

The background of the entire page is a vibrant blue digital landscape. It features a dense array of binary code (0s and 1s) in a lighter blue hue, overlaid on a pattern of glowing fiber optic cables that create a sense of depth and perspective, receding into the distance.

DIGITAL REPORT

PORT OF HAMBURG
MAGAZINE 1.16

Dear Readers,



digitalization is very rapidly generating a host of changes for operating and working. This involves great advantages, but also tremendous challenges that need to be mastered. Digital networking in Hamburg, now fast becoming a digital city, arrived

long ago in Germany's largest port. In this issue of Port of Hamburg Magazine you can learn more about some examples, also the prospects for the port in particular from digital intermeshing of complete added value chains in maritime logistics. Which examples of digitalization from the city and the port have already been implemented and what will shortly be confronting us in the way of innovative projects? Can the digital port also make a contribution to more efficient traffic control for port services on land and water? What opportunities does 'Industry 4.0' offer for optimizing the logistics of a world port like Hamburg? Can it successfully position itself internationally in this field as the leading smartPORT? We wish you an enjoyable read – and maybe you will pick up a bright idea for your own digital logistics processes?

A handwritten signature in blue ink, appearing to read 'Axel Mattern'.

Axel Mattern

A handwritten signature in blue ink, appearing to read 'Ingo Egloff'.

Ingo Egloff



**DIGITAL NETWORKING IN HAMBURG ARRIVED LONG
AGO IN GERMANY'S LARGEST PORT.**

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"EIN STARKER VERBUND NORDDEUTSCHER HÄFEN UND TERMINALS IN DER METROPOLREGION HAMBURG"



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“Changes through digitalization will affect all areas of life”

INTERVIEW



Dr Rolf Böisinger, Under-Secretary of State, Hamburg Senate.

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With Hamburg as a digital city, its citizens and businesses, as well as whole industries and branches of the economy, will profit from continuing, cutting-edge technologies. From your point of view, which are the most important projects producing the greatest benefits?

Changes through digitalization will affect all areas of life. If cleverly implemented, the net result will be an increase in our prosperity. To promote and accompany this development and to make it beneficial for citizens and companies alike, at the beginning of 2015 Hamburg's Senate approved the Digital City strategy. The goal is to harness the many different processes in digitalization to improve the citizens' quality of life

and to further boost economic performance and power of innovation in Hamburg companies.

Digitalization is altering trading and working at a similar tempo and comparable radius as the industrial revolution did in its day. Its complex challenges cannot to their full extent be wholly met by single firms, but require cooperation between the worlds of business, science and politics.

Business in Hamburg is offered the chance of using the new opportunities for digital re-shaping of the value added process, cf. Industry 4.0, to improve the quality of its products, to reduce costs and to make innovations, consolidating and extending its

competitive position. Since digitalization processes will shape industry for good, Industry 4.0 and 3D Printing are themes that involve special innovative potential for Hamburg. Major changes will occur in our production methods, operating and working.

Which digitalization processes have actually been implemented in Hamburg?

Among other moves in Hamburg, we have founded the 'Hamburg Dialogue Platform Industry 4.0'. More than 100 companies, trade associations and universities are involved. The goal is to analyse Industry 4.0's potentials for Hamburg, to boost Hamburg research in this field, to create a network for interchange & cooperation, also to increase interest in Industry 4.0 among Hamburg companies, especially in the Mittelstand. The idea is to achieve greater use of Industry 4.0's innovative applications.

In this context, the topic of 3D Printing has also gained in importance. In many fields 3D Printing is already sufficiently mature technologically and commercially to be applied. It can be expected to achieve penetration of everyday production techniques, especially in the Mittelstand and with carpenters, electricians, plumbers and other trades. As a cross-sectoral technology, 3D Printing is of great importance in numerous fields, among them the automotive, medical and aerospace industries.

To further develop Industry 4.0 and 3D Printing as topics jointly with our partners from the worlds of business and science in Hamburg, we shall make both firm features of our Masterplan for Industry. Being particularly committed to these two topics, I was happy to make myself available as the Hamburg Senate's coordinator and point of contact for Industry 4.0 and 3D Printing.

Do you have any new projects in the pipeline?

The topics Industry 4.0 and 3D Printing involve special innovative potential for Hamburg, since digitalization processes will shape industry permanently, and major changes will occur in our production methods, operating and working.

Under Industry 4.0, new business models will be created that make software competence and know-how on digital technologies crucial for success. Intelligent recording and evaluation of data offers companies fresh opportunities of offering customers products tailor-made to meet their requirements. This applies equally to start-ups, small/medium-sized companies and major groups.

We are splendidly marshalled in our clusters. These are all addressing topics for the future. Along with Airbus, our Laser Centre North was nominated for the President of Germany's Future Prize. And even if it did not take the prize, it was rightly admitted to the Club of the Best. One important aim is to assemble research/science-based topics and undertakings at one location, in what are known as technology parks. What has been achieved at DESY in Bahrenfeld, Finkenwerder-based ZAL in the aerospace field, Bergedorf in connection with the energy turnaround, and those close to Hamburg-Harburg Technical University, is exemplary here.

Where would you place Hamburg for digitalization by comparison with other conurbations? More of a pioneer, or an also-ran?

I don't believe that a glance at rankings will help us to address the manifold questions about digital transformation professionally. Many cities in Germany are taking the topic of digitalization extremely seriously. Yet the related topic fields are extremely varied and how far individual cities have made progress in these therefore differs. On eGovernment, for example, Hamburg is accorded a very good position on a Federal comparison, while digitalization of the Port of Hamburg has won international respect. With the Port of Hamburg unable to expand without limits yet needing to deal with growing volumes and determined to do so, the Hamburg Port Authority made a timely start on working to boost efficiency with innovative solutions.

In the Hamburg logistics sector, it is primarily the large groups with international operations that are already far out ahead. We want to give more support in future to the small and medium-sized companies. In general, Hamburg has no need to be shy. We

INTERVIEW

would nevertheless do well to watch out for sectors in which other cities are possibly already further advanced.

Which are the most striking changes – positive and perhaps even negative as well – that new technologies and digital processes have in store for the Hamburg logistics sector?

New technologies and growing data availability will boost the significance of logistics as an interface function. Innovations such as 3D-printing will make production more individualized and localized, while the intermeshing of IT systems allows more rapid, paperless freight clearance, and autonomous vehicle technologies will improve warehouse efficiency and safety. This will bring change in established added value chains and business models, posing the challenge for people in logistics to find appropriate ways for their companies to be able to survive in changing competition. At the same time, digitalization will bring new solutions and fields of business, offering com-

.....
“For such a top logistics location as Hamburg it is absolutely essential that companies can achieve maximum reliability in planning their transport chains.”

panies scope for further development and creating favourable conditions for technology-oriented start-ups. Especially in the e-Commerce field, currently growing fast, I see as yet unexploited potential.

As with any topics, there are two sides to the coin on digitalization and growing transparency. What threats can digitalization involve and how is Hamburg equipping itself against these?

We should not be conducting abstruse debates about possibly threatening scenarios. Instead, in Hamburg we aim to indicate quite plainly how we are dealing with the opportunities and risks of social and technological processes of change. In cooperation with external IT providers, for example, Hamburg’s Senate is seeking maximum feasible data protection. This could involve those receiving contracts from the city being obliged under a ‘No-Spy clause’ to maintain a special degree of confidentiality, secrecy and data protection. As for transparency, Hamburg has already put down

a clear marker for the openness of its administration with its Transparency Act.

In our economic policy, we need to take the potential for change of disruptive, digitalization-powered business models seriously. At an economically strong base such as Hamburg, which can fortunately field numerous established and successful firms, this is not always a matter of a striking business idea cooked up by a young start-up company in the proverbial garage. Naturally a start-up culture is of immense importance nowadays, yet we need to remember the need to create a framework in which the successful business models of established firms can further pursue digitalization in steps that foster evolution, rather than evolution plus disruption. With its short distances, heavy networking of participants in the local economy and mature competence on IT and B2B solutions, Hamburg offers very good conditions.

How will Industry 4.0 influence freight and transport flows?

From our point of view, digitalization offers immense potential in the transport field. The topic of Intelligent Transport Systems (ITS) will therefore play an increasingly important part. For such a top logistics location as Hamburg it is absolutely essential that companies can achieve maximum reliability in planning their transport chains. Of elementary importance for that are as up-to-the-minute and varied data as possible on the availability of transport routes and the traffic situation, and on alternatives in terms of timing and location. A proper infrastructure and a range of services catering for this can represent a decisive competitive advantage. We have therefore set ourselves the task of achieving a great deal in Hamburg in the next few years. Among the first steps completed have been projects under the umbrella of smartPORT logistics. In the area of digital traffic and transport solutions, the HPA and such IT firms as DAKOSY are setting a fine example. We aim to follow suit.

We want to give a trial in the port to initial pilot projects in the automated driving field. One concerns an automated truck, another mini-buses for conveying passengers. In the start phase both these will naturally only be conducted in the presence of a trained driver able to intervene where required. The goal will remain automated driving.

Enormous quantities of data are already available. Given the opportunities of digitalization, total data volume will grow further. We want to utilize this data to the full. The HPA is therefore tackling its first Big Data projects.

Patterns are being recognized and evaluated analytically. Especially in traffic management, covering all modes of transport, i.e., waterway, road and rail, as well as their intermodal hubs, we can expect positive impacts. Timely recognition of traffic patterns will enable peaks to be defused and counter-measures to prevent the formation of bottlenecks in good time. This will result in traffic jams being avoided.

Let’s take ISETEC. After ISETEC I and II, work is in progress on a third version of the “Innovative

Seaport Technologies” research initiative. What real opportunities do you see for Hamburg?

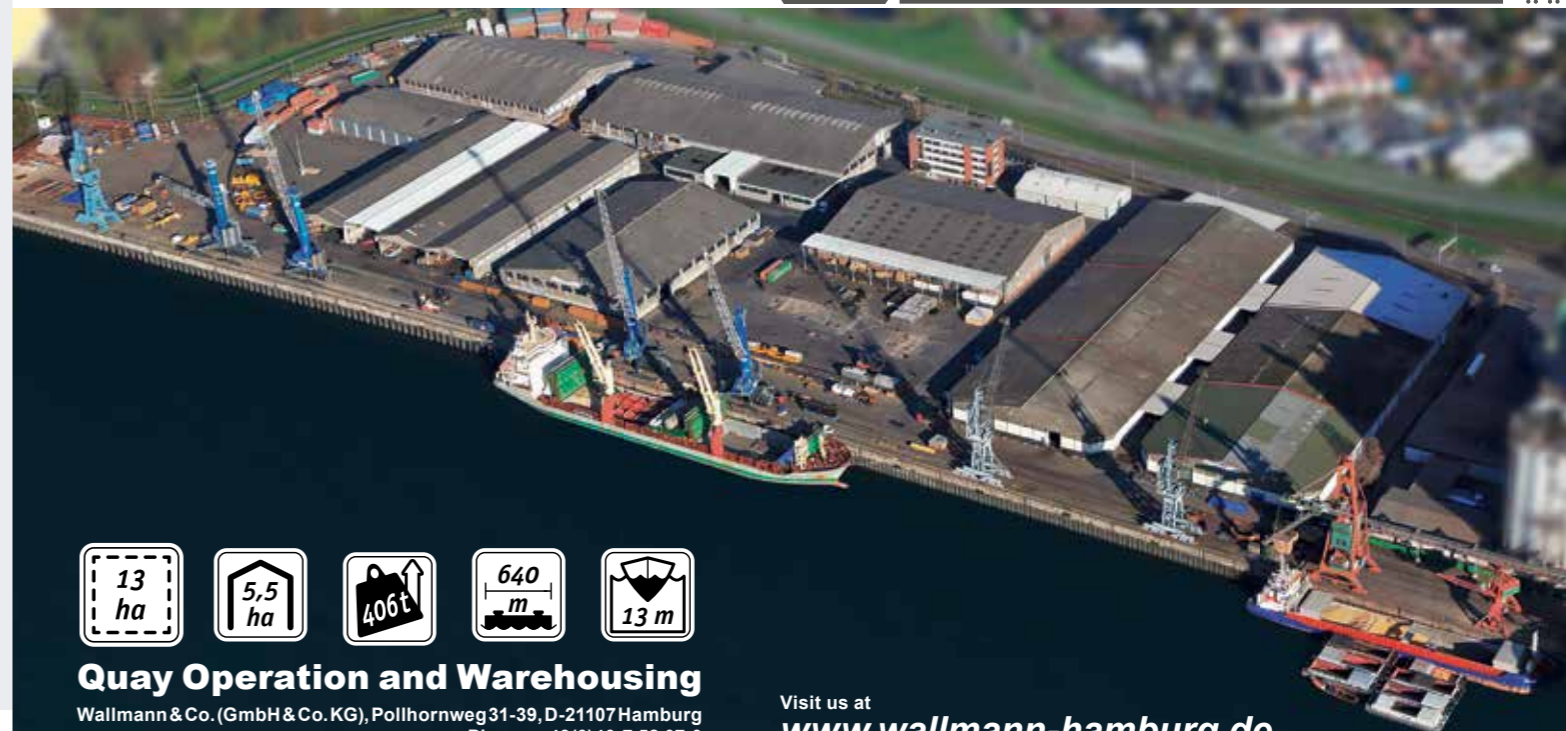
In Hamburg we have already implemented a few projects for the digitalization of the port under the heading ‘smartPORT’. In addition, some companies in the port have also worked actively on innovations that aim to improve port operation by using new technologies. Some of these projects have been supported by ISETEC II. Hamburg therefore welcomes the continuation of the ISETEC program. Which opportunities arise from the third stage for Hamburg will depend on how the German Ministry of Transport and Innovation actually runs the research initiative and the interest displayed by players in the port. I see one special opportunity in the supra-organisational coop-

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INTERVIEW

eration that is often backed up by research initiatives and does a lot to promote innovation.

Which needs are you aware of in trade and industry in Hamburg? Which technologies are in demand, yet have perhaps not yet been developed at all?

Technical possibilities are growing faster than any willingness to organize in the logistics sector. Today, for instance digitalization often means digitalization of paper documents. Existing structures are being transferred into the new world. Some companies have already finished with 'Digitalization 1.0'. In future digitalization will no longer proceed in 'digital garb' via old structures, but via data. A New World is arriving with new data-shaped dynamics.

One data-technological requirement of this world, for example, is a data hub covering the IT systems of all the participants and carrying user-specific portraits of all the players involved in the transport chain in the Port of Hamburg.

Fundamentally we shall be seeing far more sensors incorporated into both the overall infrastructure and the carriers. Infrastructure and carriers will be communicating independently with one another via data interchange. Sets of rail points will automatically report of their own accord, whenever they require maintenance, mobile elements of infrastructure element will communicate with ships and, where appropriate, duration of 'traffic jams' and diversions will be displayed on navigating equipment. So more sensors will facilitate an efficiency bonus for all players here.

How can Hamburg promote further technological development? Do companies have any possibility for receiving support from the Hamburg Ministry of Economics, Transport and Innovation?

We are naturally supporting business in Hamburg on further technological development. In the era of digital transformation great importance is once again being accorded to research & development. What is fundamentally desirable here is stronger coordination by Hamburg companies among themselves, and also more initiatives in this area. Digital networking – of the kind already started in the port, for example – can only flourish when networking is permitted

and all players recognize its benefits. The smartPORT initiative is just a start, yet we require more innovative germ cells of this kind.

Hamburg's bid to host the ITS (Intelligent Transport Systems) World Congress in 2021 will help to give a boost to technological development. Work will proceed here on innovative solutions for Hamburg, not just within the business community but also by public sector companies along with various players from private enterprises.

Let's get creative: Just 25 years ago, many of today's technologies were simply unimaginable. How does the digital future of the Port of Hamburg and the logistic sector look to you?

The combination of new technologies and exploitation of digital opportunities will undoubtedly make the Port of Hamburg and the logistics sector more sustainable and more secure. Harnessing of digital possibilities during maintenance processes will further



Dr Rolf Böisinger seen presenting a port plaque to Captain John Foster to mark the first call by the 'Regal Princess' in Hamburg on 30.4.2015.

increase. I also assume that data interchange in the port will be further digitalized and that the IT systems of the players will be compatible and networked in tomorrow's paperless logistics chain. The intelligent transport container will guarantee the pristine quality of the freight during the journey, and communicate its location to the next player in the supply chain. Via digital platforms, optimal utilization of containers, terminals, inland waterway and feederships, railcars and trucks will be ensured. Reliable forecasting of traffic and freight flows will prevent bottlenecks and waiting times from occurring and facilitate just-in-time delivery for terminals. For transport, moreover, environmentally-friendly propulsion consuming liquefied natural gas (LNG) will be employed, while for the 'last mile' freight bicycles will be deployed. Naturally the actual equipment to be used will depend on precisely which time frame we are considering.

Under-Secretary Dr. Böisinger

After performing various functions in the German Ministry of Employment and Social Affairs in Berlin between 2005 and 2012, Dr Rolf Böisinger, holder of a PhD in Economics, has worked for the Free and Hanseatic City of Hamburg since 2012. He was appointed Under-Secretary of State in the city's Ministry of Economics, Transport and Innovation in 2015.



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Digital technologies influence shipping, transport and logistics processes.



Digitalization Megatrend – Driving Innovation in Maritime Logistics

Digitalization undoubtedly counts among the megatrends of the 21st century. Mobile and Cloud Computing, Social Media, Internet of Things, Cyber-Physical Systems and Big Data Analytics are considered as the key technologies. These are creating a fundamental digital transformation process of our corporate lives and commercial action.

Logistics is one of the key fields for digital transformation. With the high level of interaction and multiplicity of interfaces between customers, service providers and authorities, logistics offers a wide spectrum of application for digital technologies. In maritime logistics there are exceptionally many partners involved in transport processes, generally spread internationally. On the one hand, there are

the long sea trade routes and the numerous variables impacting a voyage; on the other, limited port space, pressure for limited lay times and peaks in the logistics processes required. This creates a high demand for information and communication, as well as demands on logistics planning, controlling and timing processes. The potential for digitalization driving innovation is consequently very high. The fol-

lowing examples demonstrate the very promising potential for maritime logistics:

Big Data Analytics for Ships Arrivals

Big Data Analytics involves the registering, processing and evaluation of large quantities of data. Logistics planning, controlling and timing processes are considerably improved. Currently work is in progress on a mathematical forecasting model, based on AIS, weather, tide and concentration of sea traffic data to forecast the estimated time of a ship's arrival sooner and more precisely. Shipping industry service providers such as terminals, ships agents, tugboats, pilots and forwarders are then able to adjust their resource planning flexibly and in good time, e.g. when a ship's ETA changes because of weather influences.

Terminal Vehicles as Cyber-Physical Systems

The interaction of equipment, machines and vehicles with information, communication and automated technology and their integration in supra-systems leads to what are known as Cyber-Physical Systems. Terminal vehicles structured like this will in future be able to recognize each other, locate and communicate with each other. Such vehicles will, for example, agree among themselves to identify the vehicle best placed to carry out a storage move, based on their current locations. This will considerably increase the performance of the vehicles, reducing empty moves.

Connectivity and Intelligent Containers

Intermeshing information systems with mobile equipment and applications connects not only people, but in the future, above all interaction with 'things' too. A sea container, equipped with an RFID chip, locator, mobile radio, sensors (temperature, humidity, movement) and with computer capacity can become an intelligent container. With the intelligent container and the interaction of information systems of those involved in seagoing transport, the complete digitalization of globally in-

teractive, transparent transport chains will finally become possible.

Synchro-modality in Hinterland Transport

Synchro-modality consists of the idea, that based on real-time information, e.g. from intelligent containers, and via the availability of various modes of transport – truck, rail, inland waterway vessel – that the optimal means of transport and route combination can be chosen short-term within established parameters. Synchro-modality offers, among other advantages, an improvement in transport costs and full use of transport capacity, while keeping to delivery conditions.

In conclusion let it be said that, into the future, the digital transformation will lead to a major change in communication and mobility behaviour. It will provide great potential for improving the value-added chain, right through to creating entirely new business models. The various examples, from the Port of Hamburg too, demonstrate the scale of change and enormous opportunities that lie ahead for maritime logistics. ■



Prof Dr Carlos Jahn heads the Institute for Maritime Logistics at the Hamburg University of Technology and the Fraunhofer-Center for Maritime Logistics and Services in Hamburg.



Dr Sebastian Saxe, Member of the HPA Management Board and Chief Digital Officer, is responsible for the expansion and further development of HPA's IT landscape and is pressing ahead with HPA's digital transformation.

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Port of Hamburg as digital hub for modern transport chains

Many strands run together in Germany's largest universal port. Terminal operators, port service providers, shipping companies, logistics firms, parking facility operators, packers, forwarders, warehousing firms, tugboat operators and many other players need to coordinate their activities in the transport chain to function properly and the customers receive their cargoes at the right time. The better their cooperation, the more effective traffic and freight flows. Especially against the background of increasing volumes on hinterland services, for a transport hub like the Port of Hamburg digitalization is of ever-growing importance.

Dr Saxe, you are both Chief Information Officer and Chief Digital Officer for the Hamburg Port Authority (HPA) and are championing digitalization of the port. Parking facilities, traffic routes, bridges – one has a feeling that in Hamburg everything is becoming 'smart'. Why is that so important?

One of the main reasons why we in the Port of Hamburg have been so successful hitherto is the partner-

ship and cooperation between all the players: IT, logistics, and transport companies, terminals, official bodies and many others. This long-established community is extremely valuable and has a key function to perform in the forthcoming successful implementation of change through IT projects – since in the digitalization era we in the port alone can get nothing moving!

Global competition, massive pressure on costs and strong momentum are characteristic for the Port of

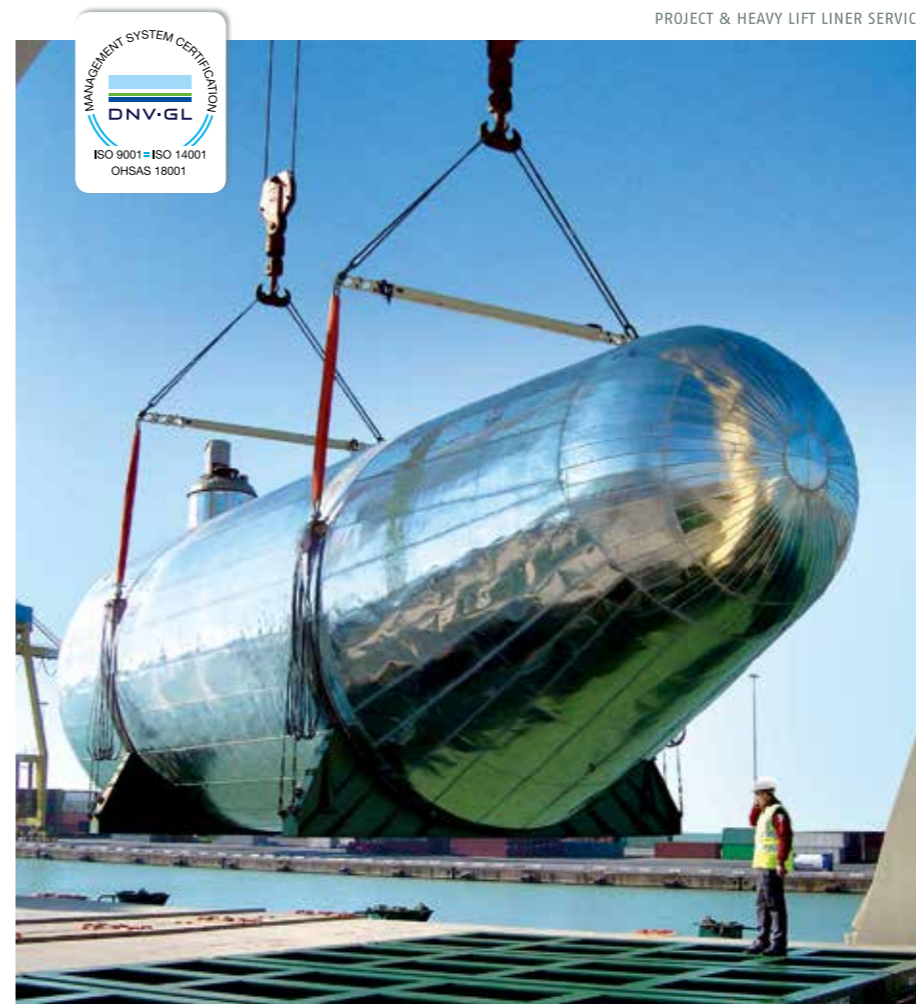
Hamburg's business environment. A growing volume of freight and rising passenger totals in cruise shipping are increasing pressure on the port's infrastructure, especially as space for port expansion is limited. Intelligent solutions from all players that permit smooth handling of increasing cargo throughput and traffic volume with the existing infrastructure are therefore needed. Digitalization, globalization's bed-fellow as a growing megatrend, offers opportunities here. That's why it is so essential that all partners in the port together become smarter and smarter.

So how digitally networked is the port already?

Back in 2010, the HPA already installed measuring points at the most important traffic intersections in the Port of Hamburg. Induction strips and detectors precisely measure traffic volume, vehicle type and speed. Our Port Road Management Center collects all system data on the current traffic situation on routes in the port. The IT-based data system uses cutting-edge technologies to equip itself to deliver rapid, reliable information. Yet all this is only the beginning of a comprehensive traffic management system in the port to cover all three modes of transport, road, rail and waterway.

On the way there, however, one needs to recall that digitalization starts in human heads and will usher in a new era. It's not for nothing that people talk of an Internet 4.0 – or fourth-generation Internet. What does that mean? In the 'IT world' we therefore need to be able to overcome our inhibitions, and realize that what was a good solution in the past, and maybe still remains so, may not be the solution for the future.

Thanks to their team approach, firms in the Port of Hamburg are way out ahead, now already operating digital processes and part-infrastructures. The future challenge posed by the mega-trends of digitalization and globalization involves enlarging the operational framework. This entails running IT systems and the related information/data interchange beyond company limits, i.e. not just organizing in-company, but pushing ahead with optimizing the transport chain in an all-inclusive system. We have embarked on this course in the port and first all-round systems/part-systems exist, e.g. the port community's DAKOSY system or the smartPORT logistics (SPL) app. These already facilitate fast and in part automated information interchange between transport partners. So the initial basis has already been laid for all-embracing communication.



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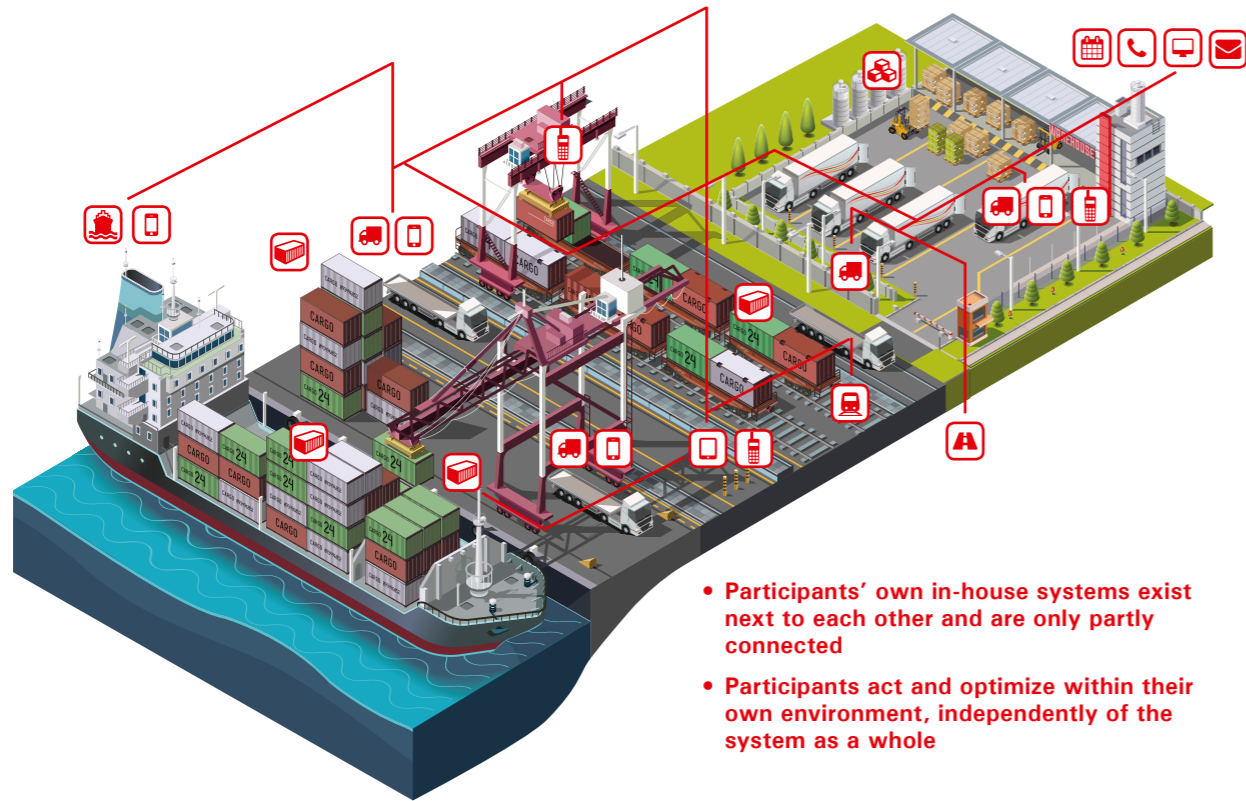
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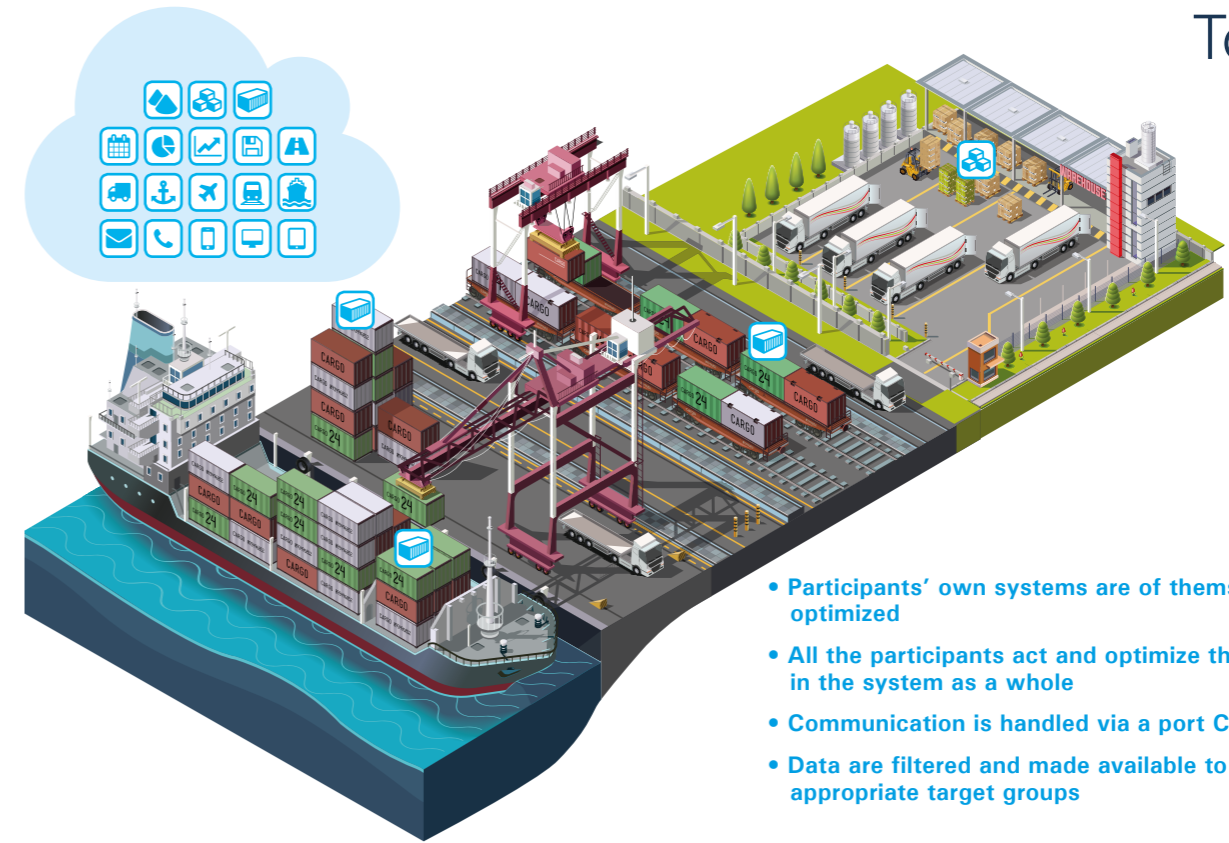
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Today:



- Participants' own in-house systems exist next to each other and are only partly connected
- Participants act and optimize within their own environment, independently of the system as a whole

Tomorrow:



- Participants' own systems are of themselves optimized
- All the participants act and optimize themselves in the system as a whole
- Communication is handled via a port Cloud
- Data are filtered and made available to the appropriate target groups

And which are the next steps essential on the way to an all-inclusive communications system?

In February this year, for example, compulsory booking of time windows for truck handling slots at container terminals was announced. In that context too, real-time notifications help to make planning simpler. Yet even here, an all-round approach makes sense, since reaction to disruptions can be required. Trucks arriving early or late at a terminal may need a suitable spot to wait. This too makes digitalization of parking areas essential if free spaces are to be notified. In addition precise routing in terms of destination and timing require timely awareness of the day's roadworks and of the truck's arrival time. This is just one example from digitalization plus 'Industry 4.0' that applies not just to all players and modes of transport. In general one can say that the more partners participate in interchange of information and data, the greater the benefit for each of them.

Which data can you already collect and make available to road users right now?

Sensors permit collection and evaluation of data on the traffic situation, also parking space availability and bridge closure times, and passed on to drivers and others, among other means by DIVA information panels in the port (DIVA - Dynamic Information Panels on Traffic in the Port of Hamburg) or via SPL. Sim-

ilar systems are also in place for rail and waterway traffic. The notifications generated can, where needed, provide aid in planning runs or show possible alternatives, e.g. with an alternative route or a parking space where waiting time can be spent.

How do you manage to sort this mass of data, spotting the consequences for traffic flow, for example?

Part of the answer is "Big Data", or spotting and interpreting samples within massive quantities of data in real time. The advance of digitalization will even further increase data volume. This needs to be exploited to the full. HPA is therefore already tackling its first Big Data projects. Special potential lies in traffic management for all modes of transport. By recognizing patterns at an early stage, traffic peaks can be unravelled and timely measures implemented to prevent occurrence of any bottlenecks.

In addition, HPA is testing approaches to business intelligence. Here again, this involves collating and visualizing different data. The aim is to be able to use data more effectively and to better spot development potential for the port. Data on seaborne cargo handling and ship movements, for instance, will be integrated in the system, and more precise analyses deduced. On the basis of growing availability of

...das **WICHTIGSTE** aus einer Hand.

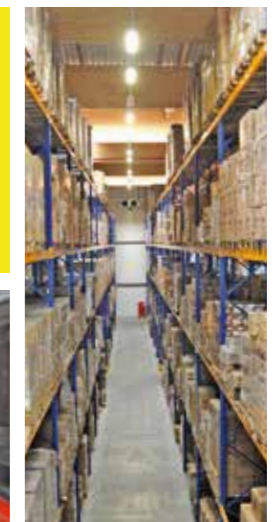
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these new, real-time-oriented technologies in analysing and processing digital data as well as the collation of processes across all players, numerous additional opportunities open up for a host of different users to improve their efficiency and structuring. A reliable operator for the corresponding service platform will be essential if this potential is to be realized.

How does your vision look for the digital port in the medium and long term? And where do you consider the main projects and challenges to be?

Our vision is that all the separate systems of those involved will one day be optimized of themselves and all communication will be via a "port Cloud". Notifications/data from the Cloud would then be filtered as required and made available to cater for target groups. Yet just now we lack an all-inclusive system of this kind, on the basis of which all cargo flows in the port generally, as well as their integration in local transport infrastructures, could be optimized. These would apply to out-of-gauge and heavy loads, for example, to which special legal and logistics requirements apply, but also to everyday traffic. The real potential benefit of digitalization and Logistics 4.0 lies in the possibility of creating an all-inclusive system of this kind. This would involve overriding optimizations of logistics processes, something that would be achieved by involving all those involved, from those in port logistics as far as those at the cargo's destination. At the same time, collation and supra-use of digital data would also permit new business models. In this way corresponding data analyses from the Big Data field, for example, could generate special algorithms for improved forecasting of cargo and traffic flows in the Port of Hamburg as a hub in the whole supply chain, to be made available against a fee.

Apart from the 'Port Cloud', HPA is also addressing future technologies such as the deployment of autonomous vehicles for goods and passenger transport.

Provided that infrastructure has been appropriately digitalized, autonomous vehicles could be used for transfers in the port, e.g. from empty container depots to terminals.

How exactly could any digital equipment of infrastructure look?

Intelligent traffic lights could enable trucks to be guided through the port rapidly, safely and with lower emissions. Using special wireless LAN communication, or 'Vehicle-to-X Communication' (V2X), vehicles would be in wireless communication with such infrastructure elements as traffic lights, road signs and roadworks. An approaching column of trucks would report to the intelligent traffic lights to bring forward or prolong the 'green' phase, so that it could pass through without coming to a halt. This would also have positive effects on the volume of emissions. In the same way movable bridges, traffic signs or rail level crossings would communicate with vehicles, or the latter with each other.

That still sounds very like science fiction. What period for implementation are we discussing here?

The digital revolution is upon us in full force, and corporate structures, processes and even management habits are on the test bench more than ever. Yes, much of this may sound futuristic, yet technically at least this is not science fiction. We shall be seeing pilot projects on most of the ideas and plans mentioned before the end of this year. What could possibly require more time is creation of awareness for the changes needed and of the added value that joint action will involve.

I feel that the examples mentioned well illuminate digitalization's immense potential for the supply chain. If Hamburg wishes to participate, then acting together, we must continue to pursue the innovative course that we have embarked on. ■



The Executive Board of DAKOSY Datenkommunikationssystem: Dieter Spark and Ulrich Wrage.

Networked, informative and abreast of the times: DAKOSY digital transport solutions

Successful logistics is primarily notable for one quality: Effectiveness. The aim is to transport freight rapidly and smoothly from A to B. Rapid clearances are essential, along with the least obtrusive registration procedures and smooth handling processes, e.g. for Customs. Thanks to cutting-edge digital platforms, an electronic parallel world is a fact, supporting freight transport itself, making it faster and more transparent.

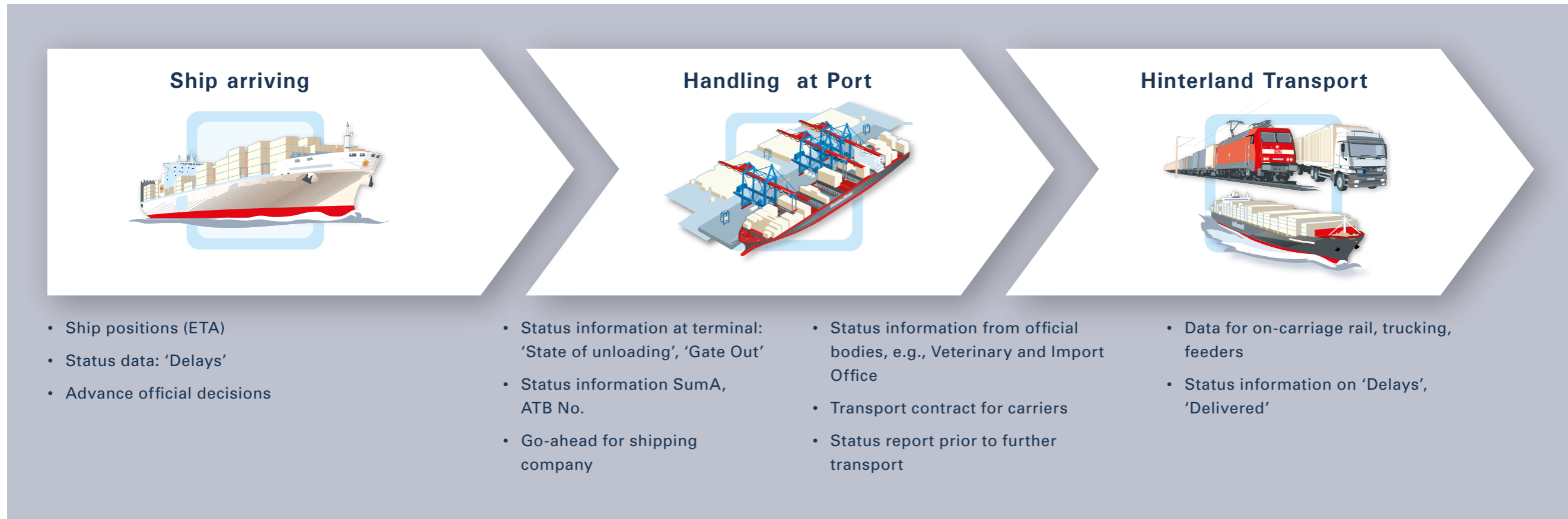
A step ahead with (transport) data

A high degree of networking boosts electronic data interchange. Thanks to DAKOSY, the Port of Hamburg has developed into a paperless port. All companies and public agencies involved in export, import and transit processes can transmit and receive relevant data and current status information and hence handle their largely automated transport processes rapidly and efficiently.

The central Port Community System comprises the **Export Message Platform (EMP)** and the **Import Message Platform (IMP)**. Both integrate additional solutions tailor-made for the requirements of specific areas or sectors, e.g. for Customs clearance of exports with ZAPP-AES, monitoring of hazardous cargoes in the port with the Waterway Police's GEGIS system and also PRISE - the Port River Information System Elbe.

Dr. Sebastian Saxe in interview with the Port of Hamburg Magazine.





All data that needs to be exchanged on import processes between the firms involved flows through **IMP**. This guarantees participants a rapid and intelligent workflow from the ship's approach to delivery to the customer. Many stages of the process, for instance the Customs tracking process or commissioning of hinterland transport, can be automatically triggered. Similarly, EMP is one information technology that enables the export process to be handled rapidly and effectively. As a rule this starts in the hinterland with the shipper and/or the forwarder engaged. Via DAKOSY, all details on transport can be recorded, checked and communicated specifically to those involved - shipping companies, liner agents, rail, truck, feeder and inland shipping companies, terminals as well the Customs and other government agencies. A secure data cycle commences, guaranteeing smooth export clearance.

Well regulated: Coordinating ships on the Elbe

Arrivals and departures of mega-ships on the Elbe and in the Port of Hamburg have been controlled via the intelligent PRISE platform since March 2014. The only information platform of its kind worldwide, this integrates all companies involved in the vessel's approach and departure. The data is only recorded once and is automatically notified to all other parties. PRISE was specifically developed for the requirements of the Port of Hamburg. Encounters be-

tween ever-larger ships on the Elbe require increasingly fine-tuned and complex planning. More rapid data exchange between all those involved is essential. PRISE improves the user's ability to plan the transit along the Elbe, as well as ship movements in the port, speeding up traffic flow too. Among the data processed and distributed by PRISE is material on berth planning and advance registrations, status information on ships' positions on the Elbe from 'German Bight' to 'Make fast', reports from ships by Elbe pilots, duty reports from tugs and line runners, as well as water level forecasts from the German Maritime and Hydrographic Agency (BSH).

eDeclaration allows ship reporting with a single click

Since June 2015 ship arrivals at all German ports have to be reported via the National Single Window (NSW). Even for data communication professionals, that poses fresh challenges. In Germany the Central Reporting System for Hazardous Goods and Ship Traffic (ZMGS) handles NSW's task. Whereas shipping companies and shipbrokers formerly logged data for each port separately and in different forms, electronic reporting has been mandatory since last summer. Shipping companies and/or agents can register via the Federal web application or through a recognized port communications system such as



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Immediately adjacent to Hamburg's 'Warehouse City': DAKOSY's head office.



DAKOSY. Use of DAKOSY's 'eDeclaration' software enables the user to download and make available all data required by local government agencies very conveniently and simply. Data is recorded via EDI,

"This summer HHLA and Eurogate container terminals will make electronic advance notification mandatory for all container deliveries and collections by road."

Excel or a web application, as desired, and then transmitted via the National Single Window, with DAKOSY ensuring compliance with its requirements.

Until now voluntary – Soon obligatory: Advance electronic notification of shipments

Something on offer for years as a voluntary instrument for rapid transport planning and terminal clearance has now emerged as the optimal version of a reporting procedure that is soon to be obligatory. This summer HHLA and Eurogate container terminals will make electronic advance notification mandatory for all container deliveries and collections by

road. The terminals expect to boost the efficiency of their clearance processes with this, and also to shorten transit times for truck operators. On the basis of an advance notification, those involved can be informed in advance whether, and when, an import container will be available for collection. With waiting times at the interchange largely eliminated and/or reduced to a minimum, export containers should also move faster. To ensure a smooth procedure throughout the port and commissioned by the terminals, DAKOSY has developed the 'InfoHUB' central information system. These will receive advance electronic notifications from all transport companies via the system, responding with their status data. Vehicle operators are therefore obliged to commit themselves to InfoHUB electronically in good time, by this summer. Firms may choose suitable software – like DAKOSY's UNIKAT GE Truck, for example – or extend their own IT system by one EDI interface. To be introduced as an additional mandatory process on this link, slot booking will be controlled via 'InfoHUB'.

The status reports made available will enable movement clerks to plan transport precisely. Along

with the advance transport notification, the truck operator will inform the terminal of the desired time window during which he wishes to deliver or collect the box. The terminal will immediately confirm the time window or suggests another one when it can offer clearance. As with the advance transport notification, terminals and truck operators will profit to the same extent from slot booking. Terminals will be able to spread the volume of truck traffic more evenly and avoid unforeseeable peaks. For truck operators, terminal clearance will be faster and easier to plan.

In addition, UNIKAT GE Truck offers a link with the Hamburg Port Authority's smartPORT logistics (SPL) app via a provider interface. SPL supplies current data on traffic, including a calculation of ETA at the terminal, also providing information on the current situation on parking in and around the port. So, if the trucking company uses the SPL solution in addition, it is comprehensively informed and – fed with all the facts relevant to the cargo and traffic – can plan its handling processes in the Port of Hamburg digitally, transparently and efficiently. ■

About DAKOSY

With over 160 staff, the Hamburg software and IT service provider DAKOSY has shaped up to this task. Founded in 1982 as a Port Community System for the Port of Hamburg, using workflow-based systems DAKOSY now networks over 2,200 companies, enabling these to conduct far-sighted planning. They include terminals, shipping companies and liner agents; shippers and forwarders; and also trucking, feeder and inland waterway shipping companies, rail operators, tug operators and line runners. The Customs, and other government agencies such as the Veterinary and Import Office and the Waterway Police, also belong to the DAKOSY network. The Port Community System is designed as an open and intelligent IT platform under constant enhancement. In addition, DAKOSY sells sector-oriented software packages enabling customers to link up with the platform simply and conveniently. Alternatively, it is open to any company to participate in the world of digital data via interfaces with its own system.



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Nicknamed 'Rille', Refik Hadzic has been a truck driver for almost 30 years.



© HHM/ Julia Delfs



Rille identifies himself with his Trucker's Card and feeds in the tour plan number.

© HHM/ Julia Delfs

Fast, Faster, Rille!

Depending on the time of day or night, several hundred trucks are on the move in the Port of Hamburg, delivering or collecting containers to/from the terminals. Despite technical innovations, automated work processes and an intelligent transport management system, traffic jams and waiting times are everyday occurrences for truck drivers. Since 2011, HHLA - Hamburger Hafen und Logistik AG - has been working with the 'Fuhre 2.0' trucking software program, continually improving the clearance processes in the Port of Hamburg, focussing on digitalizing them. A day in the life of a truck driver.

The door of the company building at Reiherdamm 44 opens. A man wearing a reflective vest and a woollen hat pulled well down over his forehead comes out. He is only carrying a clipboard in his hand. He is walking at a fast pace, almost running. His goal? His truck, his workplace for nine hours daily. Refik Hadzic, nicknamed Rille, has been a truck driver for almost 30 years.

Rille's truck with its semi-trailer - over 13 metres long - seems gigantic. Looking up to the open driver's door illustrates the truck's dimensions. He climbs up into the cab as a matter of routine, ready for his next job. This is already his fifth tour today.

"The job is faster today than in the past," he says. "I drive up to ten tours per day." Rille has a slight for-

eign accent in German, having come from former Yugoslavia. He works as a sub-contractor for CTD Container-Transport-Dienst. His job: Container tours between the terminals in the Port of Hamburg.

Rille navigates his truck skilfully through the seemingly narrow streets on a neighbouring company's premises. Here he collects a 40-foot container, destination CTA. The run to Container Terminal Altenwerder is very smooth. On the radio Taylor Swift is singing her hit 'Blank Space'. From time to time there is a short hoot - drivers acknowledge each other.

It is shortly after 14:00. At the entrance to the container terminal - the OCR gate - Rille uses his trucker ID card to identify himself, keying in the tour plan number. Simultaneously, cameras and scanners auto-

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The container is removed from the truck in the handover lane.



© HHLA/ Julia Dells



Rille uses his time waiting to deal with his paperwork.

matically register the truck licence plate and the container number. In the past this data was entered manually, using hand-held radio transmitters, with terminal personnel running round individual trucks. Automation has enormously reduced waiting time for truck drivers – a positive outcome for everyone, including Rille.

He earns his income by the tour. For Rille, the saying, 'Time is money' is not just a throw-away line: For him it is reality. "By pre-registering the transport data, today I can drive through to the hand-over lane, without having to get out. That was not so in the past. At peak times, often enough there were long queues. Everything was being done manually."

Rille is lucky. His contractual partner uses transport pre-registration via TR02 V14. Using this application, the shipper's planner electronically supplies the data for the container delivery or collection in advance. Not until the terminal gives the green light – when all required data are registered and clearance can take place smoothly – does Rille set off.

At the check-in gate there are delays. Rille is becoming restless. He climbs out of his truck and talks to the duty personnel. He speaks to his planner on his mobile, informing him that "There's a lot of traffic at CTA." Grabbing his clipboard, Rille uses the waiting time to deal with his paperwork. "When the long-distance traffic arrives in the port, it can become pretty tight. Some days I only drive five to six hours, the rest of my working day is spent queuing."

Rille is optimistic. Soon the slot-booking system should be introduced: The terminal and trucking company will agree a time-frame for the delivery or collection of a container. "Even if some of my colleagues see it critically, I see it as real progress. Above all, it is going to cut down delays at the terminals even more. But every new idea needs time."

Things are moving. Rille passes the check-in gate, accepting the Interchange Receipt. In the hand-over lane the container is lifted from the truck. While this is going on, Rille is not allowed to remain in the truck. At the check-out gate things are really moving. He leaves the terminal via the empty-truck lane.

The next tour is from KTH - Kombi-TransEuropa Terminal Hamburg back over the Köhlbrand Bridge to Container Terminal Tollerort. It's 15:47. Rille still has three more runs today. ■

Trucking 'Fuhre 2.0': Package of measures for efficient truck clearance

Container pre-registration reduces wasted runs

With the 'Fuhre 2.0' package of measures, HHLA - Hamburger Hafen und Logistik AG - has been improving the clearance of trucks at its Hamburg container terminals since 2011. The program consists of many separate measures:

Self-Service Terminals: Truck drivers can check-in their containers in 130 seconds.

OCR Gate: The Optical Character Recognition Gate automatically registers the truck registration plate and container number. An extra stop for manual data input by terminal personnel is avoided.

Screen Check: Damage and dangerous goods panels are registered while driving towards the check-in gate.

Container Pre-Registration Using the TR02 V14 Program: After pre-registering the container by the planner, the terminal transmits the reliable, current status of the container in question. Through timely data transmission, less data has to be checked on the spot. Runs for nothing and unnecessary waiting times are avoided

Slot-booking system: A further aim is a smoother distribution of truck arrivals at the terminals spread throughout the day. Using the upcoming Slot-Booking System the terminal and the trucking company agree a time-frame for the delivery or collection of a container. Within this period the terminal promises clearance. This will lead to dependability for both the terminal and forwarder. At the same time a differentiated priority model safeguards necessary flexibility for the truck drivers.

Inside this warehouse, Peter Pickhuben discovers how warehouse logistics of the future could look.

© HHM/Marc Ihle



Rustling in the carton

Surrounded by enormous grey warehouses as far as the eye can see, I am standing bang in the middle of Hamburg's Allermöhe industrial zone. I have a date here today. Sylvia Winzer and Simon Poek of DHL want to show me their latest logistics warehouse. With its massive sign showing the familiar DHL red lettering on a yellow background, the exterior is no different from others nearby. Yet the interior immediately brings home to me how the warehousing logistics of the future could look.

We enter the shed. Conveyors trace loops in the air. Their mechanical hum fills the shed with industrial noise. Every few metres, cartons move away over our heads. They are being transported on conveyors backwards and forwards through space, above, below and alongside each other. So at first glance, I cannot detect any system. Yet Simon, responsible for the on-site operating technology, explains that "the impression is misleading". "Behind it all lies a highly intelligent system devised by algorithms. These organize the entire process in this storage centre, setting the rhythm. They determine the paths taken by the cartons, and decide which rack is later used to store the products."

To make me understand how this highly automated logistics warehouse functions, Simon and Sylvia

want to send me off on a package tour through it in a carton. I feel slightly queasy at the idea, but opt in the end for a spot of adventure. We walk a few paces to the "goods in", where swap-bodies with containers full to the brim with pallets and rectangular buff cartons stand. The latter seem familiar to me from mail order parcels. They are delivered by truck and have a long voyage behind them. The DHL client for whom this warehouse was built – the Hamburg-based but internationally active Tom Tailor fashion group – produces the bulk of its goods in Asia. Containers aboard ocean-going vessels then ferry its textiles to Hamburg. Sylvia, one of four operations managers at DHL's Hamburg branch, grabs a carton for herself. This is just being removed from a container by a fit-looking unpacker, and laid on the telescopic con-

veyor belt. There are three of these unpacking stations in the shed, each with its conveyor-belt connection plus two gates for handling trucks. Sylvia pulls a cutter from the packet of her pink safety jacket and yanks open the carton. Colourful summer blouses wrapped in cellophane pop out. Then she cuts a large peephole in the carton. "In you get, please," she requests me politely, and helps me into the box. Suddenly the floor underneath me is on the move. "Bon Voyage!" Simon and Sylvia call after me, their voices now sounding very distant.

At a maximum of five kilometres per hour that actually feels more like fifty, I rush towards the first photo-electric barrier. First of all, a barcode is affixed, giving me a unique identification number. That will

enable me to be located in the system at any time. Then I travel steeply upwards, feeling as if I'm on a roller-coaster. Out in front, a glass box containing a big engine draws nearer. "Now you'll be measured and weighed at the OCR station," calls out Sylvia. While I pass through, a camera takes shots of me, then a smiling Sylvia bends over me: "You have been rejected by the system because the camera spotted that this carton is not standard. The peephole in it will be to blame for the system thinking that the carton is damaged. The machine has already gathered a mass of experience, and will note precisely if a carton is heavier than normal for example, or the weight and number of the items do not match, or cartons have been dented. Everything varying more than ten percent from the norm is rejected, and later checked by our staff. So that automation functions more simply here, we only have two carton sizes." For me as an exception, Sylvia disables the system, popping me back on the conveyor again beyond the OCR station. After a few swerves left and right, it's upwards again. The noise mounts, and awakens thoughts of home in me. It reminds me of the hissing and clanking of the gantry cranes in the port. Around me now, I can make out racks. The warehouse blocks are fenced off with ceiling-height fences. "No access for humans," warn the signs. Behind the fences, rubber-tired collector devices run along rails. I count 30 rack bases and then get dizzy. The racks are at least 20 metres high. From below I hear Simon's voice: "Just now we have 14 automated carton aisles, or automated carton warehouses with 178,000 slots. In the next stage of expansion, we aim to make that 270,000. Twice a year, incidentally, we have to do altitude rescue training. That's because we repair the racks ourselves, secured by climbing harnesses." Altitude training like



that would have done me no harm, I'm thinking just now. Then the conveyor belt takes me back to earth. I come to rest in a small cage, manoeuvred there to the last centimetre. After a few seconds, a metallic grab approaches me, takes hold of the carton in which I am seated, and shoots me downwards and diagonally to the left, where it sorts me into a rack. I want to watch it, but as soon as it has unloaded me, I see it flying upwards again with the carton from the adjacent slot. Then it disappears from view. "We tinkered around and tested for almost six months before discovering the optimal algorithm for the rack collector device. And if it's left with nothing to do for even just an instant, then bravo, it sorts the goods independently."

Normally I would spend a few days in interim storage here and occasionally be re-sorted until client Tom Tailor issues a delivery order for the blouses in my carton from the warehouse. We want to accelerate the process and so Simon tells the control centre that the carton bearing my identification number should be brought to the goods dispatch station. However automated everything may run here, human hand can intervene at any time to optimize, to nullify errors or disruptions, or to give the system orders external to the algorithms. As Technical Manager, Simon is responsible for this.

Then the grab appears yet again, collects me and pushes on to another conveyor belt on the opposite side. One again I need a moment to accustom myself quickly to the ground moving fast under my feet and to get my bearings in the carton. I am just beginning to enjoy the ride when I am swivelled through 360 degrees and for a moment no longer know where "above" is, where "below". For no more than a moment, I can enjoy glancing at the friendly face of a

young lady with long, dark hair, protective gloves and a cutter in her hand, then the belt sets off at full tilt again. Sylvia and Simon are running alongside me to explain what's happening: "You are now on the way to the picking station. Our operators here open the cartons on a carousel so that colleagues can start picking right away. Our staff are faster and better than machines at assembling orders, so with us that is done manually. The grabs must recognize different colours and materials and be able to pick these accordingly. That is very hard to accomplish technically." In the picking area, aboard the conveyor belt I once again leave several bends behind me, finally being pitched into racking by a high-rack stacker. Opposite me stands a vehicle with empty cartons. I swing my gaze to my right and see a machine that folds empty cartons precisely like this one from cardboard, also sticking on a label. Only the lids are missing. A large fellow in a hooded top and a baseball cap delves into my carton, removes the summer blouses and packs them into one of the new empty cartons. He puts me in a blue plastic box. "Can you also take along the wee seagull?" I hear Sylvia asking the man. While I once again join in my carton, she explains that here we are at the re-packing points. Blue boxes are used for interim storage of remainder volumes that are not on the current delivery note. "The old cartons go direct on a separate belt into our recycling unit, where they are pressed and later processed again," says Simon. And once again I'm on the move. Right, left, downward, then I recognize a scanner with a weighing machine that will surely be measuring and weighing me once more. Sylvia bends over my open carton and lifts me out. "A check is made here on whether the unit count and the weight match up. The machine will note the discrepancy caused by your

weight, and report an error." Only three seconds later, I take my place again in the carton. Once again I find myself approaching a group of people. Despite the high degree of automation, I am surprised how many folk still work here. Simon seems to be capable of reading my thoughts: "We have created around 80 new jobs with this warehouse. At some points the human hand is simply irreplaceable." The same applies at the packing station that I'm just moving towards. An operator winks at me and lays two A4 sheets of paper on me. With some effort I can decipher one or two letters. Packing Slip and Delivery Note.

I shake myself free of the paper and – help? What kind of a monster am I nearing now? A large machine that looks like a stamping press and is making fearful noises. My pulse races. Where on earth are Sylvia and Simon? I'm in the press. It's unbearably loud inside here and smells of glue. Darkness descends. An iron plate as large as my carton comes towards me and presses the carton from above. Then it rises again. The sidewalls are cut. Then comes the glue, applied round the edge in thin strips. I see cardboard above me. This is pressed on to my carton with a loud crackling. Somewhat clumsily, I'm out of the machine and back on the conveyor. Then there's a push from the right. This feels rather like the labelling machine that had pressed a barcode on me right at the start, at the goods reception. Suddenly I am pulled upwards with a jerk. Blinking, I recognize Sylvia and Simon. "Hi! Our lid-lad really gave you a fright," laugh the two of them. "Now we have reached the end of your trip. After the lid has been glued to the carton and the dispatch label printed on it, the cartons go to 'Goods Out', where they are loaded by the conveyor into the wait-

**Located at the control centre:
The facility's brain**

At the edge of the shed a few steps lead up to the control centre. Here the din from the rushing conveyors in the shed mingles with the hum of the high-performance computer. A window ten metres' wide provides a fine view across the warehouse. The room is full of screens: One shows masses of figures; another, a labyrinth of dots and dashes. These represent conveyor belts, warehouse racking, cartons and much else. Every movement is documented with the utmost precision, so that in the event of a parcel disappearing, the path it has followed can be traced with the aid of the barcode and the photo-electric barriers. So nothing gets lost in the matrix of algorithms and robotics systems. Here again, manual intervention is possible. In the last resort, it is still people who have the final say at DHL and show the machines the way.

ing truck. It's just like 'Goods In', but the other way round."

I am completely overwhelmed by the impressions I've gathered in the last couple of hours. What a lot can be done in logistics nowadays with technology and algorithms! For me it felt like time travel into the future, yet the future has already become fact in some warehouses in Germany. I am very keen to see how robotics technology will evolve, and whether human action will really always be indispensable. It seems to be that in future simply everything will be possible... ■



- DHL in brief**
- Total area of logistics centre: approx. 65,000m²
 - Shed 1: approx. 7,500 m²
 - Shed 2: approx. 13,300 m² (incl. platform areas)
 - Dispatch Shed 3: approx. 2,000 m²
 - Area of steel platform: approx. 6,000m²
 - Weight of steel in buildings: approx. 1,350 t (= 1,000 VW GOLFs)
 - Length of conveyors: 4 kms
 - Number of drive units: 1,040 motors
 - Number of photo-electric barriers: 3,000
 - Total length of electric cabling: 65 kms
 - Pallet slots: Approx. 17,000



Use of cutting-edge software permits process optimization and more rapid working procedures.

Cutting-edge software solutions smooth the way for boosting effectiveness in logistics and warehousing

Located in the heart of the Port of Hamburg, Krohn & Schröder focuses on warehousing & logistics and is feeling the advantages of progressive digitalization in warehousing and contract logistics. This IGS Logistics Group subsidiary utilizes state-of-the-art software to optimize processes, speed up workflows and as a result to enhance effectiveness to the benefit of both the logistics community and its customers.

The challenge: Integrating a wide range of services

Krohn & Schröder's core task is to handle the whole range of storage logistics, from receipt of goods, including import clearance, via block and rack sto-

rage as well as sorting and picking, to goods despatch, including export clearance. This IGS subsidiary continues to handle LCLs for import and export, loading plant and project cargoes with a total weight of up to 30 tons, and also offers such added value

The mobile workplace is exemplified by hand scanners and mobile data terminals on forklifts, so that a completely paperless future is already within reach.



services as re-packing and labelling of consignments or construction of seaworthy packing. Immediately adjacent to the Port of Hamburg and the A7 autobahn, these warehousing specialists operate two logistics terminals to do the job: The first on Vollhöfner Weiden with 13,400 square metres of shed space, the second on Finkenwerder Weg with a logistics area of over 12,000 square metres. On each of the premises covering over 50,000 square metres, these terminals contain two mezzanine floors for separate sorting. Temperature-controlled cargoes can be stored at temperatures between 14° and 18° C. on an area of 5,000 square metres.

The very extensive range of services provided at two locations makes stiff demands of a state-of-the-art IT warehousing and logistics programme. The customers and the market are also making stiffer demands for goods clearance and the related services. A new warehousing administration program must therefore cater for both the requirements of the logistics offerings and ever more stringent demands from clients. Our goal is to make processes considerably leaner and generate higher productivity. So the aim is to replace various prede-

cessor systems, Excel being one of these, with a new program. This is the logical decision, since being faster and up with the times also means being ahead of the competition.

The conclusion: A program for contract logistics and another for warehouse logistics

To cater for the individual challenges, Krohn & Schröder opted to introduce two new programs. In the contract logistics field, three years ago 'Inconso WMS S' marked the start. 'Translog' software followed a year ago for the packing stations. The two systems replaced

"The customers and the market are also making stiffer demands for goods clearance and the related services."

different programs running in parallel. Inconso primarily ensures a high standard of security on inventories and sorting, offers process transparency and safeguards continuous scanning of goods – criteria assuming a key role for smooth contract logistics. Similarly, Translog offers increased transparency, covering the complete process cycle of a packing station. Embodying the essential functions for discharging Customs formalities



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The "LHM" label

These new storage labels speed up warehouse and contract logistics processes. They carry an unmistakable barcode making the goods and each step in the work chain identifiable and traceable. They convey data such as details of the warehouse slot or even the batch.

- Direct feed into own national and European liner services

Both in contract logistics and the packing stations, overall these optimized processes lead to greater effectiveness. Through an interface link, the customer is also offered the opportunity of connecting its own administration system with Krohn & Schröder's system. This individual solution avoids any double order input and speeds up clearance. Warehouse experts can also undertake a client-specific assessment of the warehouse inventory at any time.

New warehouse and contract logistics: Transparent. Secure. Effective.

State-of-the-art software solutions simplify everyday routine, as you can see with the new 'LHM label', a warehousing aid. These carry a distinct barcode that enables the item and each stage of the work to be identified and traced. For this, each LHM label is 'married' to the relevant location in the warehouse. Additional information such as use-by date and batch can also be recorded here. The volu-

me used with Krohn & Schröder underlines the benefit of the new software: Just one sub-area of contract logistics already features over 26,000 labels. All evaluations of every label are accessible at the press of a button. Nor does producing statistics present any problem. Even viewing future scenarios, e.g. tracing the movements of single forklifts at any location in real time, become feasible with this software.

Paper may still be needed just now, but the mobile workplace is exemplified by hand scanners and mobile data terminals on forklifts, so that a completely paperless future is already within reach. Since their int-

.....
"Even viewing future scenarios, e.g. tracing the movements of single forklifts at any location in real time, become feasible with this software."

roduction, software programs have been continuously further developed and adapted to the latest challenges, simplifying and accelerating processes for the long term. ■

and for a Customer Information Centre, Translog is an effective direct interface with the Hamburg Customs. By consolidating on a cutting-edge IT program in each case, Krohn & Schröder profits from these calculable advantages:

- Real-time tracking of consignment and container status

- Digital inventory view from receipt to despatch of goods
- Progressive sorting for each stage of work and inventory control
- Minimized proportion of errors thanks to continuous scanning
- Customer's own access permits inventory taking at any time



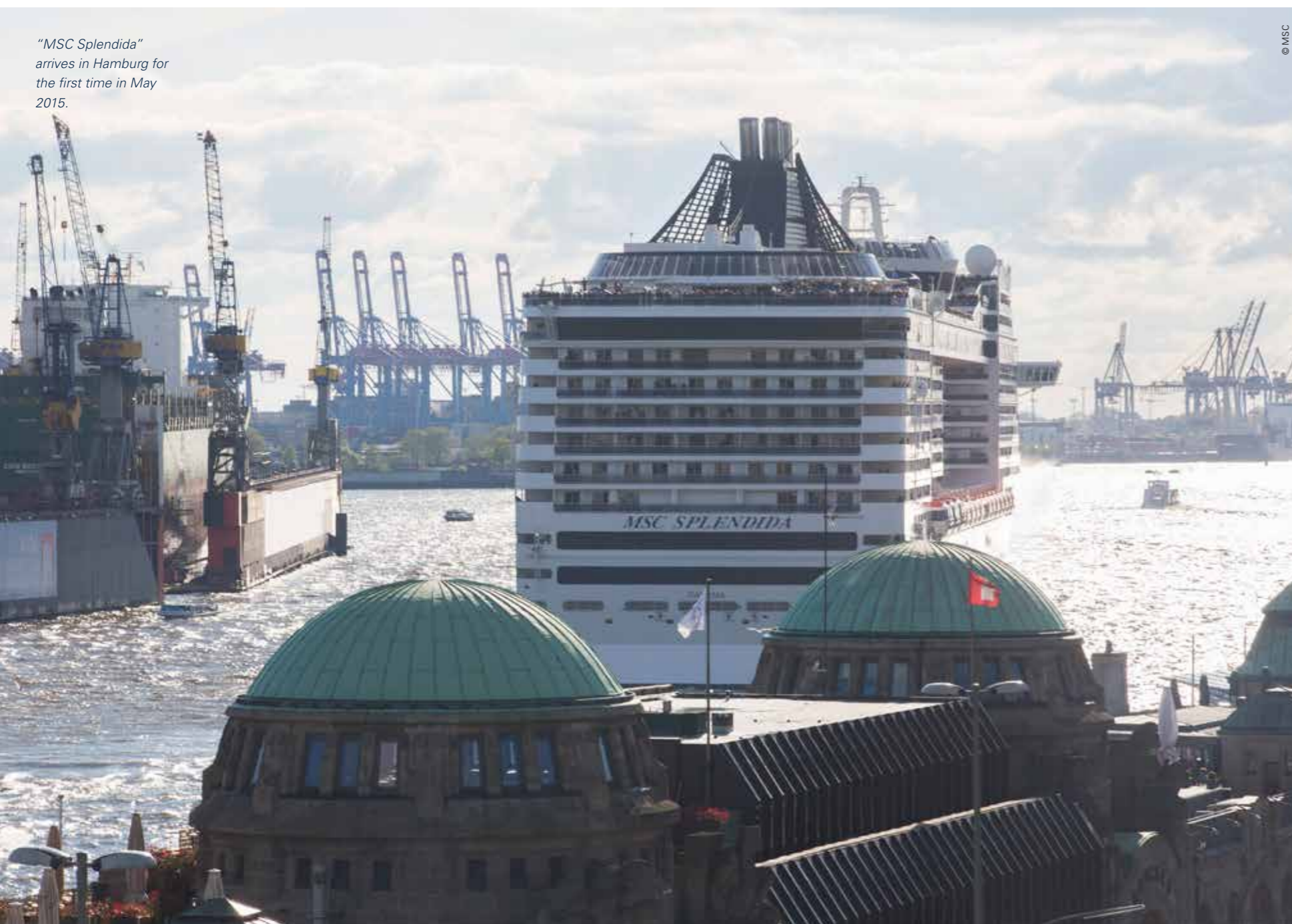
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"MSC Splendida" arrives in Hamburg for the first time in May 2015.



© MSC

Going digital on voyage

Cruising 2.0 - Whether via social networks or virtual ship tours on the new group website, MSC Cruises is also casting off digitally. Even before their voyages, cruise fans are entering new (digital) territory.

The travel and tourism industry is playing a growing part in the digital world. A survey last year by the Working Group for Online Media Research (AGOF) suggested that more than two-thirds of Internet users are interested in travel and holidays. MSC Cruises, the world's largest privately managed cruise company, is following the trend, recently simplifying its

booking system with a new website and apps. These also provide data about its cruise world while out at sea. Along with same-day offers and background information on the various shore excursions from vessels in the MSC fleet, users can get to know ships in advance via photos, live webcams and virtual tours. On the 360-degree ship's tour, sales partners and

customers can decide themselves which areas of the ship should be visited. That enables enquirers to gain an impression of the various cabin types even before they book. The virtual tours that can even take viewers on to the bridge or into the galley are made with the aid of virtual reality goggles and assembled by a software application. MSC is also presenting these ship viewings through data goggles at trade fairs and roadshows. The next virtual tours are already being developed and will then cover the new ships in MSC's fleet.

Website as central reference point

The consumer makes heavy demands of a website, which needs to be fast, easily grasped, stylish and naturally, secure. Seeking to satisfy these criteria, MSC's website is equipped with updated navigation and an optimized "Search and Book" function. Following relaunch at the end

of 2015, the website aims to make it as simple as possible for the customer to complete booking for the desired cruise with a few clicks. Depending on the individual's approach to booking, the focus will be on destination or on value for money. Cooperation with the "Rough Guides" has produced comprehensive background information on every destination, whether about local sights, available tours and activities, or highlights on the cruise route. Including over 600 videos and diagrams, multimedia material supplements this offering. Thanks to webcams, the fleet can be traced on

the Internet at any time. For all twelve MSC vessels, details of position and the weather on the spot are conveyed in realtime.

Online check-in, already familiar to globetrotters from flying, now allows MSC passengers to check in for cruises at home via its online portal.

Fire up anticipation with MSC Cruises app

The MSC Cruises app sees to mobile digital holiday preparation. Like the website, this contains all data on routes, destinations, shore excursions and special offers. Even when you are on the move, you can explore your chosen MSC ship in advance thanks to webcams and virtual tours, and also discover its exact present location. The customer can store a personal list of favourites with his or her preferred cruises, also the various routes for later. **On board the MSC Divina, stay networked with the Traveller Web App.**

During Caribbean cruises, passengers on the MSC Divina can use a special six-language on-board app provided gratis for mobile services. Via their smartphones, guests are kept up-to-the minute about the ship and her route, ports of call and the weather forecast. Shipboard shops, activities and events on board are naturally also covered. All this data can be imported into personal diaries. Creating a closed group allows chatting with fellow-passengers, sharing of cruise experiences, or posting of your real-time location on board.



© MSC

Cruise emotions on all channels

To reach a wide audience, social media users can post their best cruise photos on MSC's official Instagram channel. Social media activities on MSC's pages with Facebook, Twitter, YouTube, Google Plus and Pinterest aim to ensure stronger brand loyalty. In the hotly contested cruise market, that creates a long-term post-cruise link with customers. And videos posted on MSC's YouTube channel even provide behind-the-scenes glimpses of the fleet. ■

PETER PICKHUBEN'S PINBOARD



From 1 July containers must be weighed

Have you seen horror shots of damaged or lost containers on the high seas? Maybe taken in the wake of a heavy storm? Incorrect weight details in cargo documents are often one cause of such accidents, for instance after failure to add weights of packing material, pallets or the empty box to total cargo weight. That deprives stowage planners of reliable details for use in safe stowage planning. This will change from 1 July 2016! A new directive from the International Maritime Organization (IMO) will come into force as part of the SOLAS (Safety of Life at Sea) convention. This requires submission of a VGM (Verified Gross Mass) before a container may be loaded on a seagoing vessel. The sender is responsible for checking the stuffed weight of the container. Any discrepancies between the weight given in the cargo papers and actual weight will preclude loading of the box. This directive will decisively improve safety and transport quality in the supply chain. Providers such as DAKOSY, INTTRA or Tally Tech supply interfaces for optimal electronic data transfer between all parties.



© HH/Michael Lindner

Contest between the world's most intelligent robots

The RoboCup will be contested in Leipzig between 30 June and 4 July. This is the most important robotics-related technological event, encompassing robotics, artificial intelligence, informatics, electrical and mechanical engineering. The idea of the event is to strengthen the exchange of robotics know-how between science and business, and to promote innovation in robotics applications within logistics. Engineers and inventors will here present their robots for industry, business and everyday use, e.g., mobile robots for logistics, material flow and transport systems; cooperative robots for complex tasks in the industrial context; rescue robots for deployment after catastrophes; and service robots for humans. The RoboCup Federation, what's more, has an especially ambitious goal, aiming to develop a robot soccer team by 2050 that is capable of defeating the reigning world champions. For further details, visit www.robocup2016.org.



© Leipziger Messe GmbH

Peter Pickhuben's greetings from Mexico!



© Katharina Weidemann



© Amazon

Computer-controlled warehouse workers

Transport robots that shift whole sets of shelves through vast logistics centres to the spot where these are needed at the moment? Something that sounds to me like science fiction is already daily reality with Amazon in the USA and Poland. In the big logistics centres, robot systems help staff to sort goods. Humans stand at ergonomic work stations and have robots bring them the toys, books and electrical appliances that need to be packed. This saves time and even boosts storage space usage by 50 percent. Transport robots move at 5.5 kilometres per hour and can lift up to 340 kilograms. In future robotic arms designed to unpack and pack items independently can completely replace humans. Aided by 3D cameras, they need to see in spatial terms, and to understand what material has gone into a soft toy or a book if they are going to be able to grasp it correctly.

You want even more digitalization?

Have you taken to the idea of further digitalizing your logistics processes? 'Logistik-Initiative Hamburg' has produced a new (German-language) 'Guide to digitalization in logistics' providing basic knowhow and best-practice examples taken from research and everyday operations. From Cloud computing, via autonomous vehicle technologies to 3D Printing processes, the guide explains what one should understand under the complex topic of digitalization and what experience companies from the Hamburg Metropolitan Region have already derived from this.



© Amazon

Focus on transport chains and networking

Exploiting synergies, pooling resources and being on the ground in essential markets – Port of Hamburg Marketing's worldwide network forms the basis for achieving its aim, to successfully market and position the Port of Hamburg internationally.

Of special importance for this are our 13 representative offices. These are committed to furthering the interests of the Port of Hamburg and our members in Germany and abroad. These are superbly networked in the seaport business and possess outstanding contacts in their respective markets to companies in trade and industry, transport and logistics, trade associations and political decision-makers.

As a central point of contact, we brief German and foreign port customers on the Port of Hamburg's performance. A host of marketing activities such as market research, trade fair showcasing and special events, programs for visiting delegations, publications, press activities and Internet services, we daily boost the competitive position of Germany's largest universal port.

Port of Hamburg Marketing

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