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Pharma Air Logistics Insights

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50

Unilode's Ross Marino on the next steps



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Editor's NOTES



Will Waters
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Greater appreciation

t's been another challenging few months for air freight, as the sector navigates an uneven and unpredictable recovery from the pandemic around the world – amid rapidly rising fuel and other costs and an uncertain economic outlook.

High on the lists of challenges currently is staff recruitment and retention, particularly at a 'blue-collar' level. What was already a competitive field has become a major headache in many markets. And the progressive exit from pandemic lockdowns and the corresponding recovery in air passenger demand and capacity has brought further complications – and in some cases staff shortfalls have limited growth opportunities and impacted operational quality.

Companies are having to be creative and intelligent in attracting and retaining employees whose employment expectations in many cases have changed, as several articles within this issue of the magazine highlight – such as the interview with Dnata CEO Steve Allen (page 28). That includes making companies forward-facing, good employers that are investing in innovation, technology, sustainability, people and infrastructure.

It's a challenge for most air freight stakeholders, including suppliers and customers – as is access to and rising costs of materials throughout supply chains, including the ULDs that air freight relies on, highlights Unilode's Ross Marino (page 14). Meanwhile, the digitalisation of ULDs continues, as does the development of the use cases for the

data that this provides, and the resulting potential opportunities to further streamline air freight operations.

And as larger cargo drones get closer to commercial launch (page 46), so the potential use cases for those evolve – increasingly towards middle-mile logistics and the supply of remote or island communities.

Strong demand for freighter capacity continues (page 20), heightened by the continuing shortfall of passenger belly capacity and now also the loss of Russian-owned capacity from western markets triggered by Russia's brutal military invasion of Ukraine. Although capacity is set to stay tight this year, some fear that bulging orderbooks for P2F conversions and production widebody models could lead to oversupply in the mid-term.

But in the meantime, cargo facility investments are surging at hub and second-tier airports in some markets such as North America (page 38) in response to congestion issues, rising freighter activities, and the need for modernisation. But it partly also reflects the strength and stability of air cargo's performance compared to passenger air services in the last two years, which has made it a relatively safe bet for investors.

Two years of extreme volatility have been tough for everyone. But it has also left cargo-oriented airlines – and others – with a greater appreciation of strong, stable and professional cargo handling partners that are willing and able to invest in their facilities, systems, standards and people.

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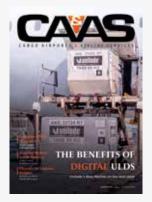
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Contents / SUMMER 2022



Pharma Logistics Insights

Air freight specialists and their customers are building on gains made during the Covid pandemic, including improvements in efficiency, communication and visibility

CEO Interview: Unilode 14

Alongside continuing the company's ULD fleet digitalisation programme, the most urgent priority is 'to be ahead of the curve' as airline demand returns, says new boss Ross Marino



Special Report: Freighters

Capacity is set to stay tight this year, but some fear bulging orderbooks for P2F conversions and production widebody models could lead to oversupply in the mid-term



Two years of extreme volatility have left airlines with a greater appreciation of strong, stable and professional cargo handling partners, says CEO Steve Allen



Airport Focus: North America

Cargo facility investments are surging at hub and secondtier airports in response to congestion issues, rising freighter activities, and the need for modernisation



The Rise of Cargo Drones

Developers have continued to progress towards the launch of larger UAVs, as the focus switches from final-mile deliveries to middle-mile logistics

Cargo Facility Focus: Swissport 55

Swissport has opened a major new facility at VIE this year with a particular focus on forwarder handling, and also expanded its cargo handling capacity at AMS



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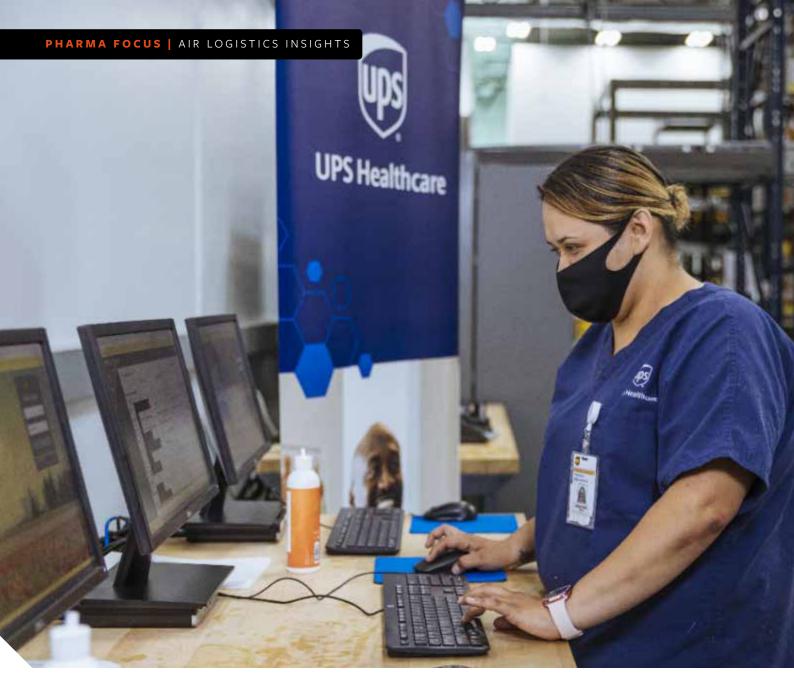
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Collaborative progress is here to stay

Megan Ramsay reports on how pharma air logistics operators and their customers are building on gains made during the Covid pandemic – including sustaining the increased cooperation achieved during the crisis, and improvements in efficiency, communication and visibility

he response to Covid-19 brought to the fore a number of issues related to pharma and vaccine logistics, including the need for more deep-frozen and cryogenic storage, more resilient supply chains, better coordination between larger supplier bases, and improved sustainability. There



"When you look to the future of healthcare, it's all about innovations in biologics, specialty pharmaceuticals, and personalised medicine," says Graham Cromb, vice president of Europe operations at UPS Healthcare. "These products make up the majority of the new products in development and are driving significant demand for precision logistics."

But the urgency of the pandemic did accelerate a number of developments within healthcare air logistics, particularly levels of cooperation between stakeholders, while the quality of services has also moved forward thanks to continuing investments in better facilities, processes and digital capabilities. Rather than describing Covid as a transformative influence on the industry, it is perhaps more accurate to say that the pandemic has highlighted the value of what the pharma air freight supply chain was already doing well, and intensified the focus on improving its services further, in line with the evolving requirements of shippers.

John Batten, executive vice president, Europe, Middle East, Africa and Asia at handler Worldwide Flight Services (WFS), observes: "I don't think Covid has changed pharma. It already had its own unique requirements and needs, which continue to develop" – as does the supply chain that supports it, including the facilities offered by many cargo handlers.

was a renewed focus within pharma logistics on packaging, temperature control and secure visibility through improved digital technology – all of which should help reduce the number of temperature excursions and gaps in the pharma supply chain going forward as next-generation biologics, specialised pharmaceuticals and personalised medicine all require ever more patient-critical, time- and temperature-sensitive logistics support.

But many of those trends were already apparent before the pandemic in the fast-moving and highly regulated healthcare sector. Pharma logistics has been under continuous development for years, so it did not take Covid to start that process.





UPS Healthcare has been expanding its cold chain footprint

WFS, for instance, has set up specialised pharma facilities in Paris, Brussels, Copenhagen, Frankfurt, Amsterdam, London, Madrid and Barcelona as well as locations in Ireland, South Africa and Thailand, with another soon to open in Stockholm. Most of these are certified under both IATA CEIV (Centre of Excellence for Independent Validators) and GDP (Good Distribution Practices).

Close work with customers

WFS works closely with airlines and forwarders when planning its temperature-controlled facilities. For example, in Paris, where it has its biggest dedicated pharma site, "from the flexibility of temperature control in each of the chambers, to the specially designed cool dollies and workflows through the building, we worked with our customers to ensure we met their requirements and offered best-in-class solutions", says Batten. "This is a process we have repeated in other key markets."

Digitalisation programmes

WFS is now implementing a warehouse digitalisation programme to improve

overall real-time visibility of all shipments, including pharma. This will enable more detailed track and trace as well as proactive CAPA (corrective and preventive action) reporting.

Fellow handler Swissport operates 16 CEIV (or otherwise) certified Pharma Centres across the globe; its state-of-the-art facilities at pharma hubs like Basel, Brussels and Frankfurt offer advanced end-to-end cooling, and digitalisation is among its ongoing projects at all of its air cargo centres.

Priscila Marques, Swissport's global operations manager for cargo, outlines: "We have rolled out our Swissport kiosks in locations such as Madrid, Barcelona, Johannesburg, Amsterdam, Frankfurt and Vienna. In 2022, this technology will go live in several locations in the USA. The self-service kiosks bring obvious advantages in process improvement, efficiency, and security, but also offer the data to digitise and optimise the entire landside import and export process."

The landside management system provides a driver database through a web-based platform, with slot booking and a fully integrated door management

system. Swissport has been connecting it with airport community systems – such as those in Amsterdam, Brussels, Liege, Frankfurt and Johannesburg – allowing forwarders to use the cargo community system across all handling agents while benefiting from Swissport's own digital capabilities, Marques says.

Airline initiatives

Airlines are by no means lagging in their efforts to support the pharma industry. Qatar Airways is among those investing in more temperature-controlled trucks – what Guillaume Halleux, chief officer cargo at Qatar Airways, describes as "one of the cornerstones of our Pharma Product success" – for ramp transport at Doha.

There will also be a new service offering within the carrier's QR Pharma portfolio that will cater to an untapped segment based on industry demand. This will be revealed in the near future, Halleux promises.

Meanwhile, Qatar Airways Cargo has introduced a new state-of-the-art, single-platform, cloud-based temperature monitoring solution at its Doha hub to enhance quality control, and is studying









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Trevor Caswell
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Guillaume Halleux Qatar Airways



Jeff Kemprecos GSK

thermal cover offerings to provide additional protection for shipments that will travel complex routings and weather profiles.

In addition, Halleux says: "We have continued to expand our temperature-controlled container leasing options in the market with our partners Envirotainer, CSafe, DoKaSch, Skycell, Va-Q-tec, and a new solution will be announced soon."

Logistics providers' role

Logistics specialists have also continued developing their pharma infrastructure and capabilities over the years. UPS Healthcare, for example, last year invested in over 36,000sqm of cold chain GMP (Good Manufacturing Practices) coolers and freezers globally, including new and upgraded GDP/GMP-compliant healthcare facilities in Italy, Hungary, Poland, the Netherlands, the UK, the USA and Asia-Pacific. The company has also expanded its specialised temperature-controlled vehicle fleet across Benelux and Italy.

Cromb is confident that realtime tracking and digitalisation of pharmaceutical supply chains will continue to grow at pace, providing greater simplicity and visibility.

"Data and analytics are the bedrock, and we've now reached a point where the solutions are mature enough to be more widespread," he says.

"We can now leverage that information in ways we weren't able to before, be that sustainable packaging which can hold temperature-controlled packages for longer [or] our UPS Premier Service where we can classify and identify critical healthcare shipments before they leave our customers' hands, offering them unprecedented control, visibility and reliability – while also tracking any package in our global network within a 3m radius."

That service has helped UPS deliver more than 1.5 billion Covid vaccines to over 110 countries.

"It's no secret the huge role at that air freight played in global [Covid] vaccine distribution, and as part of the 500 trade lanes that we mapped out globally a good portion of those included adding new air freight routes which were crucial in providing additional flexibility and efficiency," Cromb goes on.

"We're working in a very fluid environment and it's up to us as an industry to plan resilience and flexibility in our supply chains, as well as build in contingencies."

Another example is Qatar Airways Cargo's rapid development and scale-up

Energised air logistics environment

ndy Faes,
regional manager
healthcare vertical
Europe at USbased Expeditors,
says that during
the pandemic, the logistics company
invested further in temperaturecontrolled facilities, training and
processes globally – including
improved lane risk assessments
carried out with its service providers
to mitigate risks across the supply
chain.

Summing up how the air freight industry has changed as a result of the Covid-19 pandemic, Faes says that each link in the supply chain redoubled its efforts, while increased collaboration with shippers has become a feature of pharma logistics. "Air logistics really picked up the baton and delivered the necessary services during dire times," he says.

Increased flexibility

"The industry displayed increased flexibility, added additional freighter capacity, turned passenger aircraft into freighters, showed robust quality management, and huddled up with the shipper looking for solutions to get PPE, equipment, vaccines, tests, devices etc to patients across the world.

"This has really boosted and energised the air logistics environment, making sure more and more players get certified, increase visibility and the needed risk assessments – which is music to my ears and great news for the patients at the end of the logistics chain."

"

We are using digital tools to simplify and improve inspections of pharma shipments and infrastructure

Priscila Marques

of a bespoke 'QR COVID' product to meet the urgent need for vaccine distribution.

"This has helped us support our customers across the world in transporting Covid-19 vaccines to the farthest reaches in very short periods of time without a single dose lost," Halleux confirms. "We also enhanced the dry ice limitations on our aircraft within weeks to enable higher uplift of dry-ice-cooled vaccines."

Relationships key

It seems that the greatest change resulting from the pandemic, though, is a rise in

cross-industry collaboration, necessary to keep healthcare supplies – including new vaccines – flowing under immensely difficult circumstances.

For instance, WFS established a strong partnership with airlines and forwarders at Brussels Airport (BRU) that has guaranteed the seamless flow of more than 1 billion Covid vaccines through the handler's brand-new CEIV-certified pharma facilities there.

Marques says the pandemic has emphasised the importance of a strong, certified supply chain. The growing global network of Swissport Pharma Centers is built on standardised pharma capabilities – which are published on the Validaide platform to allow lane risk assessment and supplier qualification – while realtime data about pharma shipments, flights, storage capacity and individual ULDs are available to customers in the Cargo Portal.

"Beyond that, we are also using digital tools to simplify and improve inspections

"

By collaborating so closely, we're able to understand each vaccine or treatment's specific needs and plan the transport networks well in advance – allowing us to ship them globally as soon as they are approved

Graham Cromb

of pharma shipments and infrastructure. All this ensures we can share data effectively and in real time, which is crucial for a strong collaboration within the cargo ecosystem," she points out.

Early supply chain planning

UPS Healthcare, meanwhile, has helped all the major Covid vaccine manufacturers





organise their supply chains from initial clinical trials to patients' arms.

"By collaborating so closely, we're able to understand each vaccine or treatment's specific needs and plan the transport networks well in advance – allowing us to ship them globally as soon as they are approved," Cromb adds.

Given the importance of understanding the customer, it is no surprise that shippers are highly valued at Pharma. Aero, a collaborative portal that focuses on the transport of medicines and other healthcare shipments by air.

Cooperation platform

In August 2020, Pharma. Aero teamed up with TIACA on Project Sunrays, which examined Covid-19 vaccine transport requirements and global air freight readiness, and sought to create useful guidelines for the handling, storage and transport of Covid-19 vaccines once they became available.

"On one hand, we provided the air cargo industry with clarity on the needs and expectations of vaccine manufacturers and better visibility on future Covid-19 vaccine supply chain specifications impacting logistics; on

the other hand, we provided vaccine manufacturers and pharma shippers with more visibility on existing air cargo capabilities (infrastructure on the ground, air freight capacity and expertise) as well as better understanding of the constraints and needs of air cargo providers working to serve them adequately," Pharma.Aero chair Trevor Caswell explains.

Better understanding between stakeholders

All stakeholders - including shippers - have upped their transparency since Covid-19 first emerged. Julian Wann, associate director global freight and logistics at AstraZeneca, observes: "I think we have set the platform to continue in that way; we have better visibility and understanding of what really happens within our supply chains, and throughout the business we have better insight on the challenges the airlines and forwarders face. "Maintaining openness and transparency will only help to build on the trust we have and ensure we continue to improve in all areas of the pharma supply chain. Ultimately, the beneficiaries will be patients globally."

The pandemic saw AstraZeneca develop

- 66

We have better visibility and understanding of what really happens within our supply chains, and throughout the business we have better insight on the challenges the airlines and forwarders face

"

Julian Wann

new lanes and routes in the face of capacity constraints – the sort of problem solving that would no doubt have been more difficult without having already established close relationships with airlines and forwarders. "After all, we share the same goal: getting medicines to patients as quickly as we can," Wann points out.

Currently, AstraZeneca is looking at how it can improve performance levels and optimise shipments.

Collaborative effort

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ensure we always deliver for patients," Wann observes. "Our Process team in Logistics and Global Procurement work closely with our freight partners in order to maintain and improve how we are moving product. Global Procurement has to understand what is required by the business in order to secure the correct service and focus on getting the right price for the right service."

In the coming years, as passenger numbers pick up, Wann hopes to see a shift towards pre-Covid pricing, capacity and availability – at least as far as "something that will more consistently enable us to plan more accurately and budget with confidence".

Pharma. Aero involves its members, including shippers, in all aspects of its work. Its UAV project, for example, initially aimed to bring together two parallel transport modes – air cargo and drone delivery – and map the last-mile delivery of pharma products to remote areas. But it soon became clear that the shipper holds a very important role in the process, and should thus play a very important part in the project.

"This resulted in planning the third phase of the project... where real shipments of pharma product are being transported from a production plant in Europe to patients in Malawi," Caswell says. Pharma. Aero will create a road map of this particular transfer that could be extended and adapted to other contexts. Caswell says this will provide insight into how operations could be planned for faster, safer and more efficient pharma deliveries to remote locations using drones.

Accelerating access

The healthcare industry is a highly interconnected group, united by common objectives. While the environment remains competitive, Halleux believes the increased collaboration across industry groups, with shippers and supply chain partners, is here to stay. He is looking forward to a new normal where the lessons learnt during the pandemic will propel the industry forward.

"The pandemic was a vivid example of how quickly the healthcare industry and all supply chain partners reacted and responded to resolve the kind of challenges that were more dynamic than ever," he says. "If it was not the Covid-19 vaccines, it was the Covid-19 treatments, the distribution of PPE or oxygen concentrators or test kits and raw material that changed by the day and week, that displayed a true spirit of purpose and determination in the industry where everyone came together to offer solutions."

The importance of communication and collaboration with the authorities in contending with Covid-19 is also significant. Jeff Kemprecos, director of communications, government affairs and market access at GSK, Gulf region, says: "In the Gulf, as manufacturers we found ourselves at GSK on daily calls with health authorities, air cargo carriers and freight forwarders looking for ways to accelerate licensing, importation permission and delivery dates.

"In the case of the UAE, we were able to shave more than 50% off the original delivery timeline, enabling Abu Dhabi to achieve the first deliveries of our new Covid-19 therapeutic before any other country.

"What we hope now, going forward, is that this agile, flexible and collaborative mindset will prevail as we look for ways to accelerate patient access to cutting-edge medicines and vaccines in the region," he adds.

Indeed, Kemprecos is confident that this is already proving to be the case in the Gulf region.

"As a global community, the pandemic imposed tremendous costs on people and economies," he says. "I'd like to think that if there were a silver lining, at least here in the Gulf we will emerge stronger as partners working very closely together to speed important new vaccines and medicines to the people who need them."

Lasting value from new logistics lanes

he equitable distribution of Covid vaccines made headlines during the pandemic, and the air freight community had a vital role to play.

UPS Healthcare has worked with organisations such as Gavi and COVAX to deliver doses to underserved countries and donate its capabilities, freezer farms and dry ice production, as well as offering assistance for vaccine distribution. To do so, UPS mapped the

500 or so global trade lanes it used for delivery, which were more complex and longer than the industry had been used to, Cromb notes.

Late last year, UPS Healthcare delivered 330,000 vaccines, largely by drone, to rural clinics in Ghana, and recently delivered more than a million vaccine doses in Nigeria. It has also donated over 200 ultra-cold freezer units to underserved populations in Africa, Europe and elsewhere.

Plus, last July, The UPS Foundation committed to delivering 13.8 million

Covid-19 vaccines to Indonesia, and in May 2022 UPS Healthcare announced a partnership with Swoop Aero and VillageReach to scale up drone operations across Malawi. This project will benefit up to 3 million people in remote, hard-to-reach areas by providing vaccine distribution support alongside other medical services.

"Importantly, these new trade lanes will play a key role in the delivery of next-generation healthcare treatments to these areas, providing lasting value for these communities," Cromb points out.



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Staying ahead of the curve

Alongside continuing to develop Unilode's leading position in ULD fleet digitalisation and tracking, the most urgent priority for the ULD pooling specialist is simply 'to be ahead of the curve in terms of the bounce-back', as airline demand returns and operating costs soar, says CEO Ross Marino

nilode in April reached a
milestone in the muchheralded digitalisation process
for its unit load device fleet –
"the world's largest digital ULD
fleet" – with an "unrivalled"

100,000 of its roughly 145,000 ULDs now fitted with Bluetooth-based tracking devices. Furthermore, the company underwent a change of ownership in the second half of last year, acquired by private equity investment firm Basalt Infrastructure Partners, and this year saw a change at the helm, with Benoit Dumont handing over the reins after four years to Ross Marino, long-time senior executive at international air cargo handling and airport services group Dnata.

So what are the priorities of Marino and the new owners of this company, which alongside its leading position in outsourced airline ULD management has been playing a leading role in developing a key element of air freight's digitalisation process and potential Internet of Things capability – the ability to track and monitor the ULDs that cargo is carried in and on?

Ramping up

Marino says the most urgent priority is to respond to the rapidly recovering demand for ULDs as airlines reintroduce scheduled capacity and air passenger demand makes its post-Covid revival.

"The call for ULDs, and particularly for containers as passenger demand returns, is already ramping up and we believe will continue to do so" he highlights.

Like most other companies within the aviation sector, during the pandemic Unilode "managed its business cautiously" in terms of investing in assets. But by the end of this financial year at the end of June, it will have invested in excess of US\$20 million "in basically restocking with new ULDs – to meet the pre-pandemic levels, and a bit more."

Cargo customers "have been operating at more or less full tilt already – and showing signs of requiring more ULD stock. My biggest challenge is making sure we can satisfy this demand," Marino says.

Growth targets

Three-year to five-year targets from the new owners include wanting "to have the market leader in our industry, a successful business, and one that will show growth". Growth is needed for the business to be sustainable, given that "the investments we are making, not only in our asset base but also in our digital capability, are significant. And we know the supply chain is under enormous pressure at the moment, and the cost of goods is increasing massively, and the cost of labour."

Marino says the ability to recruit and retain talent is more challenging than he has ever seen in 30+ years in this industry. "And the cost of parts for the ULDs, and the timelines, transport, fuel rent, labour, all of these things continue to rise."

Alongside the tragic human costs, the war in Ukraine has added to the challenges already faced in coming out of the pandemic. A company like Unilode requires significant supplies of aluminium, rivets and curtains and nets for its ULD fleet. "The supply chain for these goods has become extremely challenging – these materials have become a scarcity," notes Marino.

Some parts that might have taken four to six weeks can now take 35 weeks to arrive, for example. And the costs of certain products have risen by 20-30%, and in some extreme cases by 50-60%. "Obviously, we have to manage this very carefully," Marino explains. "Our procurement team is doing an amazing job in trying to keep these costs under

control and keep the supply chain running."

New customer trends

Meanwhile, new customer trends "depend on the type of carrier we are talking to. Airlines that are particularly focused on cargo are looking for a USP that will help them win business, whether it is from pharmaceutical companies or other manufacturers. So, we are having a lot of discussions around our digital capability, as our product has the ability to do the track and trace, so at any point we can advise our



clients where our ULDs are located.

"But we also have the ability to monitor temperature, so if you have temperaturesensitive goods such as pharmaceuticals, perishables, flowers etc. we have the capability to monitor and report back temperature deviations.

"We have sensors that can also detect shock, humidity and light levels, which can be particularly useful in the transport of certain goods. So, we are talking to a number of customers about that capability."

Environmental benefit

Unilode is also talking to carriers that currently own and manage their own ULD fleets – which is still the majority – about the potential to improve their environmental footprint by switching to a pooling model, which introduces lighter weight ULDs and greatly reduces the need to reposition ULDs around their networks. The company's own in-house

MRO (maintenance, repairs and overhaul) capability also contributes to the potential positioning efficiencies.

Although the environmental element has not yet become a strong selling point, "there are a number of airlines that are very interested. I think it will become front and centre before too long," Marino notes.

Another factor helping drive outsourcing has been the detrimental effect of the pandemic on the finances of many businesses, with ULD pooling offering substantial Capex and operational expenditure (Opex) savings for carriers. "So, the financial benefits, alongside environmental benefits and all the digital benefits, I truly believe is an incredibly attractive proposition," Marino says.

Digital discussions

For some major carriers, particularly those with a strong focus on cargo, Unilode's digital capability has become "the first point of discussion", with

customers seeking "a number of benefits" – from the digital offering's real-time tracking capability for the cargo associated with the ULDs, to tracking losses or damages of units or their contents – but "particularly the value proposition to the customer's customer" of being able to track cargo needing special care and monitor other elements such as temperature, humidity, shock.

"The ability to on-sell that USP and advantage in a hugely competitive market is something the carriers have taken note of", Marino adds.

Managing stock efficiently

"The other element is the ability to manage stock efficiently. If you can operate with fewer ULDs, because we know where they are, the cost of the ULD fleet is reduced significantly. So, the benefits in terms of the service proposition, but also the cost benefits that come with that – that's on top of the



benefits of Capex.

"This is a real driver to wanting to talk to us about how our product can help them to offer something to the customers that is not available in the market right now."

The charging model for the digital capabilities varies according to the customer, but typically, Unilode will include the track and trace element of its digital capability with its standard ULD pooling concept. "The other elements we see as a value-add proposition, and as we use and develop those it will be like a catalogue of services that customers can choose from. That is something we are still developing and refining. But the ability and capability is there, which we are already delivering to some of the customers."

Evolving solutions

Unilode has been working for several years in partnership with OnAsset Intelligence, a leading provider of supply chain tracking and monitoring solutions, and the two parties are continuing to develop the technology elements to keep



Ross Marino with chief inspector Paul Beunder (left), digitising a container with a Bluetooth tag at Unilode's repair station in Amsterdam

these digital service elements evolving – including focusing on the business intelligence capabilities and how to use, display and share that information.

In addition to a global infrastructure of readers at key airports using OnAsset's Sentry 600 Bluetooth 5 readers, which capture data from the multi-sensor





digital tags on Unilode's ULDs, a mobile app allows any iOS or Android device to become part of the reader network.

Industry involvement

Marino says he would like to see discussions develop with the wider air freight industry, including with airline association IATA but also with aircraft manufacturers and airports, about how to use the Unilode network to help contribute solutions to other challenges in the sector.

"We know that many airports are congested, and the inefficient use of ULDs means there are too many in circulation at the busy airports," he highlights. "I think we have to be talking about how we can use these assets more efficiently, throughout the whole life-cycle." This would include the freight forwarders and shippers that take ULDs off airport to load cargo, but also ground handlers and airlines.

"I don't believe the industry has really paid enough attention to that usage of the ULD," Marino notes. "It's my intention within Unilode to set ourselves up so ESG (environmental, social and governance) elements are front of mind, as well as working with industry partners."

Top priorities

Although the main priority for this year is "to be ahead of the curve in terms of the bounce-back", there are various service development initiatives progressing, mainly on the digital side.

"We have a number of airlines where we're exploring linking an air waybill to a container and feed the container information into cargo management systems. Or other elements where airlines have got different requirements – such as in the temperature monitoring, particular for perishable goods – and we have a number of proof of concepts for specific airline needs and how we enhance that product offering to them," Marino highlights. "So, there is a general concept, and then the customer-specific areas that we are working on as well."

Already, the basic track and trace elements of the digitalisation means "we have greatly improved ULD positioning and reduced the number of unreported and lost ULDs", along with automating several manual tasks in data collection and reporting and providing additional commercial benefits for customers.

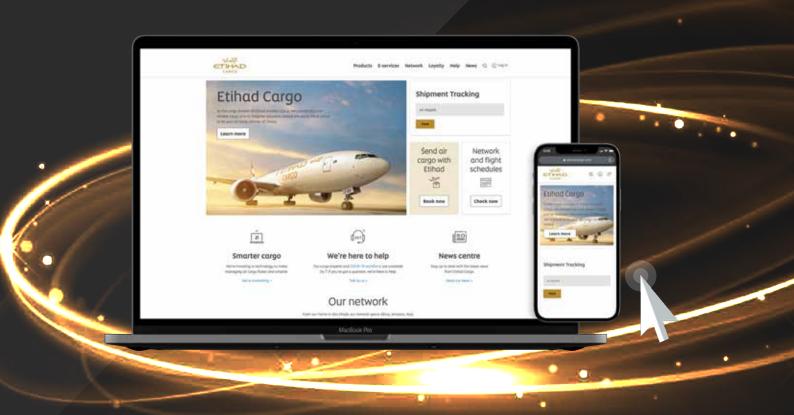
Having now installed Bluetooth devices on more than two third of its ULD fleet, the focus continues on digitising the remainder of the fleet. And although the company may currently have a leading position with its digital ULD network and infrastructure, as communications technology continues to develop rapidly, including tracking tags and reader device technology, there is no opportunity to stand still.

"That technology will evolve massively over a relatively short space of time," Marino highlights. "We have to be at the forefront of that because it will have a huge advantage to our industry. We've got a brilliant team working very closely on that."

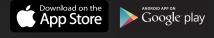


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Boom time continues for freighter markets

Boeing and Airbus are seeing bulging order books for P2F conversions and production widebody models, as sky-high demand for all-cargo aircraft continues. But while capacity is set to remain tight this year, there are concerns the recent flood of orders could lead to oversupply in the medium term, reports Roger Hailey

reighters are back in fashion, with converted passenger to freighter (P2F) aircraft and production line widebody models seeing bulging order books for airframe manufacturers Boeing and Airbus.

A quick glance at orders for the first

five months of 2022 alone sees a freighter frenzy by established cargo airlines and aircraft lessors, the latter backed by investor funds.

January saw Qatar Airways become the launch customer for Boeing's B777-8F, with a firm order for 34 planes and options for another 16, with the first delivery due in 2027. The B777-8F will be the world's largest twin-engine cargo jet with the most payload capacity and a 25% improvement in fuel efficiency, carbon emissions and operating costs on the current B777F model.

Aviation analyst IBA has estimated the B777-8F will offer 118 tonnes of cargo capacity and an unconfirmed price tag of \$180m.

Ethiopian Airlines has since signed up for five B777-8Fs, while Lufthansa Cargo has booked seven of the jets, plus three of the current B777F – which has also bagged multiple recent orders from Maersk Cargo, DHL Express and Western Global Airlines.

Europe's Airbus, for so long the very junior player in production line freighters, stepped up the competition in July 2021 by launching its freighter version of the popular A350 passenger aircraft. IBA suggests a capacity of around 109 tonnes for the A350F and a "low \$170m" price tag.

In November, CMA CGM Group ordered four A350Fs, while January saw Singapore Airlines sign a letter of intent (LoI) for seven A350Fs and options for five more, followed by an Etihad Airways LoI for seven freighters. Air France KLM has also booked four A350s, with an option for another four.

P2F conversions booming

Alongside those orders, the passenger to freighter conversions market is also



Forson: Believes there is a high risk of a bubble developing

booming, partly fueled by a surging feeder stock of passenger jets grounded by Covid and unlikely to fly again with passengers. Those aircraft have flown far fewer hours than the previous targets for conversion and are now available at a lower cost, the ideal combination for existing and potential freighter airlines looking to



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Ukraine-based Antonov Airlines is operating a reduced An124 fleet out of Leipzig Airport

expand their fleets with cleaner and cheaper-to-run jets.

The first 777-300 ERSF conversions are expected to enter service in 2023, boasting "twin-engine efficiency that burns 21% less fuel per tonne than 747-400 freighters, and big-cargo capability that sees 25% more volume than the 777-200F production freighter". Israel Aerospace Industries (IAI), which launched the programme with GECAS - which was acquired last November by AerCap Holdings - says "with the flexibility to be more profitable than the competition at high or low utilisation models", the aircraft has "the range capability to seamlessly replace aging 747-400 and MD11 freighters".

Boeing acknowledges that the 777-300 ERSF is a new type entering the market at a time when feedstock is becoming more affordable, but believes three factors – payload, range and utilisation – will favour production freighters in the large wide-body sector. The 777F is Boeing's best-selling production freighter of all

time, selling more than 300 units since the programme began in 2005.

B737-800 P2F conversions buoyant

On the smaller end, IBA says that the Boeing 737-800 P2F conversion programme has "exceeded" its expectations in the past year, noting: "The fleet has almost doubled in size, from 59 aircraft in April 2021 to 113 aircraft in April 2022. This demonstrates the Boeing narrowbody's sustained appeal for P2F conversion.

"This growth in demand for the 737-800 P2F is illustrated by the increasing number of conversion centres, totalling 15 at the end of April 2022."

The IBA Insight data platform also indicates that the market values of most freighter types have remained stable overall, especially for younger aircraft: "Looking at this through the lens of the 737, the value of a 2006 build Boeing 737-800BCF has fallen by just 3.7% to \$21.23m," it notes.

Jonathan McDonald, manager for classic and cargo aircraft at IBA, told

a webinar that Boeing is no longer the dominant force in either the widebody or narrow body freighter sector, highlighting the recent buildup of the A321 and the A330 P2F programmes which are seeing "really serious traction".

Another factor is that 'preighters' – passenger aircraft with lightweight cargo on passenger seats or with cabin seats stripped out – cannot be flown with cargo in their cabins after July 31 in Europe, although they have until the end of 2022 in the US. A life-saving option for carrying PPE in the early days of Covid, the preighter principle has been proven as safe to regulators and would again be a useful short-term fix if bellyhold capacity collapses in the future during a new pandemic or similar crisis.

Oversupply threat

But is this post-Covid freighter rebirth, driven in part by the rapid growth in e-commerce, creating a bubble that could burst as higher inflation and a possible global recession spoil the party?



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Qatar Airways will be the launch customer for Boeing's B777-8F, with a firm order for 34 aircraft and the first delivery due in 2027



Asked whether he expects to see an oversupply of converted aircraft in the coming years, McDonald answers: "There is always a risk, but it has not happened yet. There has been some speculative conversion of aircraft and you can't rule it [oversupply] out."

Dan Morgan-Evans, group cargo director at Air Charter Service (ACS), the UK-based global aircraft charter broker, says there are multiple different views on whether there is a looming oversupply of converted and new freighters in the air cargo market. "My initial thoughts would be (that this is) typical of the air freight market: boom and bust," he says. "Everybody jumps on the bandwagon and then you suddenly get massive overcapacity, prices drop through the floor, and then the industry will struggle to make it work.

"We will also see the passenger side of the business start to pick up to somewhere near pre-Covid levels, which gives you the belly capacity. The negative view would be massive overcapacity and the rates plummet, which is the obvious one. The positive side is maybe we have a more balanced approach between the air freight market and the passenger market." Morgan-Evans continues: "Pre-Covid, I would say that scheduled passenger routes were probably oversubscribed with too many services, and I think that maybe airlines will readjust their schedules and not operate pointless frequencies. I hope that the airlines achieve a nice balance that supports the freighters and has less frequent passenger flying so that air freight is pushed towards freighters rather than concentrating on the passenger side."

High risk of a bubble

Richard Forson, president and chief executive of Cargolux, Europe's largest cargo airline with 30 B747 freighters, says: "I think there is a high risk of a bubble developing, because everybody is ordering freighters. Airlines that were exiting the freight market, including combination carriers that were reducing their exposure to cargo markets, have all of a sudden come back and are again buying freighters. Also, there are all kinds of new entrants entering the market for freighters.

"But this is an asset that is going to be with you for 20 to 25 years. The convergence taking place in the narrow body freighters is primarily providing capacity for the e-commerce market, which has shown significant growth in the two years of Covid."

The 'queen of the skies' B747-8F, with its nose loading capability, is no longer in production, and Forson confirms that Cargolux is evaluating the B777-8F and A350F, neither of which have a noseloading capability.

Forson and the Cargolux board will not make any decision on the two new freighters until their evaluation is complete – and even then, will maintain its younger B747-8F fleet for long into future because of its nose-loading advantage for heavylift pieces of cargo.

Antonov challenges

One of the air cargo outcomes of the Russian invasion of Ukraine was the early destruction of Antonov Airlines' unique An225 or Mriya, the six-turbofan powered super-freighter with a 250-tonne payload that could transport the heaviest loads for the oil and mining industry, as one example.

The war has also affected operations of the An124 freighter, a four-engine workhorse like the An225 but with a payload of 150 tonnes. Ukrainian carrier Antonov Airlines is still operating a reduced An124 fleet out of Leipzig in

Germany, while the An124s of Russian owned Volga-Dnepr are constrained by airspace restrictions and other restrictions in the US and Europe, a ban that has hampered the sizeable B747 fleet of Volga-Dnepr's AirBridgeCargo subsidiary.

Some commentators believe that these actions have removed an estimated 10% of total freighter capacity from the system.

Says Morgan-Evans: "The An225 was the only one in the world which could take record-breaking loads or pieces and had a unique capability. A broker or a forwarder who has chartered that aircraft will have an emotional attachment to it and it is like having a feather in the cap."

The opportunity to use An225 was few and far between, says Morgan-Evans, but it had a profile in the market and was chartered many times during the personal protective equipment (PPE) crisis during the first year of Covid.

Heavy and awkward freight transport on the An225 required long-term planning between ACS, Antonov Airlines, the forwarder and shipper. Says Morgan-



Morgan-Evans: Hoping for a better balance between freighter and passenger capacity





The first 777-300 ERSF conversions are expected to enter service in 2023

Evans: "If something had to go by air freight, then most things could fit into the An225, but now we would have to design around what is available in terms of capability.

"It will need a bit more forward thinking. You can't lumber 160 tonnes on an aircraft anymore, you have got to think about breaking down the load and assembly after transport.

"It is a piece of the armoury that is not available to us anymore."

Volatile environment

Looking ahead to the end-of-year peak season, Morgan-Evans highlights that US west coast dockworker unions are set to renegotiate their contracts in the summer which could lead to additional disruption to an already stretched ocean freight supply chain if the port workers go on strike. Inventories would be stuck outside port, thus seeing increased demand for and higher rates on air cargo capacity.

The continuing air space restrictions due to the Russian-Ukraine conflict, plus further lockdowns in China, higher fuel prices and inflationary pressures on consumers will only complicate matters.

Says Morgan-Evans: "Traditionally the cargo market is in downtime during the summer between March and September but is really busy from September to February. The real impact of all this will be seen in the final quarter of this year.

He adds: "Demand is a little bit softer than it was last winter, but it will ramp up more towards the end of the year regardless of consumer demand. I still think we're going to be in a situation where the whole logistics base is in a bit of a mess.

"We are still going to be busy with a capacity crunch and that is when you will really feel the effect of losing an airline like AirBridge with a large amount of B747 capacity. It will be tough for the consumer because prices are going to go up and a part of that is the logistics cost.

"I don't see an end to that for now and the only thing that will finish that is softer consumer demand. I don't think that will happen this year and probably not into next year, but it will happen at some point."

Possible perfect storm

Forson of Cargolux takes a similar view.

"Ultimately, we are looking at a perfect storm if the US unions decide to go on strike at US ports – which are already struggling to handle container volumes," he notes.

"The last two to three years, and possibly for the next two to three years, will be extremely lucrative for those in the logistics business; but beyond that, you have to take into account what happens if there is a global economic decline."

This is why Cargolux will not make hasty decisions on converted or production line freighters.

Says Forson: "Cargolux has operated conversions before, but they are nowhere near as efficient as production freighters. Everybody is very focused on the next two to three years and basing their fleet decisions on that, but I'm looking out much further.

"My preference is to buy new and to consider the asset value over 20 to 25 years. At the end of the day, two to three years is only a small fraction of the total life of that asset on the balance sheet."



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Two years of extreme volatility in air freight markets have left airlines with a greater appreciation of strong, stable and professional cargo handling partners that can deliver reliable services in a still challenging environment, says Dnata CEO Steve Allen – and preferably suppliers offering proactive, standardised solutions and modern facilities that make outsourcing handling easier and more consistent, with greater operational transparency, he tells Will Waters

Ithough the worst effects of the Covid-19 pandemic on aviation appear to have passed, there remains considerable instability and volatility that is likely to affect air cargo handlers and the wider air freight sector for much or all of this year and most likely well into 2023, Dnata CEO Steve Allen believes.

And that also means an ongoing

heightened appreciation among airlines of strong, stable and professional cargo handling partners that can deliver reliable services in a still challenging environment – and preferably suppliers offering proactive, standardised solutions and modern facilities that make outsourcing handling easier and more consistent, with greater operational transparency.

In an update briefing and interview with CAAS, he notes that the inconsistent recovery from the pandemic, especially within the airline sector, means it's "very difficult" for cargo handlers "to plan and optimise our business". Alongside continuing Covid-related market disruptions, ongoing geopolitical turbulence such as the war in Ukraine means the air freight market will continue to rely for some time to a far greater extent than pre-Covid on chartered rather than scheduled capacity, with the greater volatility and unpredictability and additional expense that this entails,

believes Allen.

But along with the enormous recent challenges for airlines and handlers, in which "most companies have built up quite considerable amount of debt", there are potential opportunities for financially strong companies whose business model is based on an outsourcing function.

More outsourcing

"There are more companies and more airlines turning to companies like ourselves to either outsource capability, or to help them solve problems," he notes. "One advantage we have is we have a very solid base. We have a shareholder who has no intention of discontinuing or changing the way that they invest in our business."

Allen says airlines "are looking for handlers that they can trust right now", with ground handling having become a problem for carriers in recent months. "There are times when carriers have to cancel flights, because the ground handlers can't handle the flight; there aren't the people on the ground to do



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There are times when carriers have to cancel flights, because the ground handlers can't handle the flight; there aren't the people on the ground to do it

— 🤧 — Steve Allen

it," he notes. "And we want to take that problem out of their hands.

"Carriers are looking for proactive support. Our role is to make sure we're ready and they can turn to us for support - when they're concentrating on things like getting crews retrained and building back up their passenger profile."

The labour challenge

Attracting and retaining good people is "probably the biggest challenge" companies in the aviation industry face currently and "need to tackle in the next six to 12 months, as we grow back", Allen says.

This includes new expectations from staff. "Things have changed – the way that





people work; there is wage inflation all over the world, which is going to impact on our bottom line. So, this challenging labour market is probably the biggest thing to we need to tackle in the next six to 12 months, as we grow back."

Although handlers' passenger

operations were far more severely affected than their cargo activities in the pandemic, many also downsized their cargo teams and optimised their operations at various locations. For example, Dnata's London Heathrow (LHR) cargo operations were consolidated

from eight facilities into three of its newer buildings during the height of the pandemic. They are back up to six again now, "and hopefully the two that are dormant can be brought back this year", Allen says.

The staffing challenge for cargo handlers in the last couple of years has at times meant having to turn down or be selective about accepting some new customers or lines of business – although that has been less of an issue this year, Allen says. But Covid surcharges applied by cargo handlers across the industry have remained in place for the time being, reflecting the additional volatility, challenges, and work required to service aircraft in the current environment – including cargo in cabins.

Competition for people

Allen says recruiting and retaining good people in the current competitive employment market in many countries "is not just about wages, it's about what it's like to work for a company. That means your working environment internally, but also how we work with the rest of the community."

He is confident Dnata can compete for good people not just among its aviation industry competitors, but in the wider employment market, where individuals' aspirations continue to grow and develop. This means offering more than just a competitive salary but an attractive broader package that includes the wider direction of the company and other key issues including investment in innovation, technology, sustainability, people and infrastructure.

"We've got health and wellbeing programmes running; we just finished running our culture survey, a global survey of all our employees worldwide," Allen highlights. "People have been through a really tough time, and we wanted to know where people are, how they're feeling, and where we should put our efforts."

Diversity: IATA 25 by 25 initiative

Of key relevance is a company's approach to diversity, and Dnata has signed up

We've gone one step further to say 25% of our employee base should be women by 2025

22

Steve Allen

to the IATA '25 by 25' initiative, which targets that 25% of senior management should be women by 2025. "And we've gone one step further to say 25% of our employee base should be women by 2025," Allen adds.

Efforts to support this include training staff at all levels - for example, "to recognise that we all have unconscious bias". While this may sound challenging to some, Allen reports a very positive attitude among staff. "People love to learn, and it's an opportunity to learn something about yourself," he notes. "People are very aware of diversity issues and I like to think they want to contribute to the progression."

His experience is that once people have participated, "you kind of become an evangelist, and say, 'I think my team should go through this', and it will cascade through our business. And I think it's a real opportunity to change our mindset."

Innovation step change

Similarly, he sees investment in innovation as "a huge opportunity to make a step change in the way we standardise and optimise operations. We were already invested in what we call 'One Cargo', a single cargo management system for our worldwide cargo operations. We've already rolled it out to five countries and it will be rolled out to all.

"That helps with the tracking and monitoring of cargo, but also means we can share data and it's easier for training people."

Another innovation launched in the UAE is Dnata's Cologi trading platform with freight forwarders. Forwarders that register can identify available space on flights coming in and out of Dubai, and book their cargo online and pre-register all the documents. "So, when it comes to the warehouse, there are no processes to be done; it's already been cleared with customs. So, real digitalisation of the relationship between the freight forwarders and the airline cargo handlers."

Autonomous drones

Another digital innovation is IATA's DG AutoCheck, which enables airlines, ground handlers and freight forwarders to automatically check the compliance of the Shipper's Declaration for Dangerous Goods (DGD) against all relevant provisions.

"And then a fun one, but actually a very practical application, is autonomous drones in the warehouses," Allen notes. "A trial launched in Dallas proved very successful, whereby the drones can do all the stock checking; but also, they can advise how best to build pallets based on what is being moved around the warehouse. And that's being rolled out to other warehouses around the world now, as a tried and tested and proven innovation."

He continues: "Our objective is to triple our investment in technology in 2024. We





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really believe technology is the way forward, and we need to get in the forefront. We've got lots in train, but we need to up that investment, to make sure we're making the most of that opportunity."

Environment focus

With the environment increasingly important, Allen says Dnata is "really stepping up the sustainability strategy, which we've had for a long time, because we realise how important it is to people, but also how important it is to our customers. Many customers are asking now that the sustainability strategy is part of the contract that they sign with us."

Initiatives include reducing the environmental footprint of handling infrastructure and investment in green airport ground support equipment (GSE), with an objective to reduce Dnata's carbon footprint by 20% by 2024 and 50% by 2030.

Strategic international investments

In recent years, Dnata has also made strategic investments in new cargo facilities in Karachi and Lahore, and additional cargo capacity and infrastructure in Brussels, Sydney and Toronto. Furthermore, the company has recently announced that it would invest over €200 million in its operations in Amsterdam and operate one of the world's largest and most advanced cargo facility, Dnata Cargo City Amsterdam, at Schiphol Airport.

Dnata's cargo developments in the UK, a significant market for the company, are also a strong demonstration of how it has been progressively able to build and modernise its capabilities. Following a lack of investment for many years in Heathrow Airport's independent cargo handling facilities, a series of offairport or second-line developments by Dnata close to the UK hub's main cargo

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When you build a facility around the customer and the people that are going to work in it, there's a great opportunity to make a step change

handling areas has brought some fresh alternative solutions to the airport's often congested and dated cargo infrastructure.

Allen says it is satisfying to bring a fresh approach to the main hub airport of his home country, the UK – where, among other things, he spent five years with British Airways and helped with the

Handling Heathrow's cargo challenge

lthough Heathrow

airport's notorious
Shoreham Road
'horseshoe' cargo
area
remains a
congestion hotspot, in April Dnata
inaugurated the next phase of its 'Dnata
City East' complex at LHR, with the new
10,500sqm 'Phase II' facility designed to
operate in conjunction with Dnata City
East's existing 22,500 sqm facility, which
opened in September 2019.

The bespoke facility further increases Dnata's capacity at LHR and makes Dnata City East easily the largest off-site cargo handling operation at the UK's biggest airport. Located immediately south of LHR's main airside cargo handling areas, both Dnata City East facilities were specifically designed to accommodate the operational requirements of Virgin Atlantic Cargo and its joint-venture partner Delta Cargo. Exports will remain at Dnata's Phase I facility while the new



Phase II facility will cater for all imports, offering the two airlines significantly increased handling capacity.

Five-year contract extension

The new import facility comes at a time when Virgin and Dnata have extended their already longstanding LHR cargo handling contract and partnership for a further five years.

The facilities incorporate the latest carbon-reduction initiatives in design and operation, including the use of solar PV panels, air-source heat pumps and electric vehicle charging. Dnata City East has already achieved a BREEAM 'Excellent' environmental rating for its design stage, with the same status also expected to be achieved for the construction process.

Including Dnata City East, Dnata can now offer cargo services from up to eight facilities at LHR with a team of over 750 employees, providing cargo handling infrastructure and services for over 30 international airlines and handling in excess of 500,000 tonnes of cargo. Having added seven facilities, including six newbuilds, to its UK infrastructure over the past eight years, Dnata now operates 13 cargo centres at six airports in the UK and is able to handle more than 800,000 tonnes of cargo annually across the country.



design of LHR's Terminal 5.

"That really showed me that when you build a facility around the customer and the people that are going to work in it, there's a great opportunity to make a step change," he notes.

"That's what we're trying to do (at LHR). They're just steel-framed buildings, and yet you can create something really nice to work in."

Appropriate levels of technology

Along with enough space, and appropriate levels of technology to make the processes better and smoother...

"That's the key for me. Where the cargo





The expanded Dnata City East is LHR's largest off-site cargo handling operation

industry needs to go is in much more automation and passing of messaging between every step of the process, so that the cargo just continues to move – and the whole passing of air waybills happens digitally," he highlights.

"But we've got to get the industry to work together on it as well."

He says you can provide incentives for people to participate digitally, but industry change generally goes a lot faster if mandated – whether by a dominant carrier, airport authority, or a regulator like a customs authority.

"I think IATA can do a lot more on it as well," he notes. "I'd like to see IATA take a much more active role."

"

I think carriers have started to see the benefit of working with modern professional organisations

Steve Allen

Longer term partnerships and relationships

Another key area of recent significant change is interest among customers in longer-term partnerships and relationships.

"I think there are three approaches,"

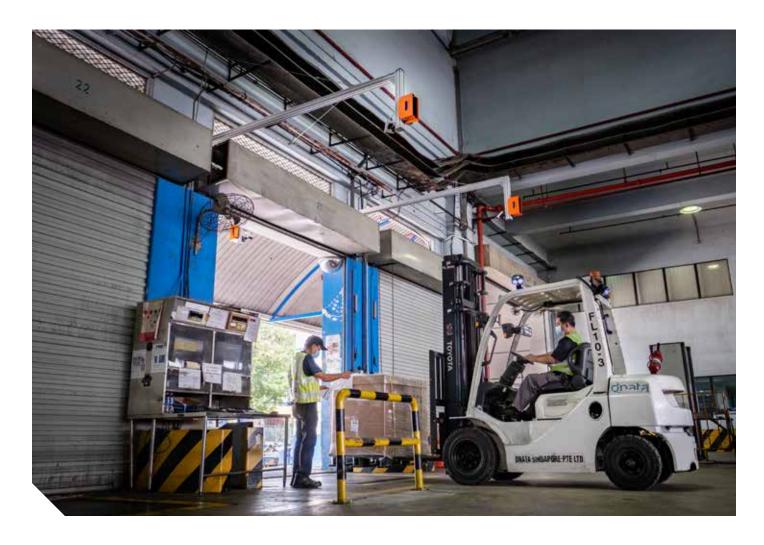
explains Allen. "Carriers are looking to outsource more of their ground activities, because they're concentrating on what they can deliver in the air and also maximising the use of their assets – the aircraft.

"We're seeing more of them interested in outsourcing hub activities, which they were nervous about in the past."

Some carriers are also looking to put together agreements around multiple geographies. "So, it could be a regional deal, or either end of route," he notes.

"And we have more and more carriers come to us and say: 'Will you set up in this location, because the quality there is terrible?' And if we say 'we'll put the investment in as long as you can commit





to a longer-term contract', they're saying: 'If you'll give us the quality we need, that isn't there currently, then we're willing to work with you on that'."

Greater appreciation of quality handling

The challenges recently faced by airlines and their cargo handlers – for example, in finding staff and managing volatility – means there seems to be a greater appreciation now of the difference between quality handlers that can manage some of these difficulties versus those that can't.

"I think carriers have started to see the benefit of working with modern professional organisations," confirms Allen. "And the industry is consolidating, and there are fewer but larger organisations that can afford to invest in their people, in their processes, in their technology; when it used to be so fragmented, you wouldn't get that."

Standardised processes

He continues: "So, they're definitely seeing value in that (consolidation) coming. And one of the things we're doing to make the world a simpler place is having standardised processes everywhere in the world for handling.

"That makes all the processes more efficient, you can adopt technology more easily, the training is easier – because everybody's being trained in the same way, no matter where they are. And you can move people around between stations.

"So, we have standard manuals that are aligned with IATA's IGOM ground operations standards. And we apply that consistently worldwide. Then a carrier knows that when you contract with Dnata, this is the quality you get, no matter where it is in the world."

Technology interfaces

This extends to standardisation of the technology used as well. "Because then

you're not trying to build it on multiple versions of how you handle cargo," Allen notes. "There's only one way of doing it; you put those rules into your piece of technology, and you can use it anywhere in the world."

The ability to then interface that technology with airline customers' technology is also important.

"These days it's much easier to interface technology," Allen notes. "But if you know what you're interfacing to, you can have that global standard. Then you can say anywhere in the world where you're working with Dnata, we'll just plug our technology together, and it's easy."

Existing customers will know the integration can be successful in new locations if they've seen those systems successfully working together at other stations in their network.

"That's the big advantage. Global standards, I think, has to be the way forward," Allen adds.

"How difficult can it be? All you're doing is handling cargo and turning aircraft; it should just be the same every time, but somehow over the years, we've developed (as an industry) different ways of doing it in every station in the world. Standardising makes the whole world much more efficient." Allen notes.

"And also the training. We're developing eLearning solutions, and we're using virtual reality for training now, on our standardised processes. So, if you've got a high turnover in your workforce, you can get people trained and up and running much, much faster. And you can share them across different locations, if you wish."

Promising outlook

All of this suggests that although it has been an extremely volatile, difficult period, for airport ground services providers, on the cargo side at least things look quite promising for globalised, professional, technologically developed cargo handlers.

"Yes, I think so," confirms Allen.
"Cargo has been the one thing that's



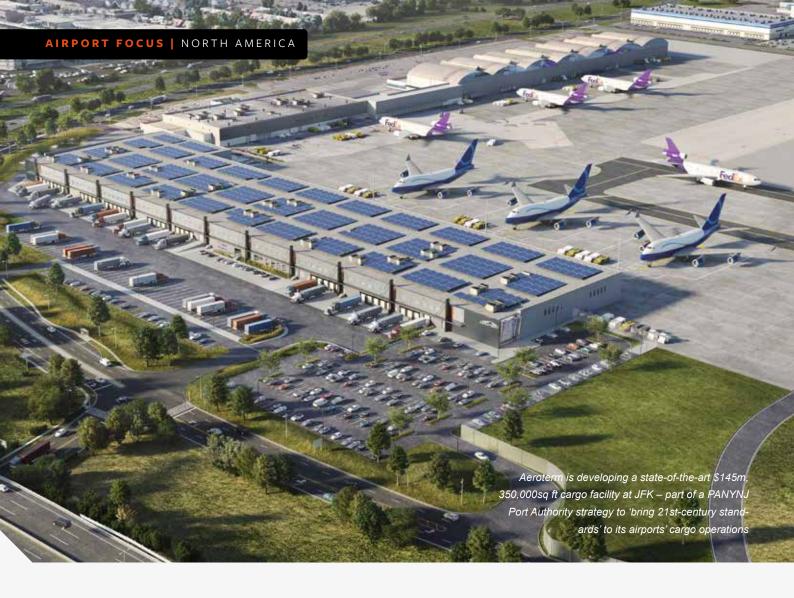
upheld all the way through. So, that's something most of the big players have been willing to continue investing in. And we've learned a lot about cargo. And also, the world has woken up to cargo, getting much more support from the authorities and the airlines and the freight forwarders. And suddenly this

is now the thing everybody wants to get right – whereas before it was always the second-class citizen."

And there is now more momentum and motivation to get the technology part right.

"Exactly – we are feeling that momentum beginning to really build." ■





North America: Airport cargo investments surge

In a hot development market, air freight facility construction or expansion projects are moving forward apace at hub and second-tier airports across the US and Canada in response to congestion issues, rising freighter activities, and the need for modernisation, with some players increasingly looking at vertical expansion or off-airport locations, reports Ian Putzger

orth American
airports are seeing a
surge of investment in
new cargo handling
and air logistics
capacity, with rising
freighter traffic, in conjunction with
congestion at the main hubs, providing

a particular boost for second-tier and cargo-focused airports. But many of the major hub airports are also expanding their facilities, after the recent strong performance of cargo has highlighted the potential for logistics investments and the shortcomings of some of these airports' cargo facilities and infrastructure.

Realterm, parent of air cargo facility developer Aeroterm, is preparing for more cargo projects. In early May it announced the successful closing of \$150 million in capital commitments for its open-ended airport logistics properties fund, which has garnered about \$900 million in total equity commitments since its formation in 2015.

Aeroterm has recently completed four cargo buildings, has three under construction, and two more in the concept stage, reports Bryan Rosenberger, vicepresident of design and construction.

Expansion projects mushrooming

Air freight facility construction or expansion projects are mushrooming all over the US and Canada. Michael Webber, president of airport cargo consulting firm Webber Air Cargo, notes that new facilities are in the planning stage at various large airports, including Los Angeles, Dallas/Fort Worth, Miami and Chicago. "A lot of RFPs are going to hit the streets," he says.

Alex Lowe, manager for global cargo network development at Edmonton International Airport, observes: "We're in the midst of our largest cargo expansion." At the moment the airport is doubling its apron capacity, a project that should be completed before the end of the year.

Vancouver International Airport

is looking for a partner to develop a 300,000 sq ft (28,000sqm) area into an 'Airport Commerce Centre'. Adjacent to the airport's cargo village, the space was originally designated for utilities, but the airport management now wants to develop its multimodal potential to facilitate air cargo connections with future developments in the area.

The action is not confined to the established international gateways. In March, Aeroterm signed an agreement for a 30-year ground lease to develop a 140,000-170,000 sq ft cargo building at Pittsburgh International Airport. The planned multi-tenant facility is scheduled to open in the second quarter of next year. Last year, handling firm Alliance Ground International (AGI) expanded its ramp and warehouse operations at the airport.

Philadelphia International Airport is pursuing a project to more than double its cargo building footprint from currently 600,000 to 1.4 million sq ft. The City of Philadelphia Division of Aviation secured almost \$31 million in funding from Washington for the current fiscal year, part of which will go toward the \$1.2 billion cargo project.

Driven by strong growth

These ambitions are driven by strong growth in cargo throughput. Pittsburgh saw a 30% increase in volume last year over 2020 to around 110,000 metric tonnes, and 26% more than in 2019. And throughput at Miami International Airport climbed another 17% last year, from a record tonnage in 2020, to 2.7 million tons.

In March, Miami's volume was up 8%, year on year. "We're feeling what's going on in the rest of the world with inflation and the war in Ukraine, but here it's mitigated by our strength in the Latin America market, which is on a rebound," says Emir Pineda, manager of aviation trade and logistics in the marketing division of the Miami-Dade Aviation Department.

Like Miami, Edmonton has seen backto-back record volumes in 2020 and 2021. Much of this was driven by cargo charter

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"

Freighter capacity remains challenged and tight. We've seen more 747s stepping in to fill the gap

"

Alex Lowe

activity, which soared 165% in two years, says Lowe.

Growth in e-commerce

This year kicked off strongly, with much growth in e-commerce, which had spawned a charter programme from China, but this was suspended in the wake of the new virus outbreaks in China. The airport also handled a lot of Antonov and Ilyushin-76 flights for the oil and gas industry, but this activity has been hit by the ban on Russian carriers from Canadian airspace.

"Freighter capacity remains challenged and tight," says Lowe. "We've seen more 747s stepping in to fill the gap."

The relentless growth of e-commerce volumes has been a strain both on carrier capacity and warehouse space. "We can't get the aircraft fast enough," says Jamie Porteous, chief strategy officer of Cargojet, which performs linehaul for the integrators as well as Amazon. The carrier is in the process of expanding its hub in Hamilton and almost completed the construction of a new facility in Halifax.

Capacity constraints are a problem at most of Cargojet's facilities, says Porteous. It is also expanding at St John's and is looking at Winnipeg, he adds.

Boost for second-tier hubs

The rise of freighter traffic, in conjunction with congestion at the main hubs, has been a massive shot in the arm for second-tier and cargo-focused airports like Rockford. E-commerce traffic from the likes of Amazon and the integrators has been a major driver, but what really changed the game was the arrival of



Cargojet has chosen IAI to carry out passenger-to-freighter conversions of four B777-300ER aircraft, expected for delivery in 2024, 2025 and 2026, while deliveries of four orders for B777-200 freighter conversions are expected from next year

Senator's dedicated freighter flights from Europe, says Ken Ryan, Rockford's director of cargo.

The airport saw throughput rise 25% last year, following a 17% gain in 2020.

Webber agrees that the outlook for aspiring cargo airports and secondtier locations has improved massively. For a long time, such aspirations were frustrated by the lack of all-cargo carriers, as players like BAX Global, Kitty Hawk and others folded their domestic freighter operations. Now a host of airports, such as Greenville, Rockford and Halifax, are seeing regular freighter flights and attracting facility developers and ground handlers, he notes.

Critical mass builds

Jared Azcuy, AGI's CEO, has second-tier airports in his sights, noting that a growing number of forwarders are looking to these airports for dedicated all-cargo flight, which has developed critical mass at these points. AGI opened facilities in Rickenbacker and Pittsburgh last year and is looking at other markets in this bracket.

"We're starting to see a major increase in the second tier of airports," remarks Rosenberger.

Freighters and, to some extent,

passenger planes with seats and galleys removed to carry freight in the cabin, have largely carried the advance of these airports. The latter are on the retreat now as the passenger business recovers, but freighters are expected to continue to fly a larger share of the global volume than before the pandemic, partly because passenger airlines have retired older widebodies and are replacing them with A321XLRs and B737MAX aircraft.

Bob Caton, vice-president of development at Aeroterm, expects the market share of freighters to remain elevated. "We're seeing that trend play out in real time. It's not a temporary uptick," he comments.

Productivity boost

Azcuy welcomes this development. "For us, getting freighter volume is better from a productivity standpoint. They bring in more cargo at once that we can process instead of getting 15 tons from a passenger flight and then the next 15 tones maybe three hours later," he says.

On the flip side, the extension of the screening mandate to main deck cargo last year meant that AGI and other handlers needed more space to screen the larger volumes, which added to the congestion at some airports like O'Hare.

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Survey highlights bottlenecks

In collaboration with the Airports Council International – North America (ACI), the committee conducted two surveys of industry stakeholders. The feedback from over 400 respondents indicated that Chicago O'Hare had the biggest problems, followed by JFK, Atlanta, LAX and Boston.

Based on the responses from the surveys, the committee identified five critical areas – facilities and infrastructure, staffing and operating hours, technology and automation, service standards, and regulatory and paperwork challenges.

Working groups were set up for each of these areas to highlight the problems and make proposals for improvement.

The initiative has gained broad buy-in from other industry sectors. In addition to the ACI, the National Customs Brokers and Forwarders Association of America, Airlines for America and the Airline Service Providers Association have joined the action. Each of these groups has set up

task forces to examine the five individual themes and come up with suggestions.

These findings and suggestions will be amalgamated into a white paper to be presented to private, public and government entities to instigate actions to tackle congestion.

Recruitment challenge

One area where the authorities could bring welcome relief is in the recruitment of warehouse and ramp staff. Like most other industries, the air freight sector has struggled to find enough workers, but on-airport operations face the additional hurdle of obtaining clearance from the authorities for new recruits. Completing background checks and getting the badge takes about six weeks, which causes many applicants to turn to other industries where they can start work right away.

"It's difficult with the recruitment protocol," says Azcuy, adding that quite a few airports have been very supportive. To shorten the wasted time, AGI starts training newcomers in non-airport areas like import centres, where the badges are not required.

"Labour continues to be a challenge. It's going to continue for the foreseeable future," he says.

Webber concurs: "Labour is a big issue," adding that various hurdles are in the way. For one thing, workers may require public transit to get to work, so 6

Labour continues to be a challenge. It's going to continue for the foreseeable future

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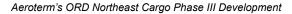
Jared Azcuy

now this issue has to get included in cargo planning. Moves to 24/7 operations bring additional challenges on that front, as a lot of public transit systems do not operate around the clock, he adds.

Congestion solutions

The congestion has forced airport authorities at strained hubs to intensify their study of new concepts to overcome capacity constraints. For Miami airport, the future is vertical. The airport authority is in final negotiations over a proposal for a five-storey building geared to handle between 4 million and 5 million tons, which would double the existing capacity, with a ramp area to accommodate 12 B747F positions. The plan calls for a high degree of automation using robotics and a platform for trucking, security and services. The estimated development window is 3-5 years.

"We are near capacity," says Pineda. "We





Cutting Chicago's cargo congestion

lliance Ground
International
claims it has
reversed stifling
cargo congestion
at Chicago O'Hare
with major investment in technology
and a new 253,000 sq. ft off-airport
import centre. The development of the
AGI Operations Control Centre (OCC)
"required huge investment and has
started to deliver significant efficiencies
through the communication of live
data to all parts of the ground handling
supply chain", AGI said.

Warren Jones, VP for business development, commented: "AGI is the largest ground handler in Chicago, and the digitisation of our handling processes has made us the most capable. It has enabled us to foster a



culture change in communication that will benefit freight forwarders and our airline partners alike.

"The combination of the OCC's Flight Tracker Radar System, integrated Cargo Sprint software, capacity optimisation heat mapping, and the upcoming AGI online 'real people' chat centre has meant that AGI can directly communicate with forwarders, airlines, and other service providers to deliver a new level of stakeholder communication."





Aeroterm has signed a 30-year ground lease to develop a 140,000-170,000 sq ft cargo building at Pittsburgh International Airport

estimate probably 3 million tons is the max that our facilities can handle today." Miami's growth projections are for a doubling of volume over the next 20-25 years.

Webber reckons that more airports may follow in Miami's footsteps, noting: "Many of the traditional hubs are running out of land."

Trend to multi-storey facilities

Cost can be an obstacle. When Aeroterm was planning for a facility at JFK, the original concept called for a two-storey structure, but the cost made that "a bit uneconomic", recalls Caton. "But there is a trend to multi-storey facilities," he adds.

AGI took a different route in Chicago, where it opened a 253,000 sq ft import centre off-airport with a state-of-the-art racking system and a cargo mobility system for continuous tracking that allows customers to check the progress of their freight via the handler's website.

The initial impulse for the move off airport was the congestion at O'Hare, but the concept is viable in its own right, says Azcuy. For one thing, the site is actually closer to the forwarding community in the area, he notes.

"Import centres bring tremendous value. We see them as the way forward for constrained airports," he says. The concept would make good sense in markets like LAX, JFK or Atlanta, he adds.

Off-airport investments

In March, Aeroterm acquired two warehouses with a combined footprint of almost 221,000 sq ft about ten minutes from Montreal Trudeau International Airport. The following month it bought two off-airport facilities with over 142,000 sq ft adjacent to Costa Mesa airport, which have runway access via a special gate.

Nevertheless, Rosenberger does not view such moves as a general trend. "Off-airport is situational, based on location. It's primarily due to land constraints," he says.

Caton notes that it makes sense to move imports off airport, but not exports. While the concept works well, he sees one drawback. As airports control what's on their premises, they can go for a holistic strategy, which is not possible with offairport locations, he remarks.

Consolidation continues

Meanwhile, the region's cargo handlers continue to consolidate. AGI continued its expansion in May with the takeover of Total Airport Services, a ramp, cargo and passenger handling firm operating at eight US locations. Further expansion is on the cards.

"We will continue to pursue acquisitions that fit in with our strategy of expanding both our product offering and our global reach, with particular focus on Latin America, Europe and Canada," commented Azcui when the agreement was announced.

This does not mean that AGI is done growing in the US. "There's definitely more to come in the US, but we're already starting projects into South America and Europe," he says.

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Cargo drones get heavy

Despite continuing regulatory and technical challenges, developers have continued to make good progress towards the launch of UAVs able to carry higher cargo payloads, as the interest from operators and their customers has also switched from small final-mile deliveries to higher-payload middle-mile opportunities, reports *Will Waters*

argo drone pioneers
have continued to make
good progress in the
past 12 months towards
the launch of unpiloted
aerial vehicles (UAVs)
able to carry higher cargo payloads,
as the interest from developers and

their customers has also switched from small final-mile deliveries to higherpayload middle-mile opportunities and capabilities.

Among the most advanced of these is the VoloDrone, the first cargo variant created by urban air mobility (UAM) firm Volocopter. Last October, it conducted the first public flight of a full-scale heavy-lift electric cargo drone, a vertical take-off and landing (VTOL) aircraft designed to carry pallets weighing up to 200 kilogrammes over a 40-kilometre range.

VoloCity air taxi overlaps

The VoloDrone benefits from many

design, safety and certification overlaps with the VoloCity passenger air taxi variant that Volocopter has been pioneering, a multi-rotor allelectric VTOL aircraft developed to meet the exacting aviation standards and requirements set by the European Aviation Safety Agency (EASA). Volocopter says it created the VoloDrone "to offer services to a slew of industries, and it will be deployed where classic transportation modes reach their limits". Examples include the rapid delivery of urgent items within logistics, "from retail to spare parts deliveries", or to "be quickly deployed to provide disaster relief, air rescue, or support humanitarian aid efforts", and "shore-to-ship deliveries, transporting goods like spare parts".

But to a large extent, the range of practical applications for cargo drones is still being explored, as the technical and regulatory challenges are progressively worked through and the unique capabilities and cost profiles of the various vehicles emerge and evolve.

Indeed, several of the cargo drone developers are not only pioneering in terms of their ability to fly unpiloted, and in meeting the complex and still-evolving safety requirements for that, but also in some cases creating new aircraft concepts that are needing to be designed, tested, improved and certified. While some use more traditional fixed-wing aircraft or single-rotor helicopter designs, others like those developed by Volocopter - are electric multi-rotor VTOL aircraft of a type never previously tested in real-world cargo or passenger flight situations.

Regular flight tests

The VoloDrone's first flight actually took place in 2019 and since then, regular flight tests have been conducted at various airfields in Germany, with Volocopter subsequently working with logistics giant DB Schenker to explore and develop the VoloDrone's integration into potential real-life logistics scenarios and configurations. The drone itself is 9.15 metres in diameter, 2.15 metres tall, and

has a 600-kilogramme maximum takeoff weight (MTOW). Future VoloDrone operations will be fully electric with autonomous beyond visual line of sight (BVLOS) capabilities, Volocopter says.

In addition to the 3-minute test flight, Volocopter and DB Schenker also demonstrated VoloDrone's integration into the logistics supply chain with an end-to-end cargo transport operation showing their progress together since DB Schenker became a strategic investor of Volocopter in early 2020. For the delivery simulation, the electric drone was equipped with a Euro-pallet sized load-box located between its landing gear, safely delivering the payload to a DB Schenker Cargo Bike to complete the entirely electric, multimodal last-mile delivery.

Significant milestone

The demonstration marks a significant milestone in the development of 'heavylift' cargo drones - 'heavy-lift' in the sense of being able to carry meaningful



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sized pieces of freight rather than just small parcels – and also their ability to operate in urban settings rather than remote areas. Although there are numerous examples of lightweight cargo drones capable of lifting small packages with payloads of up to 5kg, including some already in active service carrying niche products in remote areas, this is thought to be the first full-scale public demonstration of a cargo drone capable of lifting payloads greater than 20kg, especially in an urban setting.

The first public VoloDrone flight comes soon after Volocopter secured its first large-scale firm orders for its cargo and passenger variants. Volocopter and Aerofugia, a subsidiary of Geely Technology Group, last year finalised a joint venture to launch UAM vehicles in China, including an agreement to purchase 150 Volocopters. That JV includes an unspecified number of the VoloDrone cargo variant, Volocopter confirmed.

Island mail delivery

Another company with significant payload

drones already up and running now, and a major customer, is Windracers. It has completed a series of successful trials for the UK's Royal Mail in the last 18 months carrying mail and parcels weighing up to 100kg between the UK mainland and various remote and island communities, using its twin-engine, fixed-wing UAV.

And in May, Royal Mail unveiled its ambition to scale up its use of drone technology and create more than 50 new postal drone routes over the next three years, "subject to Civil Aviation Authority (CAA) approval, and the on-going planned improvement in UAV economics", as part of a new partnership with Windracers, supported by up to 200 of its drones. Longer term, Royal Mail's ambition is "to deploy a fleet of more than 500 drones servicing all corners of the UK".

The twin-engine UAV used in the trial has a wingspan of 10 metres and incorporates "a high-reliability autopilot system". It can carry up to 100kg of mail and parcels in the drone's 700-litre internal hold, and operate two daily return flights between the islands. Letters and parcels

_____ ((______

The middle mile is much easier to tackle from a regulatory standpoint

Stephen Wright

are then delivered by the local "postie".

Stephen Wright, chairman at Windracers Group, says there has been growing interest from drone developers and their customers in higher-payload, middle-mile use cases: "The middle mile of supply and logistics, especially to remote locations, has long been overlooked by the industry and is ripe for innovation," he notes.

"Urban delivery is complex from a safety and regulatory standpoint. It is also difficult to compete with existing options such as electric cargo bikes in terms of efficiency and sustainability.

"The middle mile is much easier to



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tackle from a regulatory standpoint; but there's also a genuine problem here that needs solving. Delivering to remote or island communities has always been challenging and complicated, resulting in slow and infrequent deliveries that are expensive to operate profitably. Drones present an extremely compelling opportunity for improvement in terms of reliability, efficiency and sustainability."

Dronamics developments

Fellow European developer Dronamics also has its sights set firmly on underserved or difficult-to-serve lanes, away from hub airports, where it believes its soon-to-launch Black Swan drone will have a significant advantage in offering rapid or same-day deliveries of shipments up to 350kg at a distance of up to 2,500km - in cases where an air charter would be uneconomic and surface transport too slow. It says the Black Swan can delivery "at up to 90% lower cost than any aircraft enabling same-day shipping over very long distances for a variety of industries, from pharma to food, from e-commerce to spare parts".

Dronamics has been building a network of 'droneports', including at more than 30 second-tier and third-tier airports in Europe, "allowing the Black Swan to provide the critical missing 'middle mile' in air freight". It says other locations are also viable, as long as they have a 400-metre runway.

"Whether ferrying vital supplies between islands or delivering critical spare parts deep into a country, Dronamics will link towns and cities around the world with each other in a way simply never possible before," the company says.

Maltese island opportunity

After last year attracting the support of major logistics customers include Hellmann and DHL, in May Dronamics become the first cargo drone company to obtain the European Union's Light UAS Operator Certificate (LUC), from Malta's Civil Aviation Authority. The LUC is recognised in all EU member states and allows Dronamics to self-authorise flight operations of its Black Swan aircraft across EU countries, including BVLOS operations.

Dronamics said the certification "provides significant business opportunities across the single market", and Dronamics "plans to scale up its operations and run its first commercial flights out of Malta and Italy later this year, linking key hubs across the region", with Malta as its European operations base.

Targeting e-commerce, pharma and spare parts shipments

Offering a same-day service, and set routes rather than ad hoc, Dronamics is targeting primarily e-commerce, pharmaceuticals and spare parts shipments, says CEO and founder Svilen Rangelov. He also sees a good use case in interlining with commercial airlines, where Dronamics can act as a feeder operator. For distances in excess of

400km, his company can offer a service that is more economical than road transport, he says, as well as faster.

The company says it can produce at least 100 aircraft in a year, but it plans to find regional manufacturing partners that can produce at least 1,000 drones per year, as demand expands.

US ambitions

Meanwhile, over in the US, where regulators have so far been more reluctant than their European counterparts to certify BVLOS operations, plans to develop significant-payload cargo drones continue to make progress.

California-based Natilus says it now has an order book of over US\$6 billion and 440+ aircraft spread across the three products it is currently developing. These are a 3.8-tonne model aimed at feeder operations for express traffic, a 60-tonne aircraft to compete with the B767 freighter, and an aircraft with a cargo payload of 100 tonnes to ply transpacific trade routes. All three use a blended wingbody design to maximise capacity and its aerodynamic properties. The larger two models have gone through the conceptual design stage, but for now Natilus is concentrating on the smallest drone.

It has begun construction of the first Natilus 3.8T (N3.8T), and its first flight is scheduled for end of 2023, Natilus says. The 60-tonne model could follow about four years later.

In the last 12 months, the Natilus team "has increased substantially to

almost 20 engineers" and transitioned from San Francisco to San Diego "to focus on first flight on the 85-ft wingspan prototype aircraft".

Bigger is better

Lessons learned from the initial development, trials and use of cargo drones include that "the industry focuses as a whole on regulations for the smaller category of drones, <50kg, but the larger unmanned aircraft have already been proven in BVLOS and day-to-day airport operations. We think that the smaller drone market (<50kg) will still have a hard time developing, but the larger drones (1,000kg + maximum gross weight) have found themselves evolving really well. It is easier to commercialise something that is larger."

Natilus believes its order book alone demonstrates that cargo drones can play a significant role in mainstream air cargo transport "alongside the large players", not just for niche operations - for example in remote or inaccessible areas,

for humanitarian or pharma deliveries, or for e-commerce middle-mile. But the company acknowledges "that it is still difficult for suppliers to believe in the future of cargo drones", and to make the necessary investments in what still may seem to many like an uncertain market, noting: "Natilus is proud to be supported by top-tier suppliers, but we understand that it's hard for some other companies."

It sees no need to prepare any completely new ground infrastructure for cargo drones, at least for its own operations, noting: "We are a turnkey operation into existing infrastructure."

More power

Another US drone developer with major customers lined up is Sabrewing, whose CEO Ed De Reyes also believes the future lies in larger drones. Developments in the last 12 months include "extracting over 50% more power" out of the prototype VTOL aircraft's "ducted fan" turboelectric drivetrain-powered engines, and reducing the noise by over 50%.

- 66

The additional thrust means that our payload for the official first flight of the aircraft should beat the world record for any commercial VTOL UAV

Ed De Reyes

Sabrewing is "preparing the aircraft for its official first flight", which is due to take place this summer.

"The additional thrust means that our payload for the official first flight of the aircraft should beat the world record for any commercial VTOL UAV," says De Reyes.

"Originally, we were focusing on a production aircraft that could lift 1 ton and fly 1,000 miles. As we designed and built the ducted fans, we designed a



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system that could easily lift a lot more. Our prototype is capable of lifting our goal weight and our production aircraft is capable of 5,400 pounds (2,450kg) and 1,000 nautical miles."

This is consistent with the lessons learned from the initial development, trials and use of cargo drones, De Reyes believes.

"Even though some minor airlines have signed deals with competitors, those same airlines aren't looking – in any realistic way – at carrying cargos that are less than 1,000 pounds (about 453 kilos). With the rising costs for labour, fuel, airport fees, etc., any load below 1,000 pounds is not economically viable for them. Our original assumptions regarding the market and our customer's desire to carry the greatest loads possible is key to the long-term success of any cargo UAV manufacturer."

He expects to see these aircraft in commercial use carrying payloads "as soon as the summer of 2023. We already have several companies who have purchased these aircraft throughout the world that intend to start carrying cargo as soon as 2023," De Reyes explains.

US\$600m order

Commitments include a US\$600 million order from Arabian Development & Marketing Co. (ADMC) for 102 Sabrewing 'Rhaegal-B' cargo aircraft along with a five-year renewable representation agreement with ADMC "for Saudi Arabia, the GCC and the pan-African region".

De Reyes expects the businesses of smaller-capacity drone manufacturers – especially those that are carrying payload that are less than 500 pounds (225kg) – will flounder in the next two years. "You'll also see those companies who manufacture UAVs with 1,000 pounds and greater payload capacity take up the majority of the sales in this segment, with VTOLs being the largest share of that market," he predicts.

He describes small-capacity UAVs as "niche" and "currently a novelty, but will be rendered obsolete altogether", whereas heavier cargo drones will play a significant role in mainstream air cargo transport – not just for niche operations.

Indeed, De Reyes expects that over

Small shipment drone developments continue

ompanies that have been testing or performing small drone deliveries for several years include Drone Delivery

Canada (DDC) – distributing small shipments to and from remote areas in Canada – and Zipline, whose fixedwing models have been delivering small medical shipments in remote parts of Africa since 2016.

After several years of testing and operations with its 'Sparrow' drone, which can carry payloads of 4.5kg up to 30 kilometres, over the last 12 months DDC has been focused on the development of the 'Canary' – a next-generation replacement for the Sparrow – and the Condor, a much larger drone capable of carrying a 180kg cargo payload up to 200km.

"The Condor is in developmental testing and the timeline for the completion of the prototype is the end of 2022, with first commercial projects being targeted for Q2 2023," says CEO Steve Magirias. "The Canary has improved operating parameters than the Sparrow and is also equipped with a parachute, which provides us with the ability to fly over people and also expands our route options."

Over the next three to five years, Magirias sees the market "continuing to grow, both for last-mile deliveries as well as for middle-mile deliveries in the coming years as the technology continues to advance and the regulatory environment improves in lockstep with the technology advancements." Initially, drones "will be used in mainly niche operations, but as the regulations adapt we expect cargo drones to play a larger role in air cargo operations".



Steve Magirias, CEO of Drone Delivery Canada

Technological and regulatory barriers

Magirias says the barriers currently "are technological and regulatory. From a technology perspective, the technology to allow drones to detect and avoid any obstacles is key for the industry to move from Visual Line Of Sight (VLOS) operations to Beyond Visual Line Of Sight Operations (BVLOS). From a regulatory perspective, as the technology advances, we look for the regulations to be adjusted to support BVLOS operations for drones."

All commercial drone operations in Canada currently must operate under VLOS conditions, with approval for BVLOS operations granted by Transport Canada only on a case-by-case basis. DDC in May received only its second such approval for a commercial drone delivery programme – for its University of British Columbia 'Remote Communities Drone Transport Initiative' programme for drone deliveries between Village of Fraser Lake and Stellat'en First Nation.

DDC has also been setting up a 'drone hub' at Edmonton International Airport, which will be a hub-and-spoke operation to offsite locations. "Drones at airports are still in the very early stages, but as the industry progresses, we expect to see more," Magirias adds.



Sabrewing is preparing a prototype able to lift 1 ton of cargo for its official first flight this summer

the next three to five years, the recent problems of supply chain bottlenecks will "shrink significantly with the introduction of heavy-lift cargo UAVs. You'll also see less truck traffic to/from the cargo hubs because the heavy-lift cargo UAVs will be able to deliver tons of cargo to pin-point locations in single sorties, all at lower costs than traditional air cargo aircraft."

Barriers to overcome

He says the biggest barrier that the cargo drone sector needs to overcome "is the funding barrier. Without the Federal government's funding help, it will be a long road to implementation of cargo UAVs. Programmes like AFWERX were created for this purpose, but they don't invest in Research and Development of aircraft."

But he doesn't expect any significant challenges for airports to accommodate the commercial use of cargo drones.

"Our aircraft uses existing infrastructure – so we do not require any preparations. Our customers aren't really interested in what the aircraft can do in 5 or 10 years; they're only interested in what we can deliver tomorrow or next year – so we have designed and built an aircraft that is ready to 'plugand-play' immediately upon entering a cargo airline's fleet. We can use all current facilities, airways and regulations without having to have the FAA create new rules or regulations that could take years to be approved."





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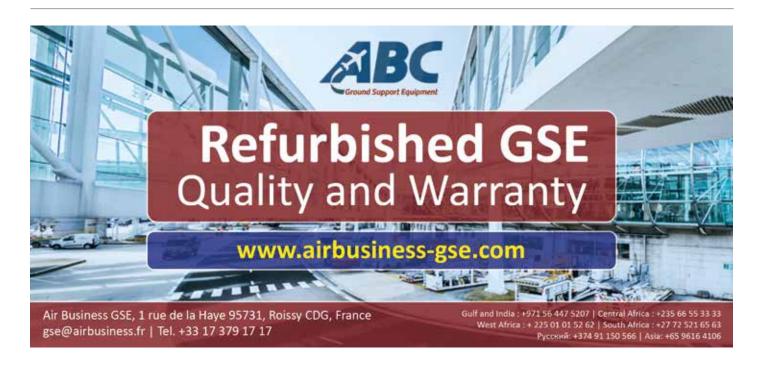




Swissport expands facilities in Vienna and Amsterdam

New 8,000 sqm centre more than doubles the group's cargo handling capacity at VIE, while a new second-line terminal at AMS aims to relieve the handler's on-airport warehouses, reports Will Waters wissport has opened a major new air cargo handling facility at Vienna Airport (VIE) to provide "additional capacity and flexibility" – with a particular focus on forwarder handling – alongside also expanding its second-line cargo handling capacity at Amsterdam Schiphol Airport (AMS).

The new 8,000 sqm cargo centre at VIE is located in the DLH SkyLog Park just a few hundred metres from the airport's





airside cargo terminals, more than doubling Swissport's cargo handling capacity at the airport. It is connected with Swissport's on-airport cargo centre by a dedicated electric truck, the first of its kind in Swissport's global network. It is Swissport's second major recent investment in Vienna, following the opening of a warehouse with direct tarmac access in mid-2019.

Forwarder handling opportunity

Swissport has been doing forwarder handling at VIE for some time at a smaller off-airport facility, but is looking to expand this part of its business – as the role of freight forwarders has evolved, with forwarders increasingly chartering their own-controlled capacity, and in some cases seeking airside facilities.

The company said it was continuing "to aggressively grow its air cargo business to participate in strong global demand for air

cargo logistics and to capture additional market share. With a second cargo centre now operational in Vienna, Swissport can resolve local constraints and provide air carriers and forwarders in Vienna with additional capacity and more flexibility".

Dirk Goovaerts, Swissport's global cargo chair, commented: "We have invested in this state-of-the-art 8,000 sqm air cargo centre to support our growth ambitions in forwarder handling, and of course to serve existing and new airline customers with an even better product. We are very excited to more than double our capacity in Vienna and now have the infrastructure in place to support our vertical integration plans."

Superior environmental performance

Swissport stressed that the state-of-theart building "is set up for a superior environmental performance, featuring a 900,000-kWh photovoltaic system". Highperformance charging on-site "ensures that the Swissport e-truck can shuttle between the two locations without restrictions". The company said it was "working to make air cargo processes more sustainable and efficient to continue to improve its services while reducing specific CO2 emissions".

Henning Dieter, head of Swissport Cargo Services for Germany and Austria, commented: "We are pioneering e-mobility in air cargo handling here in Vienna together with Mercedes, Siemens, XL Forwarding & Transports and the Austrian Federal Ministry of Climate Action."

In 2021, Swissport handled around 70,000 tonnes of air cargo at VIE. Within Austria, Swissport also operates a 3,500 sqm airside air cargo centre in a joint venture with Graz Airport.

Expansion at AMS

Meanwhile, Swissport's new facility at AMS, located a 10-minute drive from its two existing terminals, significantly expands Swissport's cargo handling capacity at AMS to 35,000 sqm. Swissport said that with cargo volumes on the rise globally and at Schiphol Airport, "introducing more warehousing space is key" and "prepares its operations at Schiphol Airport for the future".

Jeroen Giling, director of Swissport's cargo division at Schiphol Airport, said adding a third cargo terminal at Schiphol Airport "will relieve our first line on-airport warehouses, allowing us to use our total available space even more efficiently. It enables us to move not only more cargo, but also faster, reducing the waiting time for trucks considerably. With the opening, we are all set for the future growth of our existing client portfolio and ready to welcome new customers."

With demand for global air cargo logistics "already above pre-pandemic levels and persisting global capacity constraints in air and sea logistics", Swissport said it "expects growth in air cargo handling to outperform general airport ground handling for some time. The company has made cargo a strategic priority and set ambitious goals to grow its second largest business line from 5.1 million tonnes in 2021 to over 6 million tonnes over the next couple of years." The 5.1 million tonnes handled last year compares with 4.6 million tonnes in 2019.

CHAPTER 3 LET'S STAND TOGETHER



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