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Editor's Notes

Global air freight volumes and yields have been in retreat for some months now in most major markets, falling back close to their levels in early 2017 – with a few notable exceptions such as traffic from East Africa, Northern Europe, North Africa and Central Asia, and particular growth markets such as Vietnam. The overall air freight contraction accompanies a slowdown in world trade growth, as trade and geopolitical tensions undermine global economic confidence. It's a familiar pattern; and as history has shown, air freight demand will bounce back, probably in a year or so, when international confidence and stronger trade growth returns, triggering a fresh wave of restocking.

One question often asked is whether investments in air freight modernisation will continue in these leaner times. But with air freight finally beginning to see some sustained investment in and benefits from digitalisation, that momentum is surely unstoppable this time. That's likely to be true for digital quotation and booking tools as well as ULD tracking technology and air cargo community data-sharing initiatives.

It is certainly seen as inevitable among major freight forwarders (page 47), including creating far greater transparency of freight rates – a trend forcing logistics players to be more efficient. That is likely to have implications all through the air freight chain.

The investment momentum has only fairly recently got started at some US airports (page 14), which have belatedly loosened the purse strings after seeing a sustained demand recovery in the last few years. Initiatives to create airport cargo communities are finally on the agenda there, as are facility upgrades and customs facilitation projects to ease and speed e-commerce traffic flows.

As an excellent discussion at this year's Air Cargo Europe (page 4) highlighted, investment in automation is essential for some airports and cargo handlers – to deal with growing volumes and limited space, or staffing shortfalls. Although highly ambitious automation projects are planned, such as DWC's underground cargo network and Frankfurt's autonomous vehicle research project, in the meantime there are lots of other areas where new technology and process improvements can bring significant efficiency improvements. And in the short to medium term, some see significant scope from wearable technologies and other already available tools to optimise human performance in the air cargo handling environment.

Meanwhile, the excellent Pharma.Aero initiative (page 34) pushes on, demonstrating that end-to-end collaborative data sharing can be done across the fragmented air freight chain – when customers are motivated to participate – building on industry initiatives such as Cargo iQ and IATA's One Record.

The project promises lessons for the whole sector – thanks to the association's open approach to sharing best practice. It's a commendable attitude and an initiative worthy of attention and support.

Will Waters

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August/September 2019

A NEW HOMECOMING STORY FROM TURKISH CARGO

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Next-level cargo handling

Air freight frontrunners are exploring various game-changing technology options involving automation and robotics – as well as short-term and mid-term gains from optimising the human in the warehouse, reports *Will Waters*

In the last few years, rapid developments in information and communications technology (ICT) have brought robots and 'cobots' – collaborative robots – and augmented-reality technology tools increasingly into the world of warehousing and logistics, and led to numerous trials in the use of drones and autonomous vehicles.

Although the integrators have adopted a more technology-driven approach, the traditional air cargo handling market has been cautious about investing in automation and robotics – for various reasons, including relatively low margins, the challenge of handling large and irregular-shaped cargo shipments, and a heavy regulatory environment. However, the potential for time-saving, space-saving, and resource-saving efficiencies means that air freight industry frontrunners are investigating various options.

Dominik Dieckmann, senior manager for freight and logistics at management consultancy Accenture, told this year's Air Cargo Europe conference in Munich: "My observation when it comes to robotics and automation in this industry is that there are a lot of good things happening – we see a lot of ideation and proofs of concept coming up; but where the industry fails is industrialisation and bringing this in on a large scale."

Struck: An appointment system at DBX will enable Dnata to use the 24 hours much more effectively – and customers to plan and bring down their costs of staff and trucking

However, for some, space and demand pressures mean they have little choice but to seek technology-driven solutions, highlights Bernd Struck, senior vice president for UAE cargo and DWC airline services at ground handler Dnata. "I am forced to go into automation and robotics usage simply to survive," he explains. "We have around 2.7 million tonnes of cargo handled in a very limited, constrained facility at Dubai International (DXB) for the next 10 years, with no chance to expand them until we relocate into Dubai World Central (DWC). We are growing currently at 5-6% a year, and so our facilities, which are full today, will need to be able to handle an extra 60%."

Appointment system

One area where he is hopeful of introducing significant efficiency improvements is by integrating landside and airside functions, something rarely done at airports. "We have started and will be rolling out later this year an appointments system – not just for landside," he explains. "Customers will be forced to use this system if they want to do business with us, and we'll give them a guaranteed time of handling of roughly 45 minutes. Today, they may have to wait sometimes for eight hours to get a handling slot, because people come at the same time.

"With the appointment system, we'll be able to use the 24 hours much more effectively, and customers will be able to plan – and bring down their costs of staff and trucking much lower. This appointment system will be integrated with our materials handling systems (MHS), so once

Özen: Smart glasses, wearable technologies and artificial intelligence are enabling the human interface to be much faster and more efficient

we have made an appointment, the MHS knows you are coming and the goods will be prepared for import or export. And it will be linked to an integrated resource management system for the crew for the build-up of the cargo, and the crew bringing this cargo to the aircraft. With that, we hope to increase capacity and customer satisfaction."

But he sees much more scope to use new technology and automation, noting: "We are looking to do anything that is repetitive in a different way." Dnata has been investigating a number of things – for example, trialling some blockchain initiatives for AWB handling with flydubai. "We have seen it can solve a number of issues providing dedicated data to dedicated resources, and we are continuing to work on that," says Struck.

Another issue many handlers have is tracing lost cargo. "There, our proof of concept has shown the potential of drones in the warehouse to search and identify cargo and really substantially decrease the cost of manpower," Struck notes. "For example, I have 45 people full time equivalents working on tracing cargo.

"So, there is potential that needs to be identified; and these are just a few examples we are working on."

> *"Now we can use our operators' human brain at its highest level"*
>
> TURHAN ÖZEN

Greenfield opportunity

For others, a move to a new greenfield location brings an opportunity to introduce the latest developments. Turhan Özen, chief cargo officer at Turkish Airlines, says: "We intend to deploy new technology in the most efficient way to our new facility. As well as being one of the largest in the world, the intention is also to make the facility at the new Istanbul Airport "the smartest cargo terminal in the world".

Özen notes: "Until recently, air cargo handling has never been fully benefiting from ASRS (automated storage and retrieval systems) or container handling systems as much as typical warehousing logistics can benefit from automation systems, because of the requirements of the industry: we are handing millions of different SKUs; we have our safety and security and quality standards and regulations; we have a huge need for flexibility, in terms of speed and flexing the volume.

"But since recently, we have something else in terms of technology: we now have things that are enabling the human interface to be much faster and more efficient – for example smart glasses, wearable technologies, artificial intelligence, and several other aspects of technology – Industry 4.0.

"I believe it's a huge opportunity for any cargo business. Because now, we can use our operators' human brain at its highest level."

He believes this is the real new opportunity for the next 15 to 20 years – "rather than fully automated handling, storage, picking, quality checking, and everything.

"Maybe in 20 or 30 years there can be full artificial intelligence and robotics that can do it without any intervention of humans. But for the foreseeable future, (air cargo handling will continue to need) human minds, our operators' minds, from a quality-check perspective, from a safety perspective". But their capabilities can be enhanced by using "wearable technologies, for example voice-directed technologies, smart gloves, and everything to really connect the human mind with cyberspace."

Although the new Istanbul Airport is now open, Turkish Airlines' 175,000sqm new cargo terminal there is under construction still, with Turkish Cargo operating from a satellite terminal at Ataürk airport currently. "So, before finalising the new terminal, we are using the construction to do some

> *Our main drivers are the lack of trained and experienced staff*
>
> MAX CONRADY

trial projects and proofs of concept – as an innovation lab to really see how much further we can integrate these new technologies into our conventional ASRS and automation systems," Özen says.

Bionic exoskeletons

Norma Hoeft, head of IoT (internet of things) at German Bionic, believes her company's robotic exoskeletons can also help enhance human performance in the cargo warehouse physically and by connecting them better to the digital world. The exoskeleton can be used by people to lift up weights of, say, 25 kg but feel no weight stress on their bodies – something that has been trialled for baggage handling, but not yet for cargo. "And we can connect our exoskeleton to other devices, for example smart gloves and smart glasses, and we can collect data because it is Industry 4.0-ready," says Hoeft. "The battery life of our exoskeleton lasts about eight hours, so people can also plug devices into that."

Like Özen, Hoeft does not believe it will be possible to automate everything, at least in the foreeable future. "Otherwise, we would not be in the market," she notes. "We believe in smart assisting and augmenting the people that are there, and providing the technology – some would consider it a bridge technology."

Airport challenge

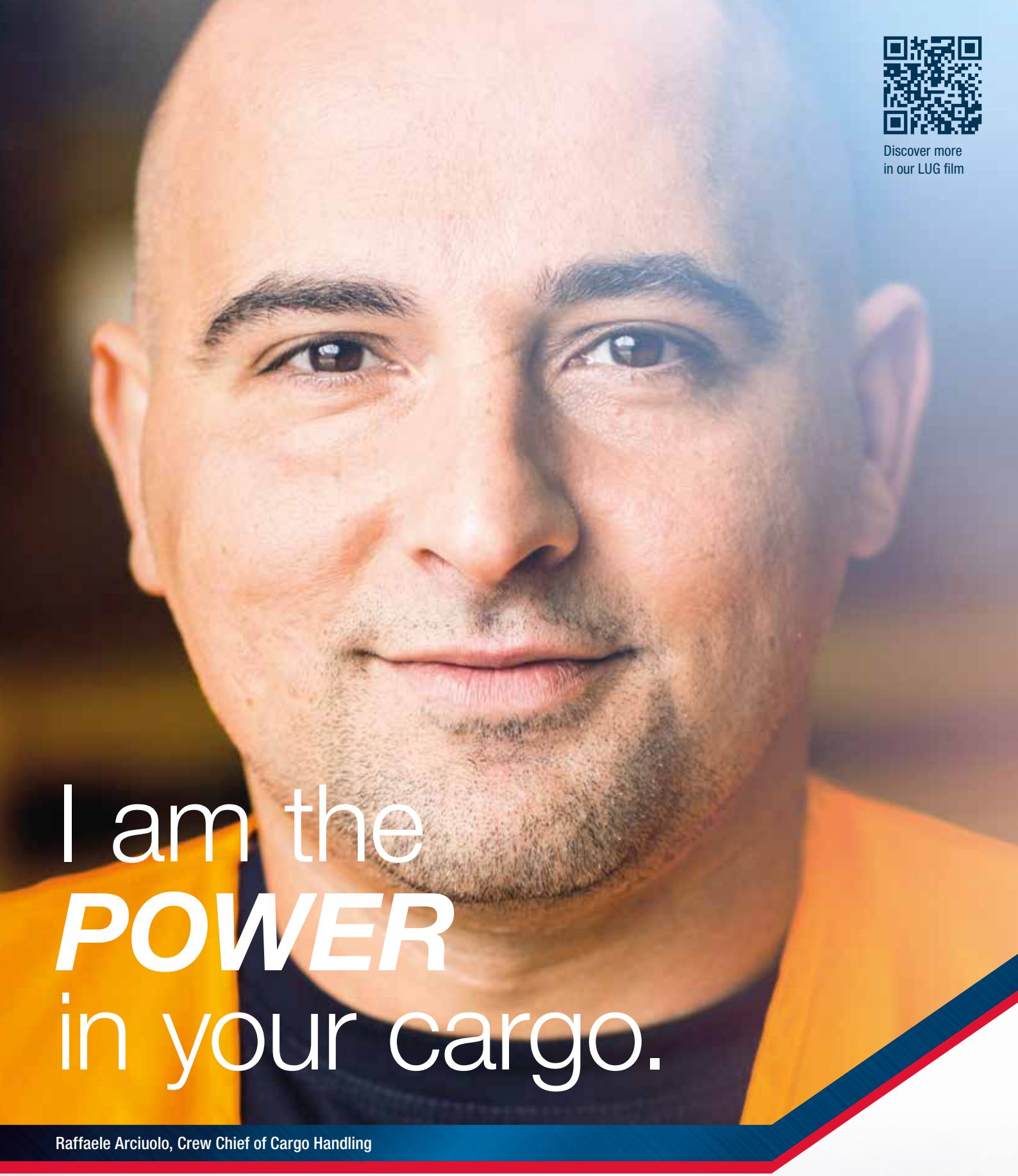
Max Conrady, senior vice president for cargo at Germany's Frankfurt Airport, highlights the challenges facing airports to support its clients' modernisation plans. "We are not only providing services ourselves, but we are also in the position of a kind of landlord, to support all the different stakeholders to do their business in the best way they can, and provide the infrastructure that meets future demands – and robotics and automation, which is being used by our customers – as well as exploring opportunities ourselves to adopt different and new approaches.

"Our main drivers are the lack of trained and experienced staff. Every year, we are lacking 400 or 500 people, and so automation will be a key driver in improving the productivity in our industry as well and maintain growth in the industry."

He continues: "One of the major tasks at an airport is identifying what will be the future in terms of infrastructure – for example, what kind of networks from hardware to software networks. The future of the airport is not the next two or three years, but the next 20 to 30 years. This makes it different for us, because of the fast-changing industry when it comes to robotics and automation, and the computer industry, and for technology with life cycles of two to three years.
"So, it's a challenge to identify what will be the infrastructure of the future – for example, what will be implemented to detect unit load devices (ULDs), to help users automate warehouses? How can we assist them to get those into service?"

Autonomous 'smart trailers'

Among its more ambitious cargo modernisation projects, Frankfurt Airport last year launched a two-year 'Smart Air Cargo Trailer' research project aimed at increasing



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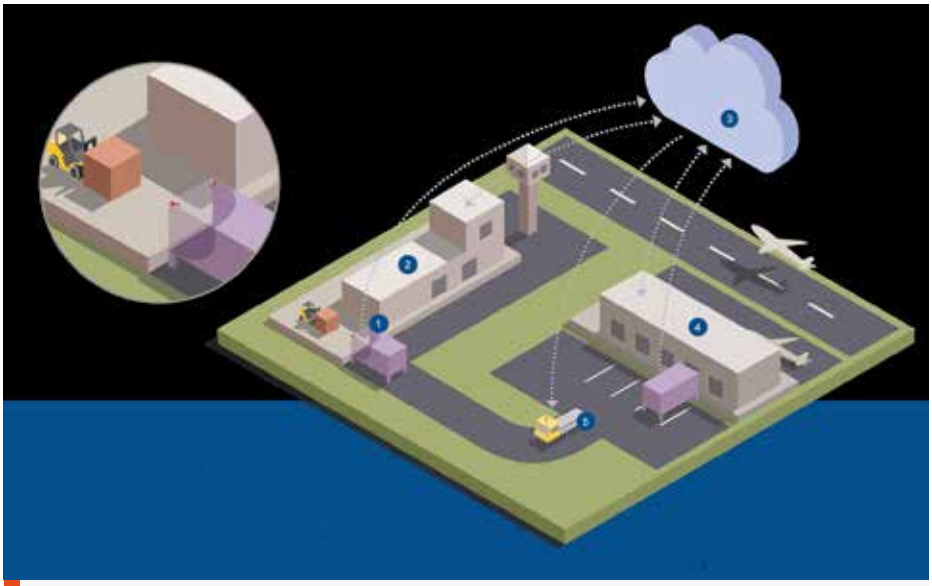

Fraport: The combination of self-planning systems in conjunction with autonomously running transports will be a must in the future in order to make processes more efficient, increase the range of the existing infrastructure, and counteract the shortage of manpower

Autonomous air cargo transport

The Smart Air Cargo Trailer (SAT) research project at Frankfurt Airport's CargoCitySouth aims to transport air freight consignments autonomously and efficiently, in line with demand, between the freight forwarder and the air freight handler.

The two-year project aims to develop intelligent truck trailers, 'smart trailers', with which autonomous transport can be carried out via a cloud-based platform – and in a way that is optimal for forwarders and handlers.

The heart of SAT is a complex control algorithm that takes a variety of shipment information from individual packages into account, such as the LAT. A camera system installed in the trailer will generate the loading data. It is intended to simultaneously capture several packages on a pallet and read their barcodes – even if they are partially covered, during the loading process.

If the codes cannot be seen at all, the system is supposed to conclude, from a comparison with the order, whether all the packages are still present. If the trailer is fully loaded or loaded with a time-critical shipment, the system automatically requests a tractor.

Those involved can access all data via the cloud on a smartphone, tablet or computer. Forwarders and dispatchers can also control transports according to their available capacity – for example, postponing deliveries when their ramps are full.

Fraport says: "The combination of self-planning systems in conjunction with autonomously running transports will be a must in the future in order to make processes more efficient, increase the range of the existing infrastructure, and counteract the shortage of manpower."

process efficiency, minimising cargo wait times at ramps, and optimising the use of resources at CargoCity South by exploring the use of autonomous vehicles. The project is partly subsidised by Germany's regional state of Hesse, with other partners including the Fraunhofer Institute, RheinMain University, autonomous vehicle manufacturer KAMAG, cargo handler LUG, shipping companies Sovereign and Dachser, and logistics software company CargoSteps.

The project is exploring using a cloud-based platform to automatically manage short-distance shipments at CargoCity South. Intelligent 'smart trailers' are equipped with complex camera systems that continuously record how full the trailer is. Once a certain loading level has been reached, a control system automatically requests an autonomous truck for transportation. The trucks pick up the trailer and take it to the relevant ramp destination where it is processed by a forwarding agent or cargo handler.

The aim of this need-based order system is to minimize wait times at the ramps and increase utilization of the trucks, to provide faster and more efficient cargo processes. As part of the research project, mixed traffic operations consisting of both autonomous shipments and regular truck and car traffic are being tested.

One key part of the study is identifying the regulatory environment required, says Conrady.

Underground infrastructure

Dubai also has ambitious plans for an autonomous system of moving cargo around the airport – underground – but this is for the full opening of Al Maktoum International Airport (DWC), expected around 2027 or 2028.

"One of the challenges that we have in Dubai is distances, which, for the cargo industry, can be really killing at airports," says Struck. "So, our plans have a complete underground infrastructure where the cargo build-up is delivered one floor down, and automatically transported to and from the aircraft.

"This is something that we will really implement in DWC in the future, and this will avoid other challenges that we have – especially around traffic congestion on the tarmac, which is a big thing at large airports. It will help not only the safety of people and the aircraft, but also efficient and quicker handling."

Frankfurt's Conrady notes: "As an airport with lots of restrictions in terms of the usage of land, we can't build a completely new apron with under-apron tunnels taking ULDs directly

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to the aircraft. This is absolutely impossible at Frankfurt. So, we have to find a way to use the old infrastructure in a new way, to serve as best as we can."

Technology wishlist

Struck says he is also mostly focused currently on more immediate needs, and he has a wishlist of items he encourages technology companies to focus on creating solutions for.

"For example, for cargo screening and x-ray handling." he says. "Dubai is a crossroads for the continents, and we have a lot of sea-air product – arriving by sea, mainly from countries where intelligent security processes are necessary. Today, we bring it through x-ray machines and then lay it on the floor and then either do explosive detection by smearing or you have dogs running around. It is not very efficient.

"I would ask the industry to provide me with products like in baggage handling, where we they have a five-step screening programme that is to a certain extent automated. In cargo, we don't have this. So, I'd like it to go that way, to integrate a secondary screening process to kill that bottleneck that we have."

> *We are looking to do anything that is repetitive in a different way*
>
> BERND STRUCK

He continues: "Another bottleneck we have is also to do with sea-air. Sea containers are huge, so when a sea container hits our facility with 10-15,000 small parcels in there, what do you do then? Load them off one by one? The existing tools we have seen so far are not really optimised yet, so I'm calling on the industry to help me to do that in a more efficient – and more cost-efficient – way."

He also calls for "a robotic tool that is better than the experience of our people currently building pallets, to help us use every unused cubic metre to optimise the load", noting: "These are some examples of where we need to go in the future with automation – now and also in the long-term future. Sometimes I think that the long-term is seen as more important, whereas I feel the near-term should be more important."

Digital ULDs

Meanwhile, recent developments in bluetooth technology and its application have brought significant recent progress in the potential to track and monitor the status of ULDs and the cargo within them – also offering other benefits by exploiting the data captured.

Benoit Dumont, CEO of ULD pooling specialist Unilode, says: "We have around 175,000 containers and pallets moving around the globe. A lot of we are doing is about repositioning units where the airline wants them to be, so knowing where they are is very important."

But that is just the start. Unilode is rolling out a programme whereby all of its units will become digitised and sees the potential to automate "all the processes from the build-up to delivery; you will know where things are, whether they are ready to be loaded, ready to be released from customs; then you have a lot more visibility of your cargo. It would revolutionise that, it would automate that; you'll enable the process to be much smoother; and it would impact not only your quality, but also safety."

Cost benefits

He estimates ULD cost savings of 10-15% for an airline that runs its own fleet of ULDs, simply from optimising their use. "And that will also have a positive impact on the environment and other things. And there are a lot of other interesting use cases beyond that.

"With the use of IoT, you could also make sure that the cargo has been loaded in the right place on the aircraft, as you would have sensors that would identify that, with loggers, that say 'I'm a pallet carrying perishable goods', and so the cargo has to be no more than this temperature'. You have probably also lots of use cases in terms of the reduction of insurance and claims from customers – and reduce a lot of issues that are increasing congestion at an airport."

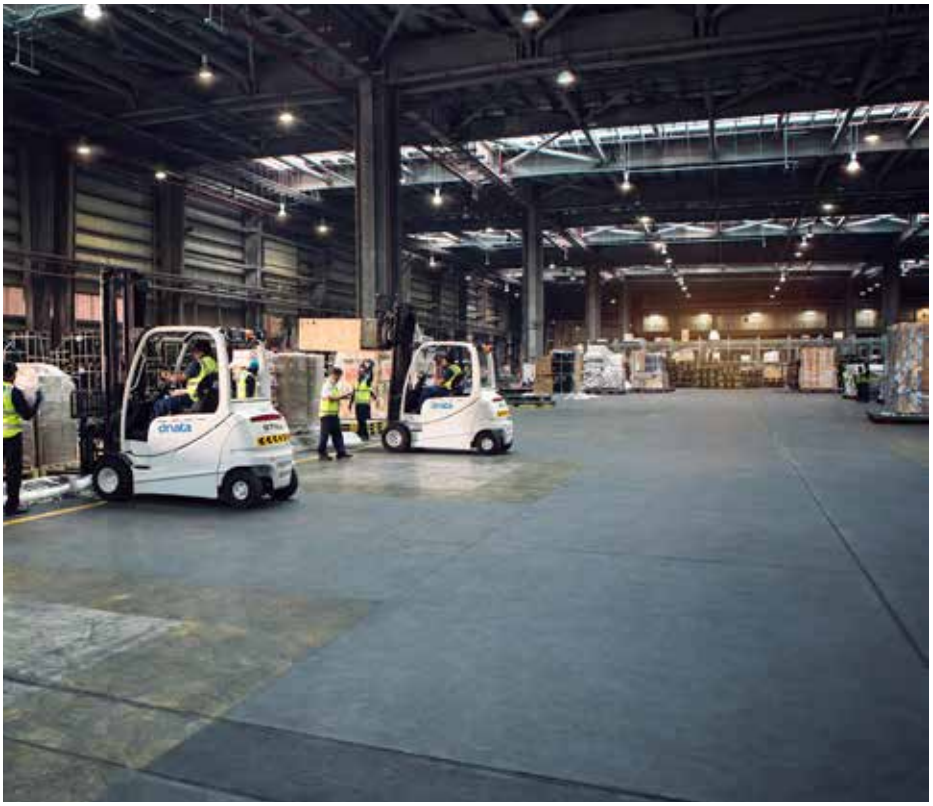
He says Unilode is "very happy to make this investment for the industry", noting that by digitalising 150,000 or 175,000 ULDs "you can create, probably, a standard the airlines can use. We are a neutral partner because we are working in the pooling environment, and I think there are a lot of benefits from this technology."

The benefits of standards

While IoT "is obviously something that we are into", he cautions that around 70% of IoT programmes are not successful. "So, how do you make this successful? You need to create a solution that is beneficial for the ecosystem. In the same way that you don't have five different mailboxes – one for UPS, one for DHL, etc. – you want to create a standard, interoperable environment to enable all these technologies to be connected."

Rather than an airline that has 20,000-30,000 containers investing millions of dollars to create its own network of readers, it is better to share that infrastructure, he argues. "Although there are a lot of ideas and use cases, to put that into practice is very difficult," Dumont notes. "Who is going to do this first?

"I really believe the solution is in collaboration,



> *For the foreseeable future, air cargo handling will continue to need human minds*
>
> TURHAN ÖZEN

Dnata is handling around 2.7 million tonnes of cargo at Dubai International

in creating an ecosystem of players, and maybe the airport authority is a good catalyst in one region. So that's my take on how to make it viable for the industry."

But he says there is no point in waiting for the perfect solution. "You can always wait for it to be better – it is like the iPhone 1," he observes.

> ***"Once we have a tool that steers the process and does not accept deviation from the process, I think this will be a long way forward"***
>
> BERND STRUCK

"This is about creating an environment thatt you're able to automate in stages, and improve the current status. Don't dream about it. Say: 'how can we improve the current status'? and gradually evolve into something, rather than to design something in the lab that probably would not work."

Other industries

Accenture's Dieckmann highlights an example from another industry: how mining giant Rio Tinto put devices on all its assets – trucks and mining tools – and now has a huge amount of centralised visibility and control of its operations.

But Fraport's Conrady highlights difficulties an airport has that a mining company doesn't face: "For example, we have so many different partners on the airport with different approaches, with different technologies and levels of technologies. So, it would be a key success factor to bring all the technologies together and define standards, to get the technology to interact together, to keep the supply chain running.

"There are also some safety and security items as well as regulations that give us not the freedom right now to act in a robotic and automated level. There is often a need for decisions to be made by humans – for example, for insurance reasons, the more complicated tasks have to be done by humans.

"In the future, I think that autonomous vehicles will have fewer accidents on the apron than humans do right now. But there is not a regulatory scheme in place right now to support this kind of future organisation."

Mid-term priorities

Attempting to predict where the most likely game-changing shifts will come into the cargo handling environment within the next five to 10 years, Dumont responds: "A lot of the cargo moves on ULD equipment, so the equipment is a kind of common denominator. If you can track that end to end, and if you can connect that to piece level, that will help to free up a lot of capacity to let other people do things.

"In this industry, we have a huge cost of non-quality; we have things that don't work, and we find a way round, and we accept that. I think what needs to happen is to pull these processes down and look at them and say: 'we will not accept this cost on quality', and make use of technology to remove these cumbersome tasks. I think by using tracking devices on ULDs is one thing that during the next five years will be game changing for the industry."

Process management

Struck responds: "I believe our call is to initiate really good process management – identify that and get the IT on board to control that it is delivered that way. I think this will be the biggest challenge, because nowadays people are doing the job uncontrolled. And once we have a tool that steers the process and does not accept deviation from the process, I think this will be a long way forward."

And for Turkish Cargo's Özen, it is about optimising cargo handling staff through the intelligent use of the digitally connected technologies that are becoming available: "All the wearable technologies, probably interfacing with typical warehouse management systems and work-order management systems: I believe there are huge opportunities to interface between these conventional systems with wearable technologies that can enable the operator to be faster, error free, and more efficient."

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New wave

A growing number of US airports are investing in improving facilities and processes and exploring cargo community systems and expedited customs clearance schemes, to facilitate cargo flows and stimulate new traffic, reports *Ian Putzger*

In early June, Worldwide Flight Services took out a long-term lease on a new cargo facility at Hartsfield Jackson Atlanta International Airport (ATL). The latest addition to ATL's cargo infrastructure comprises of a 120,000 sq ft (11,000 sqm) warehouse, 20,000 sq ft of office space, freighter ramp handling facilities, and a container bypass handling system. The set-up includes 2,500 sq ft of cooling facilities.

At Chicago Rockford International Airport, the expansion of a facility handling Amazon's traffic is scheduled to be completed in July. This brings the e-commerce giant's footprint at RFD to nearly 200,000 sq ft, notes cargo director Ken Ryan.

Ted Stevens Anchorage International Airport plans to build a new cargo warehouse as well as parking stands for widebody freighters. The parking positions and the first phase of the warehouse are expected to be ready in 2020, according to airport director Jim Szczesniak.

Michael Webber, associate vice-president at aviation planning and development firm Landrum & Brown, sees a broad move to cargo development at US airports after a long hiatus due to a lengthy spell of overcapacity. "Now, after years of solid growth, it seems spigots are beginning to open a little bit. We start to see ideas that were put on ice come back," he remarks.

According to CBRE, a large commercial real estate services and investment firm,

> ***"We are trying to build something like Air Cargo Netherlands in the Atlanta environment"***
>
> **ELLIOTT PAIGE**

demand has outstripped capacity growth in warehousing in the US since 2010. Airports, notably major gateways, have been struggling to cope with cargo throughput.

The rise in volumes over the past two years has revealed how tight cargo capacity at many airports actually is. Vacant cargo buildings in the wake of the disappearance of domestic all-cargo operators like Kitty Hawk, BAX Global or Emery Worldwide had created the impression of ample spare capacity, but eventually the realisation dawned that most of these are outdated buildings that have to be torn down, as they do not meet the requirements of a 21st Century operator or customer like Amazon, says Webber.

Launch of the Schiphol-Atlanta collaboration

Among other shortcomings, older buildings have the wrong types and numbers of truck doors, which reflects that requirements have changed as much landside as airside. At many airports, especially the congested legacy gateways like LAX and JFK, truck access is as much of an issue as airside productivity, if not more so.

Access challenges

Webber says access to the cargo areas is highly challenging, as airports have little control over this and need to work with city and state authorities, which may have conflicting priorities.

Emir Pineda, manager, aviation for trade and logistics in the marketing division of the Miami-Dade Aviation Department, agrees. "Truck access is a challenge. In peak times, it is difficult for truckers to get in and out," he says. To improve truck flows Miami has identified a parcel of land to develop a dedicated truck staging area.

Atlanta set up a staging area for truckers going to its south cargo area in the spring of 2017. Some forwarders and truckers had avoided the airport because of long wait times in the area.

Cargo community systems

Now the airport authority is moving to leverage technology for smoother truck flows. It has tasked Kale Logistics with the development of a platform that can serve as a cargo community system for the airport and its users. A few handlers, airlines and forwarders have agreed to take part in a pilot phase, which is expected to run until the end of the year, before the platform will be thrown open to other users early next year, according to Elliott Paige, the airport's director of air service development.

While managing truck flows and access to the cargo terminals is the first thrust of the initiative, ultimately it will extend to other aspects to become a cargo community system.

"We are trying to build something like Air Cargo Netherlands in the Atlanta environment," says Paige. This would extend even beyond a platform for the local air cargo community to include connectivity to


Anchorage's Jim Szczesniak

US Customs & Border Protection and other government agencies.

"Customs were very excited when we introduced the project. They will be able to see what's on an aircraft, which is great for the security aspect, especially as regards e-commerce," says Paige.

While the airport authority has been the driving force in this endeavour, it will not own the platform. "It is driven by the private sector. The airport is supporting it," says Paige.

Atlanta will be the first North American airport with a community system in this century. Some 30 years ago, when community systems were first springing up utilising EDI links, New York and Miami established such platforms, but these attempts failed.

"Government agencies were not ready to integrate into non-government systems at the time," recalls Pineda.

Now Miami is thinking of having a second go. "We've had some discussions on a community system. So far, it's not gained the traction I'd like to see. We're so big, there's so much infrastructure already developed," says Pineda, adding that the airport authority would be facilitating the undertaking, not provide the platform.

At Dallas/Fort Worth International Airport John Ackerman, executive vice-president of global strategy and development, also sees merit in a community platform. "We've been talking to a couple of air cargo clouds like Brucloud. We aim to have something this year that will allow everybody to plug in and link in to the data flow," he says.

No decisions have been taken yet, but he reckons that the backbone will be an agnostic platform. The development of individual apps like a truck queuing module will be left to others, he says.

Webber thinks it's time for US airports to move on this front, pointing out that some seaports have had elements like truck scheduling apps for years. Still, the technology is only part of the undertaking, he notes, especially if the system involves some kind of truck call-forth system.

"You can have a platform, but you still need some undeveloped land with some access to the cargo area," he says.

Elliott Paige (left) with Craig Smyth, CEO of WFS

Shift in attitudes

The push for cargo community systems is perhaps the most tangible manifestation of a shift in North American airports' attitudes towards a more proactive stance in cargo. Ackerman points out that there are some things which only airports can do.

For example, DFW is eager to develop traffic flows. Last October it signed an MoU with Aeroports de Paris to build traffic between the two gateways. There are cargo flows between the pair already, but the partnership aims to develop other streams that have potential, says Ackerman. He points to the oil and gas sector and the luxury goods bracket, noting that Louis Vuitton had put up a manufacturing plant south of Dallas.

Atlanta recently launched a partnership agreement with Amsterdam that aims to build a trade and logistics corridor between the pair. The US airport can draw on the experiences of Amsterdam Airport Schiphol with elements like its Cargonaut IT platform or the Air Cargo Netherlands cargo community initiative, says Paige.

> *"We aim to have something this year that will allow everybody to plug in and link in to the data flow"*
>
> JOHN ACKERMAN

"Once we get this going, I'd like to replicate this with others, particularly in China," he continues, pointing out that ATL has a sister airport agreement with Shanghai Pudong and that China is the second-largest trading partner for Atlanta.

Miami has eschewed formal agreements, but it has been working closely with several international airports, such as Singapore Changi. "We try to develop closer relationships with airports in China," remarks Pineda.

Freighter focus

Not surprisingly, airports with a strong freighter focus have also been actively pursuing new trade lanes. Rockford has established a strong relationship with Leipzig, to where it is connected by DHL and AirBridgeCargo, says Ryan. The Columbus Regional Airport Authority, under whose wings Rickenbacker airport operates, has been working closely with China's Zhengzhou airport. The pair have a co-operation agreement, but this has not yielded a direct freighter service so far.

In many cases these joint efforts focus on particular market segments or commodities. In Miami's collaboration with Changi, pharmaceuticals have been a major component. Both airports are members of the Pharma.Aero group, but so far they lack a direct connection.

"We're working on developing trade lanes with CEIV-certified airports," says Pineda.

At DFW, Ackerman is eager to leverage the recent attainment of CEIV accreditation. "We've had some preliminary talks with airports that are also CEIV certified. It's not the industry standard that everybody demands today, but we believe it's moving in that direction," he says.

For now, he wants to focus on this and not pursue another accreditation; but further on, the CEIV Fresh concept for perishables is of interest to him. In order to set itself up as a transit point for air cargo flows between Latin America and Asia, DFW has deliberately pursued perishables traffic and established a temperature-controlled air freight terminal, operated by Dnata.

Perishables flows

Anchorage is also having some success with perishables flows to Asia. One forwarder has set up a seafood refreshing tank at the airport to move king crab through Anchorage, reports Szczesniak.

He is looking to go after large, time-sensitive products like aircraft engines and landing gear. Taking advantage of Anchorage's location, manufacturers and carriers could store such items there rather than use expensive warehouse space in Shanghai, he argues.

Along similar lines, European auto manufacturers could use Anchorage to move parts to assembly plants in Mexico. For this reason, he is eager to attract a freighter connection to Europe.

Rickenbacker has seen "quite a bit of charter activity" for the automotive industry, reports chief commercial officer David Whitaker. A recent focus for the airport authority has been the live animal sector. Last summer it modernised and expanded its animal facility, adding 12 new animal stalls. It subsequently obtained US Department of Agriculture status for the building as a certified export inspection facility and a permanent port of embarkation for livestock, which has garnered some new traffic flows.

Miami: Goal is to be the e-commerce hub for the Americas

E-commerce initiatives

Predictably e-commerce has been a major target for a number of airports. Miami has an e-commerce task force. "Our goal is to make Miami the hub for e-commerce for the Americas," says Pineda.

The airport took a huge step in that direction when the Brazilian authorities gave their blessing to an agreement between Miami and Correios, the Brazilian postal service, under which the airport has been designated an external customs entry point for e-commerce headed to Brazil. Under Correios's 'Compra Fora' (Buy Outside) programme, Brazilians

> *"Our goal is to make Miami the hub for e-commerce for the Americas"*
>
> EMIR PINEDA

can order goods online from anywhere in the world using a special code, which automatically triggers a routing through Miami, where the goods are pre-cleared and flown to Brazil. Arriving there, they are treated as domestic cargo, resulting in much faster delivery.

According to Pineda, this has already ballooned to thousands of individual shipments, and he expects further growth as large platforms integrate with the programme.

"Other countries in Latin America are looking at similar concepts," he adds.

Customs clearance is seen as a critical element to build up a role as an e-commerce gateway. Rickenbacker is pursuing an expedited clearance scheme with the US duty authority, and Rockford is moving in the same direction.

"We have talked with customs about expedited customs clearance. You have to have that," says Ryan.

Ackerman is targeting a chunk of the US where so far no airport has CBP-approved e-commerce facilities. "We're talking with CBP to get DFW designated for the Texas region," he says.

Charter heavyweights

Outsize carriers need airports to give them plenty of space, competent handling, and the operational flexibility their customers need, Antonov Airlines' Graham Witton tells Will Waters

After growing last year, the outsize and heavylift market has held up relatively well this year, remaining stable while the general air freight market has recorded declines in many areas.

While both are affected by trends in the wider global economy, the heavylift market has its own unique characteristics and a particular customer base – plus its own set of challenges.

"With the outsize market, people will always use another aircraft if they can, unless they have no choice," observes Graham Witton, managing director for the US and UK at Antonov Airlines. "Then they have to determine whether flying is beneficial from a cost point of view compared to paying a penalty for being late.

"I think they think a lot harder now about that than they used to. They also try and source options from as many people as possible – the 'bean counters' are more and more in control now."

For example, they will want to see at least five or six quotes to move a piece of cargo from A to B – even if there's only one operator that can do that job. "That means we may get an enquiry from the shipper or the forwarder appointed, or other forwarders competing for that business. They, in turn, might use a broker or they might work directly with us. It multiplies the amount of work that we have to do," says Witton.

"And, of course, between us and the end client, everybody is trying to find an edge – maybe in promoting an airport that may be cheaper, or maybe splitting the cargo into different components or shipments, splitting it in different types of airplanes that may be cheaper. It's a tough market for the middleman, between us and the cargo owners."

He says it's quite common for brokers or forwarders to promote certain airports. "Some would rather work with a particular airport because they know they will be well looked after. We have to try to be fair to the airports. But we know the airports that are not necessarily the most suitable for our type of operation; we try and stay clear of those unless our customers specifically ask for it."

In the UK, for example, Antonov favours East Midlands and Doncaster airports – "both

very cargo friendly, very helpful, and close to each other". Some customers may request a price from Doncaster, and others from East Midlands. "To make it fair, we make sure the pricing from both airports is done at the same level," he notes. "And then it's whoever offers the best service."

Airport suitability

In terms of airport suitability for an outsize operator like Antonov, Witton says: "The key thing for us is working space; the ability to park the aircraft not too far away from where the cargo has to enter the airfield. So, remote parking stands, disused runways, taxiways, they are not always ideal. Just getting the equipment and people from the airplane to the nearest airside building can be difficult; they can't just walk. If you park on a cargo apron, normally the warehouse won't be too far away; it's possible for people to walk backwards and forwards, and the vehicles and equipment are able to get close to the aircraft, with very short lead times.

"But probably the most important point for us of all is the ability for an aircraft to land and stay there for any length of time, and they are able to accommodate the size of airplane there and still do everything they want to do with their flights.

"That's why we're not really favouring certain airports, like Cologne and Dusseldorf, because we know that their level of flexibility is not going to be there. They just don't have the space to accommodate our airplanes the way that they used to. So, we're going to the more cargo-friendly airports – Leipzig is our key German airport now, because they have plenty of space, the handling agent knows what he's doing, and offers very, very good service."

He continues: "And then we have airports like Vatry, near Paris: a very friendly, ad hoc cargo airport – not just for cargo, but even for refueling stops. Extremely long runway, which is very important for us from a performance point of view.

> *"The noise curfews imposed by some airports are quite prohibitive to us"*
>
> GRAHAM WITTON

"But at the end of the day, we will generally aim to go to any airport that a customer would like us to go to. If we can do it, we'll offer it."

Explaining why Cologne and Dusseldorf are less attractive than they used to be, Witton responds: "We had an issue with Cologne where a couple of days of the week they would not be prepared to handle us. We've had some issues with Dusseldorf mainly because of the noise surcharges that sometimes had to be paid.

Prohibitive restrictions

"The noise curfews imposed by some of these airports are quite prohibitive to us. Generally, the airplane would come in and want to rest a minimum 12-14 hours. That means the departure or the arrival often would be not during normal working hours, or daylight hours.

"So, if we arrive at 6am, do the loading through the day, by the time we've finished and the crew have rested, the airport is either closed or has imposed a jet ban. So, we then have to stay 24 hours."

Witton says he is sympathetic to the noise conditions and understands and agrees with the need for some controls. "But, if we take Cologne as an example, it's not as though we're going for the airfield every single night. It makes it harder for us to do what we need to do."

He adds: "The key selling point for us is flexibility; then we are able to be as flexible as we can with the airplane, with the crew, with the solution we present. But if the third parties that we rely on are unable to be as flexible because of their constraints, regulatory or otherwise, it can make it challenging."

Leipzig's appeal

Another reason Antonov favours Leipzig is because it has a base there to support the Salis operation – Strategic Airlift International Solution programme – that it runs on behalf of various Nato members. That used to be run in partnership with Volga-Dnepr Airlines (VDA), although that partnership ended on 1 January.

Witton explains that when the contract first went to tender in 2006, no single airline felt comfortable being able to provide capacity to Salis exclusively, without cutting themselves out of the commercial market. So, Antonov and VD went into partnership to offer one aircraft from each of their fleets. "And that then led on to the Ruslan International joint venture which spread into the commercial market."

That operated for several years, until various political issues made the partnership no longer sustainable, and the joint venture in both entities came to an end two years ago. Both Antonov and Volga than had separate arrangements with Salis, and then last year Volga decided it did not want to be involved in Salis any longer.

> *The key selling point for us is flexibility; then we are able to be flexible with the airplane, with the crew, with the solution we present*
>
> GRAHAM WITTON

"Since 1 January, we have provided airlift to them exclusively – normally with two airframes," says Witton. "The programme is more flexible now, which enables us to tap into the capacity that's allocated to them for the commercial business." Because there are no specific airframes dedicated to Salis – as in tail numbers – this allows more flexibility to interchange airframes within the fleet. "We have to give them a nominal two airplanes; but how we manage making sure there are two aircraft allocated to them is essentially up to us," Witton explains.

"And we have the option to ask them to release capacity if we can see they have nothing booked for the airplane – because generally, most flights require a few days' advance notice. Some of the flights require even longer notice because of the type of cargo, where it's going to, or where it's over-flying. You can plan a lot further ahead now than you used to be able to."

Fleet composition

The two AN-124 aircraft for the Salis programme leave another five of the 150-tonne payload aircraft available from the airline's fleet of seven. Alongside this, Antonov operates the world's only AN-225 mega-freighter, capable of carrying payloads up to 250 tonnes; the only surviving commercially certified AN-22, a 60-tonne payload aircraft that is the world's largest turbo-prop; one AN-26; one AN-74 passenger aircraft; and the very small AN-38, "used for para-dropping".
Such a unique fleet needs to be managed carefully, in order to preserve its longevity.

"You have to control it as best as you can, because if you start flying all the airplanes nonstop, they'll run out of hours before their maintenance check, and you're left with not much capacity. We try to carefully manage the availability so as one airplane comes into the maintenance facility for a check, another one's ready to go out," Witton says.

> *The most important point of all is the ability for an aircraft to land and stay there for any length of time*
>
> GRAHAM WITTON

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"We want to work with as many people as possible; but at the same time, we're not just going to do any flight at any price, because we're trying to manage the way our aircraft are flying in the most efficient way."

Positioning priorities

Key to this is "to be able to run the airplanes with minimal intermediary positioning between flights", he notes. "If we have a leg to fly with the airplane from Europe to North America, that's the area we're going to be concentrating on – not sending a flight down to South Africa. Theoretically we could do it, but it will be using up a significant number of hours – and affecting our margin. The margin we achieve is done through the overlap of all the flights that we're doing."

That process is largely planned manually. "You can never automate that," Witton says. "Our commercial planners are responsible for making sure that the airplanes are operating as efficiently as possible – to balance when we have a fixture with a customer, where it's best placed in our programme; what equipment that might require – that equipment is not

Continues on page 32

Witton: Because there are no specific airframes dedicated to Salis, this allows more commercial flexibility

Oil, gas, and energy sector

Demand from different parts of the energy sector has gone up and down in recent years, to some extent fluctuating according to oil prices.

"Our activity in the oil and gas market is when something goes wrong, such as an urgent need for production recovery, or there's exploration taking place in an area which is difficult to reach," says Witton.

"The exploration side of things is not as active for us as it has been – primarily, I think because some of the exploration projects are on a much smaller scale, or in a much lower budget, for whatever reason."

Of course, when breakdowns happen, a different calculation comes into play. "But I think, nowadays, they still consider long and hard how much they really need the cargo before they commit to flying it by the Antonov, compared to years gone by.

"I would say the gas market is a little bit more favorable. But it could be a lot better; we had some good activity – particularly in the Far East – a few years ago in that market."

But the growth of fracking has limited demand. "They're not going to need the Antonov for that sort of activity because their components are much smaller," says Witton. "I'm confident it could come back up again, but for us we're in a lull right now (in that market).

"And whilst we're in a lull in that area, we're surging in others: aerospace, power generation, and even defence to a certain degree."

Power generation projects

Power generation projects come in a variety of forms, from sustainable energy projects to disaster recovery.

"We did a project last year with the 225 to Bolivia for a generating station," says Witton. "The driving force for flying it was the terrain. They had to go to deepest, darkest Bolivia. The cargo came in through a port in Chile and had to get across the Andes, and air freight was the only option – because the components were so large and numerous. And when power plants go down, they need to be reactivated very, very quickly and that often requires flying components, sometimes great distances."

Other recent projects have included responding to power supply problems in Pakistan that left a lot of people there without electricity. Some of this is

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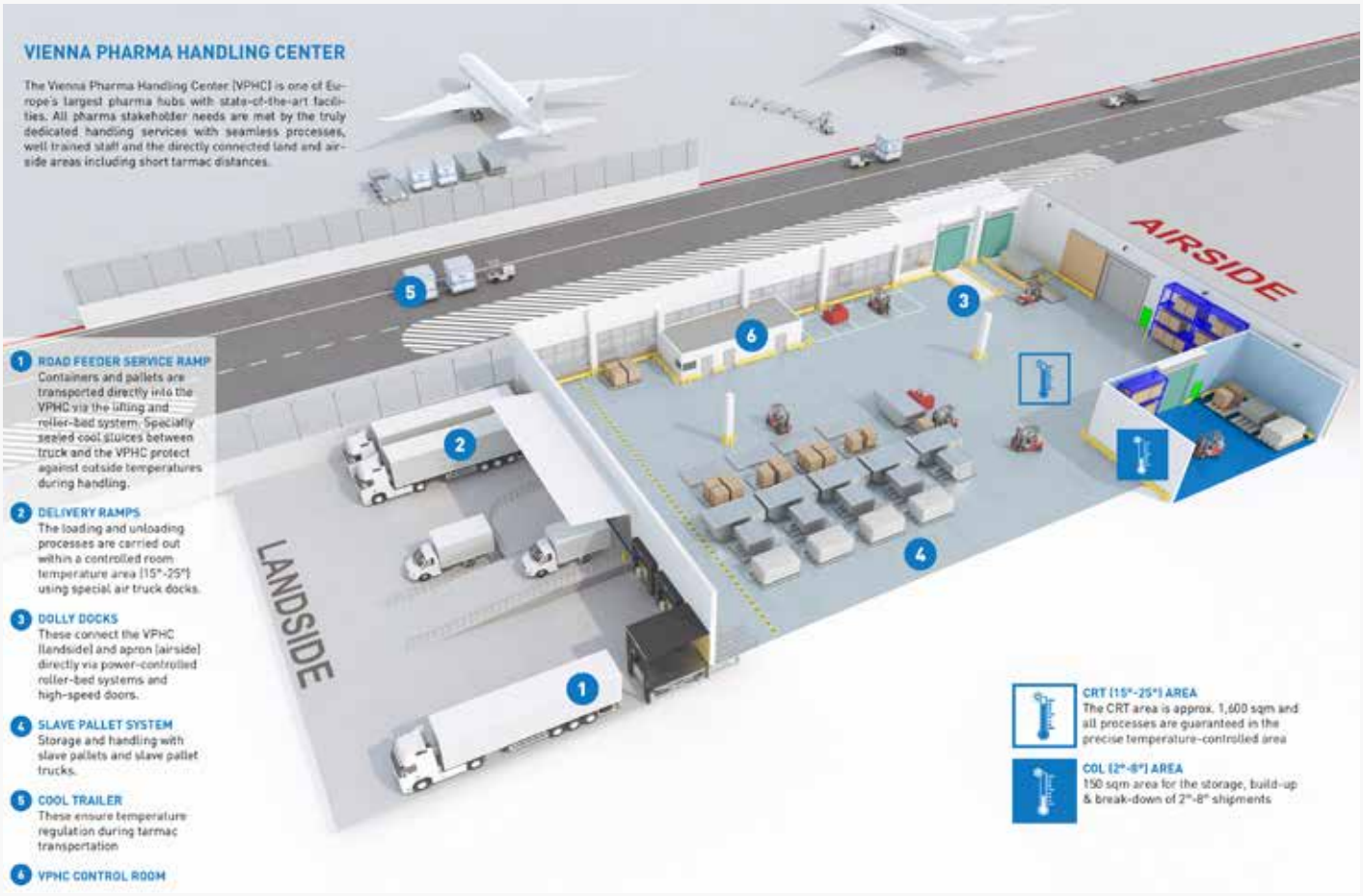
Cool Pharma Handling

Vienna Airport has invested around €1.8 million in its new 1,600 sqm Vienna Pharma Handling Centre, which opened in December 2018. Part of the airport's Air Cargo Center and directly accessible from land and airside areas, the facility promises a complete end-to-end solution for pharma products, featuring a seamless cool chain, quick handling processes, and short turnaround times between air and road transport



The Facility

The Vienna Pharma Handling Center opened in December 2018. It is part of the Air Cargo Center and directly accessible from both land and airside areas.

The quick and highly specialised handling of temperature-sensitive pharma products directly from aircraft to the roadways or vice versa is the core competence of the new 1,600 sqm Vienna Pharma Handling Center (VPHC). This makes Vienna International Airport the only airport in Central Europe to offer a complete end-to-end solution for pharma products from one single source, featuring a seamless cool chain, quick handling processes and short turnaround times between air and road transport. Vienna Airport has invested about €1.8 million in the new Pharma Handling Centre.

The Perfect Hub in Europe – Pharma Catchment Area of Vienna Airport

15 Country Borders (12 Eastern Europe) Within one day driving, 23 Within 1.5 day

The Vienna Airport Cool Trailer Q&As

Q : What was the aim of purchasing the Cool Trailers?
A : The four Cool Trailers prevent temperature deviations on the tarmac transportation to ensure a seamless cool- chain process.
Q : What is the controlled temperature-range?
A : The temperature can be set from-20° to + 29°.
Q : What types of ULDs can be transported ?
A : All types of aircraft containers and pallets with a maximum height of 2m can be loaded.
Q : Which fuel is used for running?
A : The Cool Trailers run on diesel and electricity.
Q : What is the biggest advantage?
A : The Cool Trailer takes the cargo directly from the VPHC to the A/C. The ULDs have a minimum exposure time (within 1 minute) on the ramp

Asiana Airlines

Mr. Lim Byung Chan , Regional Manager in Austria / Mr. Hong Jun Pyo, Sales Manager in Austria

Please introduce Asiana Airlines in Vienna Airport.

We are in charge of sales and flight operation of Asiana Cargo in the whole Eastern Europe region including Slovakia, Slovenia, Hungary, Poland, and Vienna is playing a significant role as a HUB gate from/to Eastern Europe. We are operating seven weekly flights with Boeing 747 freighters.

Do you use the VPHC for the handling of your pharma shipments?

Before the new facility was established, all of our pharma shipments were handled through the airport's general warehouse. Before its official opening, however, a test shipment was proceeded very successfully. Currently our pharma shipments from/to Budapest are being handled via the VPHC.

What is the reason for your choice of the VPHC? Are you satisfied with your choice?

We are CEIV certified since June this year and the quality demands of our customers are being even higher. Based on the standards of our HQ, the VPHC is providing a seamless cool-chain process, thereby securing our pharma shipments without temperature deviations. We also gained a good reputation from our customers.

What do you expect from the VPHC for your pharma business development in the future?

Asiana Cargo "Cool +" is a specialized cold chain service which delivers cargo in the shortest span of time possible while maintaining ideal temperature. The VPHC meets our high standards and we expect that our strategic alliance will be a stepping stone to attract more pharma shipments via Vienna.

Do you have any other plans for further business development?

The VPHC is our definite strategic partner and we plan to co-execute a series of marketing events such as advertisement promotion, one of which was already run with big success in March this year.

Kuehne + Nagel

Kuehne + Nagel is now utilising Vienna International Airport's highly specialised service as "Preferred Partner" for the handling of its pharma shipments. Within the framework of the partnership, the global logistics provider benefits from its own, exclusive handling area, allowing for even greater flexibility.

Julian Jäger, member of the Management Board (COO) of Flughafen Wien AG:

"Quick and efficient cargo handling is a key success factor in international freight transport. Thanks to the new Pharma Handling Center, 23 countries can now be reached within a day and a half, and fifteen countries can even be supplied within 24 hours of travel time via the Vienna pharma hub. We are delighted that Kuehne + Nagel relies on VIE's flexibility and operational excellence", states Julian Jäger, member of the Management Board (COO) of Flughafen Wien AG.

Heiko Schuhmacher, Regional Airfreight Manager at Kuehne + Nagel:

"This partnership between Kuehne + Nagel and the Vienna International Airport will further enhance service levels for our customers from the pharma & healthcare industry in Austria and the neighbouring countries. By using Kuehne + Nagel's KN PharmaChain customers gain access to industry-specific, GxP compliant transport and logistics solutions with the same high quality standards worldwide."

Patrick Mair, National Airfreight Manager at Kuehne + Nagel Austria:

"All services such as packaging, storage, loading and unloading of temperature-controlled shipments can now be offered in an exclusive handling area. An additional benefit of the partnership is the fact that the facility is situated directly at the apron with very short tarmac distances to all aircraft positions. This enables a continuous cold chain for our shipments and seamless, temperature-controlled transportation to and from the aircraft, which was not previously available at Vienna International Airport."

KEEP COOL – COOL HANDLING

GDP COMPLIANT

New Pharma Handling Center at Vienna Airport
For further information visit viennaairport.com/pharmahandling

Vienna International Airport

triggered by the much greater demand on the energy systems for things like air-conditioning and telecoms systems than there was ten years ago. "So, when it goes down, everybody's panicking a lot more than if an oil well has gone down," Witton observes.

The requirement may be for power companies to source and replace the components, or set up generators, for example. "They know how much time they're going to save, and they know how much generating capacity they're gonna lose; and then they can do the maths and decide: do we wait or should we fly?"

He says Antonov has done some large wind-power generation projects in the past. These are "not as numerous as other areas or other components that we fly, but always interesting jobs". The wind power equipment is relatively light, "but the size and geometry of the items are quite interesting when it comes to preparation".

More often, the power generation projects are from conventional, fossil-fuel power generation – occasionally coal or oil, but more often gas, or diesel.

Disaster relief

Diesel generators are commonly needed for disaster relief.

"It seems that's easier equipment to provide, particularly on a temporary basis," notes Witton. "So, after some sort of humanitarian disaster, they need to provide significant power-generating capacity, so they set up diesel-based generating stations – often on a rental basis. If they need it to be flown out, which 9 times out of 10 they do, we can carry them out – often trailer-mounted, so it's maneuverable to the site where it needs to be located. When it (the emergency) is over, they can send it back by sea."

The origin points for these moves are often Europe's main industrial countries like Germany, France and Italy. "And Eastern Europe is becoming more important for us, especially in the power-generation sector," Witton says. For example, there is a major manufacturer of power-generation equipment in Budapest.

In terms of being a cargo-generating location, he says the UK is now "a shadow of its former self, even before Brexit". In the subsea oil and gas field, for example, he notes that Leeds-based Cameron had recently closed down its UK manufacturing operations after being taken over by multinational Schlumberger in 2016 – and with it "one of the UK's last cargo exporters was lost". However, the closure was reportedly largely due to a downturn in the oil and gas industry rather than just another casualty of Brexit.

in every single airplane, so, that's got to be deployed in the right place, or switched between airframes. The commercial planner then has to balance maintenance regimes, airworthiness regimes, engine hours, limitations that might mean an aircraft has to pass through our base for at least a check before it can continue on."

Fluid business

Such a check might sometimes happen in the middle of a commercial operation.
"It's a very fluid business that we're in – because we always try to be flexible with our customers, and if they ask us to push back a flight for various circumstances, we'll do our best to accommodate," Witton says. "So, one minute your flight might be on aircraft 82007, tomorrow it might be on 82009, and then perhaps changes again – until we make it run in the most efficient manner."

It's also a very technical business that doesn't lend itself well to automation – such as through a cargo charter booking platform like that recently launched by CharterSync.
That might work for small aircraft, but not for the heavylift market, Witton says, adding: "We deal with freight forwarders and brokers, and they still like the personal service; talking to somebody. Some would be quite happy communicating by email, but at least you know there's some human there. If it starts going automated through platforms like that, I don't know how that will work. It's a bit different from the executive jet market.

"Good luck to them. But it's certainly not workable for our airplane. The technical needs are such that you need at the very least telephone calls and, at best, face-to-face discussions – where I can explain how we're going to do something, and they explain what they can do with their cargo at a technical level. It's only when you see each other eye to eye that you can gauge whether they really understand what you're saying or not.

Efficient communications

That's not always practical, he acknowledges. "But video conference calling is a big plus. At our new office in Stansted, we have a video conferencing platform being set up – because a lot of our US customers, in particular, like to see who they're talking to."

That's not only because there are a lot of technical issues, but also the need to build

> *"Leipzig is our key German airport now, because they have plenty of space, the handling agent knows what he's doing, and offers very good service"*
>
> GRAHAM WITTON

trust. That is true whether the customer is a shipper, freight forwarder, broker, or agent. "Obviously, the more layers in between, it's more likely something can get lost in translation," Witton notes. "But the good intermediary will at least open the door for a three-way discussion at a technical level – and feel that they can trust us in talking to their customer, without fear of having them taken from under their nose." But the greater competitive concern is generally between intermediaries.

Pricing the job

Witton says pricing the job is the easier part, with the technical assessment and the solutions presented at a technical level taking longer and requiring the greatest level of care and attention.

The pricing can be done without having done the technical assessment – "to a point", says Witton. "Generally, we'll know what type of equipment we will need to provide, and if the customer has to put make some additional preparation. So, we can say: 'Assuming you prepare the cargo in accordance with our needs, this is the sort of cost you're looking at, from A to B, and this is what it includes and this is what it doesn't include. If you want some extra service on top, then let us know'.

"If we wait for the technical solution before we price it, we wouldn't react quickly enough for the customer. At the very least, they want to try and decide whether the air option is a workable solution. They can budget for it, and if they decide to go this way, then we can start digging into the details on how we're going to do this. But they need a number in their head, first of all." ■

Healthy collaboration

The latest results of Pharma.Aero's air logistics data sharing initiative promise significant benefits for pharma shippers – and the wider air freight and logistics sectors, reports *Will Waters*

Ambitious pharma air logistics digitalisation and collaboration initiative Pharma.Aero is close to completing the second phase of its plan to create a data-sharing solution to improve visibility and transparency in the pharma supply chain.

The expected launch of a commercialisation phase promises to deliver significant benefits for pharma shippers – and lessons on data sharing and collaboration for the wider air freight and logistics sectors – following successful pilot trials using shared live data from participants across the air logistics chain, including pharma shipper, forwarder, airline, and airport members of the grouping.
Pharma.Aero was formed in late 2016 by Brussels Airport and Miami International Airport, respectively the first and second IATA designated CEIV Pharma hub airports in the world, to improve pharma handling and quality in the air cargo sector worldwide – with an emphasis on the CEIV certification programme – by sharing expertise, data, best practice, and jointly working on innovative initiatives.

The association's so-called 'Digi project' – 'Certification of Pharmaceuticals Air Trade Lanes through Digitisation' – was launched in September 2017. Phase 1 – or Digi 1.0 – "set out to solve one big pain point in the industry: to give more visibility and transparency to the pharma supply chain", explains Jaisey Yip, vice chairman of Pharma.Aero and associate general manager for cargo and logistics and air hub innovation at Changi Airport Group.

"We were trying to get collaboration among the different stakeholders, to get each of them to share data onto a common IT platform. And when the data was all overlaid together, to get good transparency of shipments."

A successful proof of concept demonstrated that data from different systems and in different formats can be ingested and displayed on a dashboard to enhance visibility throughout the supply chain.
The organisation also completed its second key project, the 'CEIV Validation Project by the Shippers', to provide feedback from pharma shippers on the CEIV programme and improve its standing, recognition and uptake among shippers – feedback that IATA has been integrating into the CEIV pharma methodology.

Digi 2.0 phase

"Last year, we kicked off Digi 2.0, the continuation of 1.0, this time using live data," says Yip. "We have a prototype lane today, Brussels-Singapore-Sydney. The prototype project includes the two airports – Singapore Changi Airport as well as Brussels Airport – the airline is Singapore Airlines, the forwarder is DHL Global Forwarding (DGF), and the shipper is Pfizer. We have already run a number of live shipments, where the different stakeholders share different data on a common IT platform including flight status, data from cool dollies, data from the cool chain facilities."

The collaboration takes place through a common IT provider, Nallian, with the data-sharing application tool – Global Pharma Tracker, or GPT – created from the analysis of the Digi 1.0 project, explains Pharma.Aero secretary general Frank Van Gelder.

By the end of June, it had presented the pilot results to the pilot members, and then to all of the members of Pharma.Aero in June, to get their feedback. The next stage involves finishing the technical paper and the white paper, and then external communication – probably in the third quarter, says Yip, with Pharma.Aero looking to close off Digi 2.0 by early autumn.

"We will continue to do and monitor some more live shipments, but we have reached the objective to prove that this can be done and this concept is 'commercialisable'," Yip says.

As part of the process, Pharma.Aero's user board, which consists of other members of Pharma.Aero and other shippers, has been providing input on the value that they see, "and how going forward they can harvest the benefits", Yip explains, with the organisation this collating all this feedback.

Positive signs

But even ahead of the completion of that, the signs are positive that the concept is commercialisable.

Nathan de Valck, Pharma.Aero chairman and cargo and product development manager at Brussels Airport, comments: "I think we consider we've proven the technology. We have identified the challenges, and come up with answers to overcome those challenges – like data ownership, and the value proposition. And the next phase will be about actually bringing it to be a commercially viable project.

"What we have today is a concept that is validated, but it is not a product or service yet. The aim of the next phase, which we intend to launch, is building a viable live commercial service, together with an IT partner."

Yip stresses that Pharma.Aero was set up to serve the overall pharma industry, not only its members, so the next phase "is to give greater transparency and visibility for global pharma shippers, even beyond our members".

Fostering collaboration

Frank Van Gelder, secretary general of Pharma.Aero, highlights the challenge and the achievement already of "fostering collaboration to make a project like this possible. It is a lot of effort to create the momentum, but also to create the mindset, to get all the noses in the same direction. To go from theoretical idea to a proof of concept, a lot of human resources are required to bring people together and align them."

De Valck agrees: "Everybody talks about data sharing and cooperation, and everybody is convinced that this is the next big thing, potentially of innovation, but you see very little actual projects and collaboration efforts. It's very difficult to bring it together. I think that is the real value of this project, that Pharma.Aero brings the table – the fact that we took on the challenge: instead of talking about it, we have built it and proven it can be done."

Wider lessons

De Valck believes there will be lessons from this project for the wider air freight sector and logistics industry, noting: "Typically, when we finish a project, we finish two reports: one is a technical report, a very detailed report, made available to all the members, outlining all the details of the project – the lessons learned, but also technical aspects, legal aspects, governance, commercial model, business model, that kind of thing. And then the second report that we make, which will be made available to the wider public, is the lessons learned without all the technical details.


Jaisey Yip


Nathan de Valck

> *We are already exploring the possibilities to launch a third phase, the full commercialisation*
>
> NATHAN DE VALCK

"We have already published two white papers – one on CEIV validation, and one on Digi 1.0, and in the coming months we will publish one on the Digi 2.0 project – all the lessons learned and best practices that others can use when they also set up a collaboration like this on data sharing. And if people want to have access to the full detail and participate in the projects, they are welcome to become members – that's what the organisation is about."

De Valck says he is not aware of any parallel developments in other parts of logistics. "On the ocean freight, there are some individual company initiatives for tracking, but there are no industrywide initiatives, as we understand it," he notes. "I don't know too many other examples."

Aligned with One Record

But the project is aligned with other air freight industry initiatives, such as IATA's One Record. "We have an MoU with IATA," De Valck highlights.

"IATA is a standard-setting organisation, so they are never going to build a tool itself. They will set the standards which can be used to build platforms. So, we're talking with them, and will make sure that the solution that we suggest for the industry will be in line with the One Record philosophy."

Van Gelder stresses that Pharma.Aero ultimately has multimodal aims, to meet the needs of pharma shippers that are using all modes of transport. "We want to be as complete as possible for the entire supply chain – all the players from the producer side to the consumers," he notes. "IATA is airline focused, an air industry focus, but there are other players in the entire supply chain that are very important.

Yip adds: "Pharma.Aero is multidisciplinary, involving the entire supply chain, from shippers, forwarders, technology companies, airlines and airports, and also cargo handlers. It doesn't preclude us to look into multimodal activity with our Global Pharma Tracker project. In the pilot, we're looking at door-to-door, so it starts from the shipper, Pfizer, and sharing certain datasets that kicks off the shipment tracking.

"It starts as a house air waybill, and then will convert that into a master air waybill eventually. But it doesn't prevent us from looking in the future at multimodal, for example sea-air shipments."

Multimodal aspect

De Valck highlights the need to include the warehouse and road connectivity to the airport, as well as the flight stage, noting: "It is really the multimodal aspect. Pharma.Aero exists to guide our industry and serve the shipper in a better way. So, we listen to what the shipper expects and tells us to do, and they're telling us: door to door.

Yip adds: "So, right now, the data-sharing element is all the way from the manufacturer, Pfizer, and it ends with the consignee," with all of the participants contributing data from the parts of the shipment journey they are responsible for, from origin to destination.

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With Pharma.Aero on track to complete Digi 2.0 this year, including the analysis, De Valck notes: "We are already exploring the possibilities to launch a third phase, the full commercialisation. Nothing has been decided yet; it takes some time, especially for the shippers, to decide what is the value. Do we want to step in now or at a later stage? Those discussions with the shippers that are members of Pharma.Aero are ongoing at this point."

That next phase means gradually launching further lanes and tracking shipments on those lanes. "You cannot launch this type of data-sharing project with a big bang for the whole world," explains De Valck.

"It will be step-by-step as well. We will start with a couple of pilot lanes, and it will be the shipper that will decide which lanes and which shipments and which routes will be identified for this next step."

Trevor Caswell, cargo account manager for Edmonton Airport and Pharma.Aero's newest director, says some of the outcomes of the project will develop from the discussions with the different shippers, "because every shipper is going have a different angle and what they see from the different reports. Some of the next steps will be an evolution from the lessons learned – the feedback we receive from shippers."

Van Gelder says one of the strengths of Pharma.Aero is "its flexibility: based on the analytics that we do, phase 3 can go in this direction or that direction".

De Valck says: "Shippers appreciate that. And the group is growing; that's the proof that it is a success."

Three main benefits

He says there are three main benefits – or "value drivers" – shippers are seeing.

"The biggest value that GPT is bringing is visibility of the shipment to each of the stakeholders in the supply chain, and this ability to offer real-time monitoring and visibility. With that in place, a lot of preventive measures can be undertaken. So, if through the tracking you can see that the temperature is going a bit out of line, the system can automatically notify whichever custodian the shipment is with to take corrective and preventative actions. And over time, with the data collected, it will also enable shippers and different parts of the supply chain to do some predictive analytics that will also help them with lane assessments and risk assessments."

These lane assessments enable them to choose one lane over another, or identify that a certain lane often has a certain kind of challenge, and therefore to implement some measures to protect the shipment.

Yip notes: "It gives more transparency of the lanes and of the robustness of the lanes, and if the lane is critical to the pharma shipper, in overcoming some of the challenges – for example, using different kinds of packaging, and also maybe working differently with the particular stakeholders on this lane."

Van Gelder says: "And going into personalised medical care today, with values that will be going up and up, it becomes extremely important to have that information before they send a pallet of (products worth) $6 million."

The predictive data generated may even lead shippers to realise "that the type of packaging they were using now seems not to be necessary. So it can go in both directions," he adds.

Cargo iQ milestones

While Pharma.Aero aims to provide innovative leading solutions for pharma shippers, this is best achieved by aligning with and using existing air freight quality improvement initiatives such as Cargo iQ.

"We use the standard Cargo iQ milestones in the model," De Valck explains. "They are the different process steps that are used, and the freight status update messages that are sent by airlines, they define the milestones in the data-sharing mapping of the lane. So, we have integrated that into the system."

But the data elements provided by the participants of Pharma.Aero have "provide a higher level of granularity of the tracking".

Nevertheless, the two are very separate initiatives. "Cargo iQ defines the standard milestones, and standardises our industry there, and does some KPI reporting, which is fine," Van Gelder notes. "We use that standard mapping of a lane and other different milestones as steps, to add additional layers on top of that – like temperature, like quality


Trevor Caswell


Frank Van Gelder

reports, like excursions – any type of extra data elements on top of the freight status update messages.

"It is a multi-layered data source platform." And he says Pharma.Aero goes beyond the current bounds of Cargo iQ, which he says "is a certain type of data in a box. In this project, we also go to the partner shipper and to the final customer as well. So, it is boxes of data that we layer over each other, and getting then a total data view."

Beyond air waybill level

De Valck says Pharma.Aero also goes beyond air waybill level or even a piece level, noting:

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"It is even a level down. We have the master air waybill – the consol usually, when it is handled by the cargo handler and the airline; the forwarder typically works at the house air waybill level; and the shipper works with a level down, a picking list. All those levels can be used in the data platform."

He is convinced what Pharma.Aero is creating will ultimately also be applicable to non-temperature-controlled shipments. "I think what we are building now is a data-sharing platform for the most sensitive type of shipment that we transport: time and temperature-sensitive shipment. It can be used for any type of shipment. If you can handle the most sensitive ones, you can also share data on general cargo shipments, absolutely."

Caswell notes: "There are lots of transferable skill sets that the programme will produce reports on, so others can benefit from these findings.

Industry development

De Valck adds: "It sounds naïve, perhaps, but, we're not doing business development, but industry development."

It makes sense that such an initiative has come from this most sensitive cargo vertical, where there is the motivation among shippers to invest their time and data in developing the project.

> ***"It gives more transparency of the robustness of the lanes, and if the lane is critical to the pharma shipper, in overcoming some of the challenges"***
>
> JAISEY YIP

Caswell adds: "The opportunity to do it is incredible."

Yip stresses that the GPT application "is just one of our Hallmark projects. There are also two other ongoing projects we're working on: one is on cargo security, and the second is on pharma-certified trade corridors." Hong Kong International Airport and Brussels Airport began piloting the airport-to-airport (A2A) pharma corridor initiative at the start of this year, in collaboration with Cathay Pacific, Pharma.Aero, and pharmaceuticals companies MSD and Pfizer. The aim is to subsequently expand the initiative to other Pharma.Aero member airports to form a network of A2A pharma corridors.

Yip continues: "At the same time, Pharma.Aero continues to receive very strong interest from the industry." The organisation now has more than 25 members, including major pharma shippers Pfizer, MSD, and Johnson & Johnson.

"We will also be announcing our fourth pharma shipper soon," says Yip. "And we are also close to signing off with other major airports, airlines and logistics partners. So, it's a very exciting time for us."

Caswell adds: "There is also some very great interest from bio-pharma companies in Canada and the US."

Van Gelder notes: "What's interesting to me is that the members that join us now are actively approaching us. So, what we get is highly motivated industry partners that really want to improve the industry. It's really an exciting group of people and members." ■

The Digi 2.0 prototype project includes Singapore Changi Airport (pictured) and Brussels Airport

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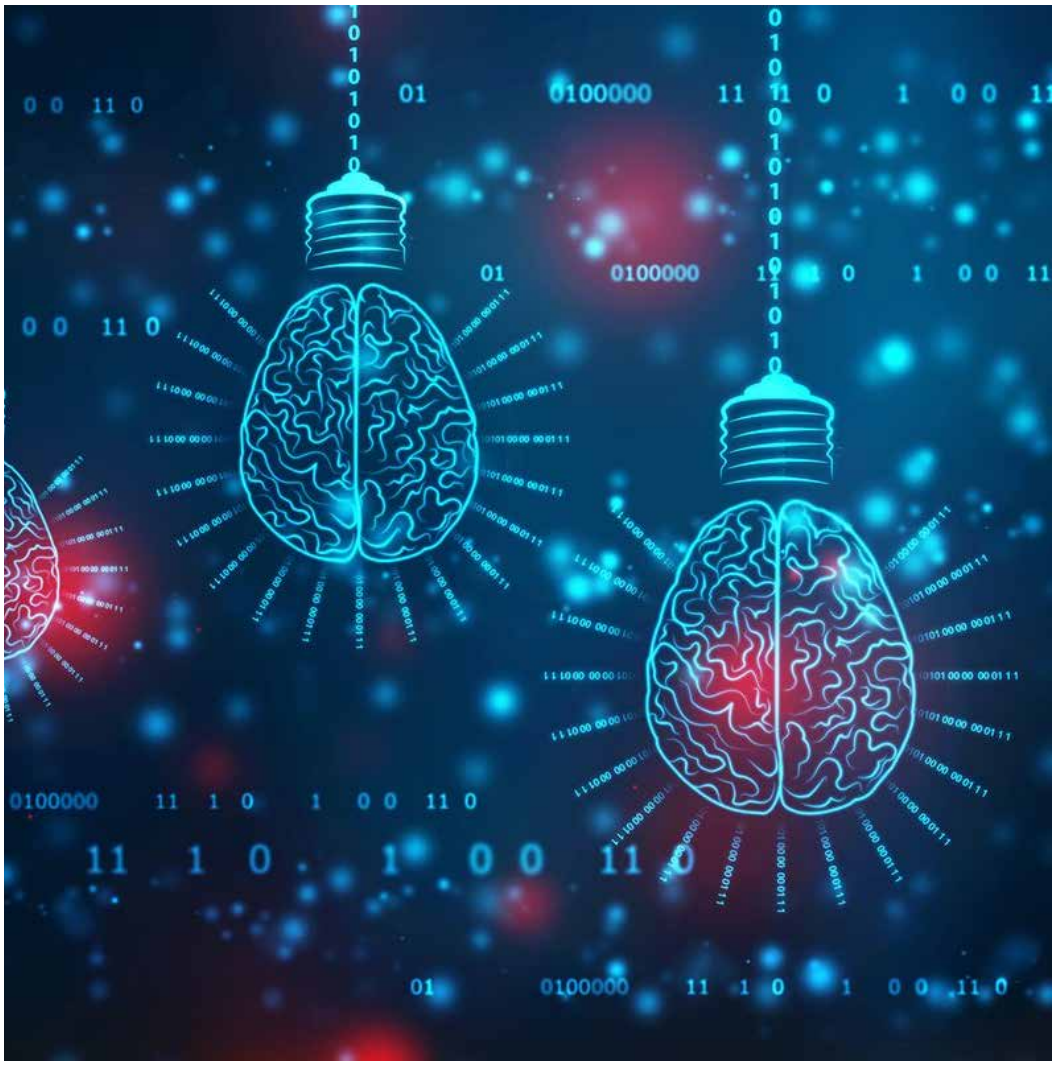
Predictive value

Using artificial intelligence to anticipate events like a shipment failing its delivery time would improve air freight services significantly and offer a competitive advantage, *William Hayes* reports



Artificial intelligence (AI) has undergone a rapid transformation in recent years, from sci-fi buzzword to a significant reality in more forward-thinking industries – including within parts of the aviation sector.

While some parts of the air freight world have been slow to embrace digitalisation, data experts and cargo specialists met at this year's Air Cargo Europe event in Munich to discuss the potential of AI within air cargo, and whether it would soon become a meaningful tool – or an industry necessity.

"I truly believe AI can transform the air cargo industry – at this moment the technology is there, the computing power is there, and I think we are becoming more open-minded towards adopting digitisation in our day-to-day industry," said Sara Van Gelder, cargo development manager at Brussels Airport Company – who is also responsible for Brussels Airport's open data-sharing platform Brucloud, designed to enable different stakeholders in the air cargo community to act as an integrated network.

She added: "The challenge for a lot of companies is still stepping into this vision of data sharing, which some companies are still super-reluctant to do."

Thorsten Friedrich, head of eFreight global rollout at Lufthansa Cargo, agreed that AI can be beneficial for the industry, noting how his company is "collecting a terabyte of data for every flight that we are operating, and can predict the chances that individual components of an aircraft fail during the operation – so when the aircraft lands we can predictively and pre-emptively repair stuff that could fail, which drives down operational cost".

Pre-emptive capability

This notion of pre-emptive capability was also picked up on by Manel Galindo, CEO of

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WebCargo by Freightos, who highlighted the Jeff Bezos adage: "The best customer service is if the customer doesn't need to call you, doesn't need to talk to you. It just works." His reference to Bezos comes as the US multi-billionaire's Amazon increasingly encroaches on the territory of the air freight industry, including via its $1.5 billion investment in a 300,000 sqm US air cargo hub.

"The appeal of AI, in my view, is to try to reduce the pain of every player in the chain, from the shipper, airport, freight forwarder, airline. The idea is if you bring in AI, you can make the whole chain more efficient," said Galindo, whose WebCargo website receives more than one million air freight rate searches per month.

L-R: Adrian Kosowski, Manel Galindo, Thorsten Friedrich, Sara Van Gelder

Adrian Kosowski, head of research and co-founder of NavAlgo, and the only panel member not directly involved in the air cargo industry, said services like Galindo's exert pressure on cargo carriers like never before, by telling them: "You have to change, you have to be digital, or you will be left out of the game completely."
Kosowski noted: "So, in the end what I expect will happen is that the different stakeholders in this ecosystem will have to be sharing data in such a way that nobody is left out of the profits, not just from the sharing, but also from the profits. The first stage is getting the platforms done, solving the local individual problems – we have to think that in the end, these things are going to be decided at a business level, from a business perspective in a completely different way than they are being done now."

Seeing the value

But building a data-sharing ecosystem is easier said than done. Brucloud's Van Gelder


Van Gelder: The biggest challenge is getting people to see the added value


Friedrich: An airline able to predict shipment failures would have significant competitive advantages

observed: "The biggest challenge, as always, is not the technology, it's not the computing power – it's changing the minds of the people." It's all about seeing the "added value", she explained, which companies often don't see when they have their own internal systems.

"For that reason, we started to develop collaborative applications which solve operational issues, where collaboration between the different stakeholders is necessary and which can only be optimised if they start working together," said Van Gelder. "So, by using these apps to start sharing data, we are taking the first steps towards analysing this data, finding algorithms and then feeding these algorithms back to our customers."

Friedrich agreed that the collection of data and predictive capabilities of AI could improve the levels of service in the industry, saying: "If we were able to collect enough data to develop an algorithm that could tell us the probability of a shipment failing its delivery time... that would improve our service quite a bit. If there were an airline out there that could master this exercise, it would have significant competitive advantages over other airlines."

IATA's One Record

The International Air Transport Association (IATA) has been attempting to bring together data in the airline world with its One Record standard, added Friedrich, which pretty much does what it says on the tin – combines customer information currently held in different systems into one location.

This is welcome, said Van Gelder, but doesn't mean that "the industry should wait for the standards to start moving".

What could really help to move things along, she continued, would be to "try to enter the data digitally as early as possible in the chain. Because each stakeholder is entering the same data elements which were already in the system of the previous player in the chain; so if we start entering the data in a digital way as early as possible, I think that could truly help us in re-using it and starting to use AI and machine learning."

"All the data has to be there, in one place, interoperable," agreed Kosowski. "And this is something to think about, even at the early stages of digitalisation."

> *"If we were able to collect enough data to develop an algorithm that could tell us the probability of a shipment failing its delivery time… that would improve our service quite a bit"*
>
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Unstoppable transformation

Increasing transparency, including of freight pricing, is inevitable – which is good for shippers and forcing logistics companies to become more efficient, says Ivo Aris, vice president of CH Robinson's Europe Global Forwarding division and chairman of Air Cargo Netherlands

Aris: Innovating forwarders will always continue to exist. And with e-commerce, we have to adapt again

Freight and logistics group CH Robinson is a household name in the US and the market leader in its largest business activity – North American surface transportation. Founded in 1905 in the fresh produce and road transport business, the company started to expand more rapidly in the 1980s after going public and now has 15,000 employees, 124,000 customers and 2018 revenue of US$16.6 billion.

But it's less well known outside North America and its international freight forwarding business is relatively new, making up just 5% of its business until 2012. That changed with the US$600 million acquisition of Phoenix International, which doubled the group's air and ocean freight activities. Further acquisitions followed, including Australian forwarder APC Logistics in 2016, Canada's Milgram in 2017, and Space Cargo in Spain this year.

The global forwarding business now accounts for around 20% of CH Robinson's turnover, says Ivo Aris, head of the group's Europe Global Forwarding (EGF) business since July 2013. CH Robinson has been in Europe since the early 1990s, but in his six years at the company it has "made a lot of changes, and in the last five years, Europe Global Forwarding has doubled in size".

That broadly mirror's the growth of the group's global forwarding business as a whole. "We've been growing double-digit percentages every year, but we're not yet the size of a market leader in this global forwarding market," Aris notes.

Market softening

That market has slowed since April, especially in air freight. "Air freight in our industry is the first indicator of economic change. The question is always whether this is just a little blip; but it's the start of a downturn," he says. "The market has been a seller's market for a number of years; it will most likely switch to being more a buyer's market again, which is not good news for the people who own the capacity. Normally for forwarders, it's less of a problem: the art of forwarding is adapting fast, or anticipating."

Aris says it is not just the US-

China trade dispute that has weakened the air freight market in the last few months, with issues such as a salmon disease in Scandinavia and the 'dieselgate' scandal in Europe, "which is really affecting all the automotive business, especially in southern Germany, with automotive suppliers suddenly moving a lot less air freight. There's still the amount of shipments there, but the size of the shipments is getting smaller."

Aris says some people are quite optimistic the market will pick up after the holiday season, as is the usual annual pattern, but he points out that the market is getting looser – estimating that air freight exports out of Europe are down by around 20%. And global figures for the first half of 2019 indicate a 5% decline in worldwide air freight volumes, year on year.

"But it's not like 2008-2009, when everything crashed," Aris stresses. "And, of course, a lot might have to do with trade wars." That's not just about US-China, but also the recent threats from US President Trump to put tariffs on other markets such as Mexico and Europe.

"These things have an effect on the markets," he notes. "With the trade war with China, we already see some textiles business production starting to move towards southeast Asia and India. And even if China and the US reach an agreement, there are still things like Brexit.

"It can still potentially end up in a good end outcome with free trade agreements; but some capital already has left the country and people will not just say: 'oh it's cool' and then go back.

"So, there are already changes; and for forwarding companies, it's a matter of adapting fast. You have to keep the finger on the pulse."

Ocean freight is not really affected right now – "although I see a spike of LCL shipments", Aris notes. "That could also be a sign that the market is getting a bit softer, although consumer spending is still relatively stable. It's a bit down in the US, but it's still stable."

> *The market has been a seller's market for a number of years; it will most likely switch to being more a buyer's market again*
>
> IVO ARIS

Blocked space agreements

Whether there is a prolonged downturn has profound consequences on freight forwarders' freight capacity strategies.

"What forwarders try to do is commit to certain blocked space on some lanes so they have the space available for their regular customers," he notes. "When they expect that the market is getting weaker, they want to commit less to the carriers, so they will not have dead freight: if they have a fixed allotment and don't deliver the freight, they still have to pay. So, they want to avoid that."

But even those forwarders that make the right capacity decisions face problems because there will be some "that didn't do the math well, and they have all this space left, and they have to pay for it. So, they go to the market with really low rates – because it's better to get a low rate than pay for empty space. So, that's a problem.

"If the market gets tighter, and forwarders commit to exactly the right size allotment, then they can win, because then companies who don't have enough space need to buy ad hoc in the market and have to pay very high prices.

"In an up-trending market, they can continue offering good rates to their customers. But, in a down-trending market they are hurt anyway – if they have the right size allotment or not.

"When the market was getting really tight a few years ago, some really suffered – because if they have a multi-year contract with a big customer for a fixed rate, they cannot just say: 'oh sorry, the price went up, you have to pay more'. So, they start to make losses.

"In down-trending market, everyone has a problem. But right now, we're not yet in a crisis mode whatsoever."

The move by some shippers to explore different sourcing and manufacturing decisions, due in part to the US-China dispute, has highlighted the need for a diversified and balanced network, Aris says.

Asia-Europe rail option

"One of the things we've done, over a year ago, is start a rail service from Asia to Europe," he highlights. That currently runs from eight industrial cities and areas in China to nine destination in Europe. "Every customer we introduce to that service is likely to book again," he notes.

Aris says all of the rail freight services from China to Europe are "heavily subsidized" by the Chinese national or provincial governments, because they see that as a strategic infrastructure channel for distribution. He estimates that "probably more than half of the costs are subsidized – especially certain routes they want to further develop. The question is, how long will they want to continue that? There's no sign that they will stop."

Capacity is currently not a problem, although there's a significant imbalance, with more business coming from China than to China. "So, especially the rates to China are really low," Aris notes. "I would compare it to the old air-sea product, which always went in and out of fashion based on whether there was a peak in Asia or not. But that was not subsidized."

He says few, if any, companies approach him offering air-sea these days from China to Europe, with the rail product apparently replacing that as a solution falling between the speed and costs of ocean and air freight.

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Cross-trades

For CH Robinson's Europe Global Forwarding business, traditionally the most important trade lane is the transatlantic; but traffic to and from India, Oceania and China, is also developing fast. "One of our goals is to further strengthen the balance in the network to offer customers an even better service experience across the globe. The recent acquisition of the Spanish freight forwarding company Space Cargo is a good example, with its well-developed position especially on the Europe-Latin America trade lane," notes Aris.

While EGF is quite strong in the Germany-LATAM trade for the automotive market, one aim is to link Space Cargo's Europe-LATAM strengths to the group's air freight 'gateway system'.

Aris explains: "We have established air freight gateways like Amsterdam, Frankfurt and London, and in those gateways, we build optimised volume mixes. That's our business: filling volume, mixing low- and high-density freight and creating lower buying rates. With this, we can offer our customers a better service costing less in a sustainable way. The differentiator is that these three gateways are now linked closely together to become one virtual gateway, optimising the mix on a European scale and creating a competitive edge." Consolidation experts in different locations talk to each other all the time, identifying potential traffic to mix and coming up with service options, including transit time and price.

Technology play

While that part of its business may be relatively unreconstructed technologically – done largely 'the old school way' – CH Robinson has made massive investments in technology, including an in-house technology team with more than 1,000 staff.

"In the last decade we invested over US$1 billion in technology, and we plan to do that again in the next four to five years," he notes. "We have one global technology platform named Navisphere serving all of our activities and services: road, air, ocean, everything."

At CH Robinson, "a very strong part of the business is our analytical tool and the customer-facing technology side of it", he says.

> ***"We have established air freight gateways like Amsterdam, Frankfurt and London, where we build optimised volume mixes"***
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"Everyone is working basically on one system, so you don't have to key in things twice, and there are a lot of big data solutions on the back end, and with that they can advise and give customers full visibility of their supply chain, in an advanced way. Additionally, we sit down with customers, to learn exactly what they need, what they do. We have the relationships with carriers, with other providers, customs; we can connect things and build it exactly to the customer's needs."

He says the team at CH Robinson does "a lot of logistics engineering type of analysis – and then translates that to a tailored solution".

While customers of all sizes can benefit from Navisphere's "full supply chain transparency", how far the integration can go depends on the size of the customer and how advanced a customer is, technologically.

> ***E-commerce is not a threat to the air freight community; you just have to adapt***
>
> IVO ARIS

"We have a very 'brick and mortar' type of relationship with some customers, but with big players we have really integrated solutions."

Visibility issues

Although operations people in the air cargo side of the business often complain about a lack of connectedness within the fragmented parts of the air freight chain, and therefore a lack of visibility, for a major freight forwarder with relatively advanced IT capabilities, that is less of a problem. "Of course, sometimes it depends on your systems – like with status updates, you need to have reliable data," Aris notes. Since some of the status updates come from carriers that are not on the direct payroll of forwarders, it is not possible to fully control how accurate those are.

Aris also sometimes wears another hat, as chairman of Air Cargo Netherlands (ACN), an organisation aimed at developing the Dutch

air freight forwarding industry, linking freight forwarders, airlines, handlers, truckers and other service providers. Functioning as an industry "innovator, supporting research and providing vision", the organisation also "acts as lobbyist and promotes Dutch airfreight", says Aris, describing ACN as "the go-to organisation for air freight in The Netherlands".

Linking silos

He continues: "Linking the silos was always our main topic. The airlines, forwarders and handlers only saw each other when they had an issue. Since we have Air Cargo Netherlands, they sit together and talk about optimisation of the whole chain at the airport, and they're really forward with that. Meanwhile, airports like Singapore, Brussels and Frankfurt have chosen a similar approach."

One key example has been trying to find solutions to reduce truck waiting hours at airport cargo terminals – where "the truck brings your air freight to the handler, and then has to wait there for six hours because there's not enough personnel", with some of the airport cargo community initiatives making significant progress recently with that.

There are still some significant inefficiencies – such as the need for trucks to make multiple pick-up and delivery stops around the various air cargo terminals, although that's an area ACN has also helped bring progress, via the so-called 'Milkrun Project'.

Some textiles business production is already starting to move from China towards southeast Asia and India

"Trucks moving from the forwarder's warehouse to the handler's warehouse used to have an average load factor of 25%," Aris notes. "By combining freight of more forwarders into a Milkrun truck, supported by a technology solution, we managed to increase the load factor to 60-80%, reducing costs, total waiting hours, as well as CO_2 production."

He notes: "In general, during the last 40 years, not enough progress has been made of that physical process. It's always a big problem in the industry: you have all these different silos. At the same time, we have to acknowledge that air freight has grown a lot over the years and the requirements in terms of security have also completely changed the landscape and made it more complex."

Aris says all players have to keep in mind that "the silos need to continue to work more closely together, as the real competitor for the traditional air freight supply chain is the integrator that controls all supply chain

functions within one company, speeding up decisions and developments and taking market share.

"Fortunately, though, a lot is being done now with digitalisation, connecting people, and that's what ACN has been doing with different partners including Customs, with the aim to make the Dutch air freight product second to none."

He continues: "We need to cooperate better than we already do, more closely. With digitalisation, of course you see all kinds of efforts so that the flow of information becomes detached from the flow of goods, which used to be attached to the pouch. That is also one of the reasons that today's air freight forwarders don't really need to have their own handling facilities; as long as you have good SOPs, you can digitally integrate them. Then you can work with different parties."

Where digitalisation and connectivity used to be enabled via time-consuming EDI, we now see the emerging API connections and Internet of Things developments leading to more applications and "less cumbersome" connectivity – where you can better connect different parties with each other – as well as new opportunities. "We still need to see how or when blockchain technologies will start to affect the air freight supply chain," Aris adds.

"ACN will continue to be on the forefront of exploring new opportunities to further strengthen the air freight supply chain."

E-commerce opportunity

Aris sees e-commerce more as an opportunity than a threat. On tech-driven logistics disruptors, he notes: "There are a lot of new entrants with all kinds of technology solutions, and there's a lot of marketing around it. But I think it's difficult for some to back it up, because they often lack a proven relationship with a lot of carriers."

On e-commerce, he says: "There are a lot of types of e-commerce, whether it is business-to-consumer – where there are a lot of Customs issues companies are still figuring out, and Customs organisations are really struggling with that – and business-to-business solutions, where there are different roles because you can still consolidate a lot of the shipments and move them as normal air freight shipments, and then distribute via specialized companies.

"It's not a threat to the air freight community because it's just how the world is developing, so you just have to adapt. That's one thing forwarders have been good at: adapting to new situations. Back in 1998, my boss said he was 'leaving this business, because 10 years from now, forwarding as we know it will no longer exist'. Ten years later, we are stronger than ever. I was personally involved in shipping the first e-freight shipment in 2008, if I recollect well. That was 11 years ago!

"Digitisation is an evolution, not a revolution. So, I think innovating forwarders will always continue to exist. And with e-commerce, we have to adapt again. Anticipate, adapt... some do it faster and gain market share.

"There are a lot of companies that are 'the next-generation forwarder'... But I believe there are only a few big ones that can really back it up."

Instant booking

Digitalisation among carriers has also been progressing, with a wave of airlines moving to market their capacities via booking and pricing

platforms, including instant spot pricing in real time. Aris notes that there are different models; and forwarders can also offer similar tools to shippers – some available off the shelf – enabling them to start integrating them in their own operations.

Aris believes it's unstoppable that there will be more and more transparency of freight pricing, which will change the business. "In the old days, forwarders were making a lot of money because the shipper didn't know what was going on in terms of market freight price trends," he notes.

But this is rapidly changing, he says, highlighting one growing digital ocean freight rates platform where they ask forwarders to supply the rates they pay for full container loads on certain lanes; in return, forwarders get access to the market information. "Because there are something like 20 other forwarders doing it, they don't know who's offering what, but they know where the market is," he notes.

"But customers, shippers are now also on that. And of course, if you can do that for ocean freight, you can do it for air freight, you can do that for local (distribution) charges.

"It is just a fact in life that there will be more transparency – which is good for shippers, and which is also forcing logistics companies to become more efficient. The market will force service providers to spend less man hours – to increase the number of files, shipping documents, per head – and with better service and less errors.

"And quality nowadays is a given," he adds, meaning the opportunities to compete on service are more limited – "similar to how consumers cannot buy a bad car anymore. "You have to not only be smart with customer-facing technology and globally harmonised account management, but also internally – to be efficient and still offer the quality. So, there's a lot of transformation going on."

For CH Robinson, Aris says the quest for efficiency is "just one of the reasons for making substantial investments in technology: to really bring down the cost per shipment in line with the expected shrinking of margins following increasing rate transparency. In general, we feel that technology expenditures in our industry as a percentage of total expenditures will further increase."

With digitalisation, the flow of information becomes detached from the flow of goods

But he says there is still a broad spectrum of different types of forwarders, including "very niche, small, very relationship-driven forwarders that have a few customers where they have a 25-year relationship, almost like family".

Chosen 'inefficiency'

The aim is to provide the right balance between efficiency and service. "We have quite a strong global network, but we still like to be close to our customers, via our branches, and still have that very direct relationship, alongside digitalisation," notes Aris.

> ***"There are a lot of companies that are 'the next-generation forwarder'… But I believe there are only a few big ones that can really back it up"***
>
> IVO ARIS

"It is a bit like 'chosen inefficiency' – because you could bring together all these modest-sized branches and make one big branch, and then manage everything from there. But for us, it works better to be close to the customer – especially in Europe, where if you go 100 kilometres to the left or the right, you're in a different business culture. So, you need to be in Turin if you want to tap into the local automotive market."

He says the next generation of logistics managers and buyers – who are likely to be "more tech oriented" – may have a different approach.

"But, at least in Europe, it's still really important."

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