a successful 2020 in the face of unique challenges.

"We know we are not an easy company to understand because we have a lot of different types of cargoes and businesses. We know that we should work with our stevedoring companies, with our operators as one team. That's very important for us," Greinke said.

"Through our investment we try to give these businesses the opportunity to be more competitive in the sea markets."

When considering investment Greinke said he personally tries to have a good understanding of the business case presented by each company "because they are all different and we should support and understand this".

HUB FOR THE BALTIC

Greinke said that across the entire Port he observed that some of the smaller terminals were more affective at reacting to the pandemic compared with some of the larger terminals, container and crude oil, which are much more reliant on the worldwide logistics chain.

However, this appears as a short-term issue and Greinke sees potential for growth in the container terminal.

Development of the container terminal has been ongoing since 2007 when DCT Gdansk built the new terminal, T1.

"DCT was a very good opportunity for the port to create something new, like a big hub

in the Baltic Sea which can support the biggest ships in the world," he said.

In 2016 DCT Gdansk completed the second terminal, T2, and right now more than 600 vessels per year enter DCT Gdansk, according to Greinke.

"I think there is still a lot of space to create new volume, especially in transshipment because we have observed that a lot of transshipment are still dealing with ports like Rotterdam and Hamburg, there is a lot of space here in the Baltic Sea."

Greinke also noted that in December 2019 the container terminal doubled its capacity from 1.5 million TEU to 3 million TEU.

A new phase of expansion has now begun at DCT as there is a new investment plot of around 6.5 acres. Which will be used to develop a new storage yard and office buildings.

"As a Port Authority we are trying to implement a new road and rail system in the vicinity of DCT Gdansk, this also supports the City of Gdansk. As I said, the cooperation is an absolute must and is most important in this business."

ROAD AND RAIL TRANSPORT CORRIDORS

Road and rail are high on this list of investments for the port and one of the many projects set for completion in 2021 is the €163 million ($198 million) extension and modernisation of the road and rail network at the Outer Port.

In total it will see 7.2 km of roads, 10 km of new rail tracks and seven engineering structures built or rebuilt.

"In my opinion we are so attractive because of our location and that we should create a new logistics chain. This is because of our short-sea connection with England, Sweden, and the North of Europe. Therefore, we should create a natural connection between the Middle East and Turkey to Poland and onwards to England and Scandinavia," he explained.

The Port Authority has observed a lot of rural cargo flowing between Turkey and the key markets in England and Scandinavia, by using rail and short sea routes the Port is looking to eliminate the heavy usage of trucks.

"This means the delivery costs will be much cheaper than when roads are used," Greinke said.

In addition, in 2020 the Port of Gdansk signed a letter of intent with the Ukrainian Sea Ports Authority to open up a new alternative transport corridor between the Black Sea and the Baltic.

A working group has already been established to promote the new 'Black Sea to the Baltic' route with a focus on transporting container cargo by rail between Gdansk and primarily Odessa, Ukraine's biggest port.

The route will be supported by freight forwarding companies, as well as the customs services of Ukraine and Poland. This will ensure the smooth movement of trains at the border points.

DIGITALISATION AND TECHNOLOGY IN FOCUS

As one of the most important Ports for the Polish economy the Port of Gdansk established a Polish Port Community System (PCS) company in 2017.

"They are responsible for creating the port community system for Polish Ports. This is absolutely one of the most important things for me because I know how important innovation in logistics are because we still need some exchange tools that we will used to build an efficient supply chain," Greinke said.

He explained that the Port had a lot of proposals from other ports in terms of developing a PCS, including the Port of Rotterdam which has successfully exported its PCS technology to others including PD Ports in the UK.

"We decided to create our own and I think this was a good decision. Right now, we are in the first phases of implementation and testing."

One of the most important elements of the PCS for Gdansk is to speed up the likes of customs processes by eliminating paper documentation.

What's next?

Having reached the goal of achieving a place in the top 20 European ports, Greinke said it was important for the Port Authority not to slow down its investment.

"The most important thing for us is to complete some of the largest projects which are linked with the Connecting Europe Facility (CEF) funds.

"This is most important because we are replacing more than 500km of quays in our ports alongside the new rail and road systems."

In total, Inner Port investment is valued at €125 million ($150.6 million) and is focused on the modernisation of the fairway as well as the expansion of quays and the improvement of navigation conditions in the Inner Port.

The reconstruction of the Dworzec Drzewny Quay is a project valued at more than €43 million ($52 million) and will enable the port to receive large ships.

All of the investment projects are leading to the ultimate goal of handling more cargo at the port across all sectors.

"I think in the next two to four years we should cross the 60 million tonnes mark for cargo," Greinke said.

Written by Beth Maundrill

"COOPERATION IS AN ABSOLUTE MUST AND IS MOST IMPORTANT IN THIS BUSINESS."