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Writer:
Ian Putzger

Production: David Badger

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Sagitta, Tower Bridge Moorings,
31 Mill St, London SE1 2AX

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The pharma phenomenon

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The pharmaceutical juggernaut rolls on – 2018 was another bumper year for operators handling the logistics for this fast-growing sector.

“Pharma has been positive. We have grown over 30% in 2018, year on year, mainly on import volumes,” reports Andres Bianchi, CEO of LATAM Cargo.

Like the South American carrier, AirBridgeCargo Airlines has sown the fruit of a massive revamp of its offering in this segment. The airline ratcheted up an increase of over 70% in pharma shipments in the first ten months of 2018, says Fedor Novikov, global director, pharma.

And Qatar Airways, which has expanded its pharma network to more than 70 stations worldwide, recorded 45% year-on-year growth in pharma tonnage for the January-October 2018

period, with shipments requiring passive temperature control solutions making up the majority of the traffic, reports Guillaume Halleux, chief officer cargo.

For MNX, which specialises in time-critical movement of urgent healthcare shipments like organs, bio-pharmaceuticals and radiotherapy products, the customer base has doubled, according to CEO Paul Martins. “We continue to expect double-digit growth,” he says.

And the outlook remains bright. According to the Business Research Company, the global pharmaceuticals market stood at \$934.8bn in 2017 and



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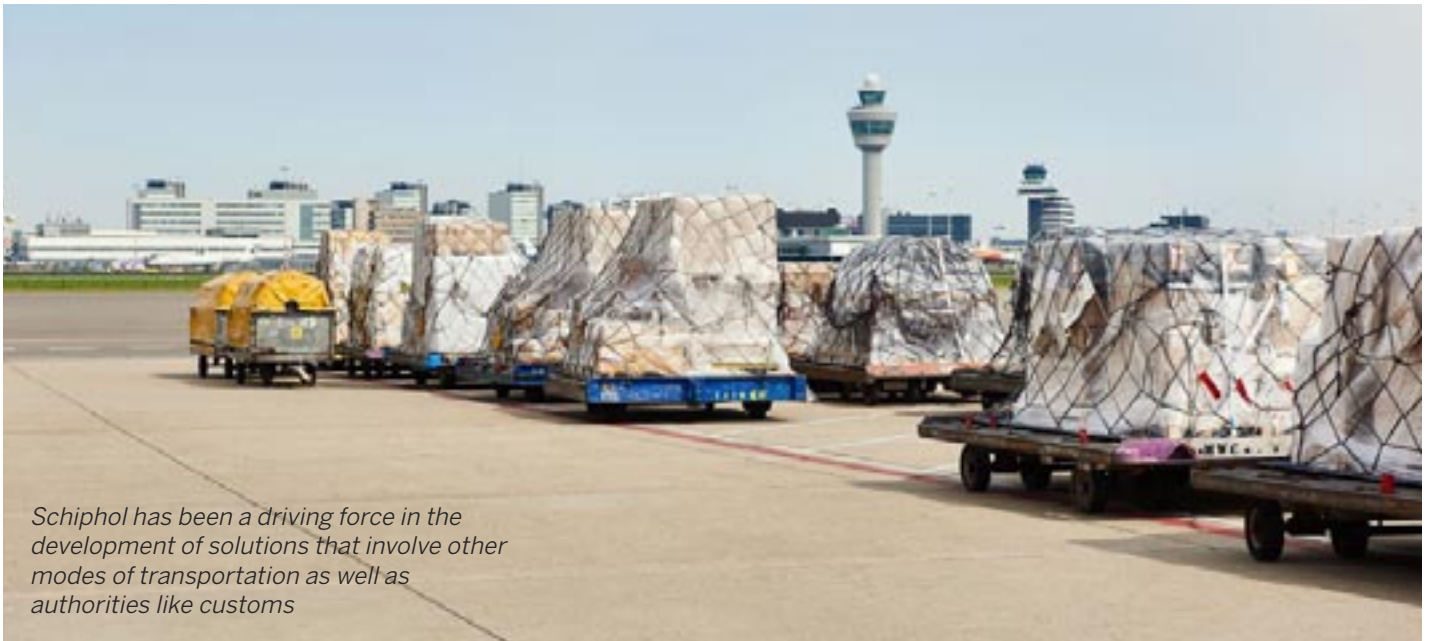
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Schiphol has been a driving force in the development of solutions that involve other modes of transportation as well as authorities like customs

will climb to \$1.17 trillion in 2021, advancing at a rate of 5.8%.

Evaluate, which provides market intelligence on the global life science and healthcare industry, predicts a compound annual growth rate of 6.4% for prescription drug sales between 2018 and 2024.

This will be driven by a blend of factors, ranging from disease prevalence, the balance of standard of living and drug affordability, consumer attitudes and lifestyle to policies of governments and insurance providers and the availability of medication.

The Business Research forecasters note that the growth curve in the pharma market has flattened as major new products are launched less frequently. They attribute this to less R&D spend owing to high failure rates in costly new developments and slimmer margins for manufacturers.

Rather than from the introduction of blockbuster medications, most growth is now coming from a larger global aging population and better access to healthcare in emerging economies.

Business Research analysts see global healthcare expenditure per capita rise from \$1,137 in 2017 to \$1,427 in 2021. There are huge variations behind these numbers. The worldwide forecast of growth in the pharmaceutical sector between 2017 and 2030, published by Statista, a statistics portal, envisages worldwide growth of 160% during that period, but some markets are expected to exceed that number by a wide margin.

The forecast points to India as the fastest-expanding market, growing 232%, followed by China, going up

230%, and Indonesia, rising 196%.

Growth in pharma traffic in Asia has been significant, notes Andrea Gruber, head of special cargo at the International Air Transport Association (IATA). As more production sites open in the region, this may have some impact on the role of airfreight in the long run, she believes, but for the time being it has a major role to play.

It is not always clear where traffic ends up, says Ferry van der Ent, director of business development at Amsterdam Airport Schiphol.

“We see an increase to Middle Eastern routes, but it’s hard to say if that’s the final destination,” he says, adding that by the same token, much cargo originating from Latin America is flown to Miami.

Analysts see global healthcare expenditure per capita rise from \$1,137 in 2017 to \$1,427 in 2021

Airport focus

One airport that has established itself as a gateway for pharmaceuticals over the past few years is Montevideo. Through investment in cool chain infrastructure, supported by multimodal capabilities, GDP certification and a supportive regulatory and tax regime, it managed to draw in pharma companies looking for distribution in South America, resulting in rapid growth in this segment.

Lufthansa Cargo has been routing two of its Latin America freighters through Montevideo. Pharma traffic played a role in the decision, says Gunnar Loehr, the carrier’s head of the South America region. In September 2018, LATAM Cargo launched weekly freighter flights with B767-300 aircraft between the Uruguayan capital and Brussels, expressly connecting two airports with a strategic focus on pharma flows.

For Hong Kong International Airport (HKIA), pharmaceuticals is also a strategic focus. This segment has shown 12% compound annual growth between 2014 and 2017 and was up 34% year-on-year in September 2018. Since March last year, all the airport’s ground and ramp handlers, and home carrier Cathay Pacific, have CEIV accreditation, a drive that the airport authority spearheaded in a community initiative.

Further expansion of cool chain capacity will come through the establishment of a planned premium logistics centre, which will be developed by Alibaba logistics arm Cainiao. The 380,000 sq metre facility will have automated temperature control for serving the healthcare sector, a spokesperson for the airport says.

Airport authorities in Amsterdam and Hong Kong are not involved in touching the cargo, but that does not mean they do not have a role to play in the development of pharma business.

“We provide facilities but we are also the neutral partner and we can be the enabler of co-operation between stakeholders that can look beyond their own interests,” van der Ent says.

Qatar Airways has set its sights on CEIV certification in 2019



Schiphol has also been a driving force in the development of solutions that involve other modes of transportation as well as authorities like customs. In a move with potential for other commodities, the airport's Cargonaut system was linked last year with a platform of the Dutch flower auction to establish a connection between commercial and logistics information. This allows tracking of every shipment at piece level using either the order number or the air waybill number. Specifically for pharmaceuticals, the airport authority, Air Cargo Netherlands and 23 pharma logistics firms, Schiphol initiated the Pharma Gateway Amsterdam programme.

While such undertakings hone the competitive advantages of Schiphol, van der Ent sees also plenty of scope for collaboration with airport rivals. Schiphol maintains a steady dialogue with the likes of Frankfurt and Brussels.

"Sharing data and experiences is vital," he says. "Like security, it's important to share best practices."

At the same time, Schiphol management is working closely with a number of airport partners to foster and grow traffic between them. The concept of pharma corridors has been gaining traction in the airfreight industry.

"Pharma corridors are important," van der Ent says.

Brussels and Miami tried to cement the concept with the creation of pharma.aero, an initiative to link CEIV-accredited airport communities. This

has since attracted several airports as well as airlines, forwarders, ancillary service providers and pharma companies.

CEIV on the rise

CEIV has spread to cover over 220 entities, gaining recognition as a global standard.

"It is something we can hang our hat on," says Robert Fordree, vice-president, cargo development of Menzies Aviation. The handling firm is in the process of obtaining accreditation in Amsterdam and London Heathrow. In Bangalore it went for GDP accreditation, because its customer there required it.



IATA's Gruber calls CEIV a "living programme", pointing out that it continues to evolve as it adapts to changing technological and regulatory environments.

At the same time, IATA keeps refining the programme to make it more user-friendly. One major effort seeks to harmonise and simplify the audit process.

"The number of audits is one of the biggest hurdles today," Gruber says.

Qatar Airways has set its sights on CEIV in 2019. The carrier has gradually added network stations to the Qualified Envirotainer Provider Training and Quality Programme of the provider of temperature-controlled containers.

"More and more shippers are doing business only with certified partners,

so we see a lot of supply chain partners moving towards certification," says Halleux, adding that he believes uncertified players will slowly drop out of this segment.

Meanwhile, demands on cold chain providers are expected to continue their upward momentum.

"More stringent requirements will be introduced to the logistics industry to ensure the integrity of pharmaceuticals in the transportation process and protect public health," an HKIA spokesperson predicts.

The *Cold Chain Logistics Market for Healthcare: Focus on Cell Therapies, Vaccines and Human Organs 2018-2030* report offers a similar conclusion.

"Given the recent technological breakthroughs and advances, and the steadily rising demand for biopharmaceuticals, the reliance on cold chain is expected to increase substantially, causing logistics service providers to contemplate, devise and implement business strategies and operational models to cope with the future needs," say its authors.

On the other hand, basics are sometimes not addressed properly.

"Even after four years of CEIV, a lot of shipments are still booked as general cargo. They are not booked with the special code," notes van der Ent. And Robert Kleppers, commercial director of trucking firm Jan de Rijk Logistics, confirms that shipments are not always identified as pharmaceuticals.

Jan de Rijk is on board with CEIV. While the programme is an air cargo initiative, it reaches beyond the airport-to-airport segment.

"We are not limiting ourselves to air. The road part is critical," Gruber stresses.

Ground efforts

About 50% of the road movements at Schiphol that involve pharmaceuticals are with certified CEIV trucking firms, according to van der Ent.

Jan de Rijk has boosted its fleet of dual-temperature trailers. This allows clients to move smaller volumes rather than having to book two separate trailers, Kleppers says. All reefer trailers have online temperature monitoring and regular clients have direct access to this data.

The firm strengthened its last-mile

capabilities three years ago with the acquisition of Omega Logistics, which specialises in pharmaceutical distribution. According to Kleppers, this is one of Jan de Rijk's fastest-growing business units.

For ground handlers, investment in pharmaceuticals capabilities is often less lucrative than for carriers.

"We have customers that are pharma-focused and expect to grow this segment, so we need to invest, but the volumes are not there in the beginning for the investment to pay for itself," Fordree says.

"In many locations we are capacity restricted," he continues. "The capacity pharma takes up is quite significant, and it's not flexible. We're not able to use it for other product types."

AirBridgeCargo is looking to intensify its collaboration with ground handlers. Last May it signed an MoU with Shanghai Pudong Air Cargo Terminal Co (PACTL) to work together on time- and temperature-sensitive traffic. In the first ten months of 2018 the carrier's pharma shipments to and from Shanghai increased about 50%, Novikov reports.

"This is what customers are looking for: partnerships of two or more reliable supply chain stakeholders with high levels of service quality. We will definitely move forward in this direction with other partners across our network," he says.

"If you don't get the handling involved, that's where problems happen," Martins says.

The weakest link

Reports on the cool chain often point to the time cargo spends on the ramp as the weakest link, where the most temperature excursions occur, as freight is exposed to extreme external conditions. As a result, this has been a major focus for efforts.

HKIA is building a sheltered apron for short-term staging of temperature-controlled cargo. In addition, the airport is acquiring 21 cool dollies for the airport community's use for airside transport.

They will be fully deployed in early 2019, the spokesperson says. These dollies are equipped with fleet tracking and temperature monitoring systems.

"This proprietary design enables temperature monitoring and predictive analysis of shipments' condition, allowing ongoing monitoring of shipment quality and enabling shippers

Global pharmaceutical market growth

	2017	2021
Market size	\$934.8bn	\$1,170bn
Per capita spend	\$1,137	\$1,427

Source: Business Research Company

Pharmaceutical market growth by country: 2017-2030

Country	Growth rate
India	232%
China	230%
Indonesia	196%
Saudi Arabia	171%
Brazil	169%
World	160%
Argentina	158%
Mexico	154%
Australia	149%
Russia	147%
South Korea	141%

Source: www.statista.com

Top pharmaceutical product importers: 2017

Country	Imports (US\$bn)	% of worldwide imports
US	96.6	17.2
Germany	54.0	9.6
Belgium	34.7	6.2
United Kingdom	33.1	5.9
Switzerland	28.7	5.1
China	25.4	4.5
Italy	23.2	4.1
France	23.1	4.1
Japan	22.5	4.0
Netherlands	14.1	2.5

Source: www.worldsrichestcountries.com

Top pharmaceutical product exporters: 2017

Country	Exports (US\$bn)	% of worldwide exports
Germany	84.5	16.1
Switzerland	70.3	13.4
US	44.9	8.6
Belgium	43.2	8.2
Ireland	38.3	7.3
United Kingdom	32.7	6.2
France	31.4	6.0
Italy	25.7	4.9
Netherlands	23.7	4.5
Denmark	12.9	2.5

Source: www.worldsrichestcountries.com



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HKIA is acquiring 21 cool dollies for the airport community's use for airside transport. They will be fully deployed in early 2019

or forwarders to act on potential issues in a timely manner," the spokesperson says.

Cool dollies are a major development in the improvement of the cool chain, alongside the use of temperature loggers throughout the journey, the application of GPS and other tracking technologies and the development of ULDs, customised to the needs of customers that offer increased payload per delivery, says Novikov.

Important tech

AirBridgeCargo has joined forces with SITAONAIR to develop bespoke Internet of Things (IoT) capabilities that will allow monitoring of ambient conditions in flight. Along similar lines, Delta Air Lines and Cathay Pacific have been conducting trials with bluetooth technology to track ULDs in real time. The tags can be equipped with sensors to monitor temperature and humidity.

Gruber reckons that solutions for in-flight monitoring will continue to evolve.

"This will likely disrupt the status quo in the industry. The industry needs to be aligned with what happens on the technology side," she says.

Schiphol is also experimenting with bluetooth.

"We are piloting some things like bluetooth for location in the warehouse," van der Ent says.

"We have found up to now that wi-fi works better in the warehouse because of the penetration of the rays in cool containers."

HKIA sees promise in IoT, pointing to its rising prominence and the growing focus on a community-wide approach.

"It is envisaged that the Internet of Things will further advance and transform the logistical process of pharmaceuticals handling, providing more visibility and traceability," the spokesperson says.

"A lot is developing on the data side. We're investing in connectivity and data sharing with clients. The industry wants a transparent supply chain," Kleppers says.

Gruber says the new streams of data will also help with standards, offering more elements to audit and validate through CEIV that will help shippers with risk lane assessments. This should lead to better overall visibility through a fully digital and connected supply chain.

While the unprecedented supply of data opens doors for better managing and monitoring pharma supply chains, it also raises a host of question marks, Gruber points out. Probably the biggest is about data ownership and access.

To some extent blockchain may provide solutions on the latter aspect. Kleppers sees promising potential.

For his part, van der Ent is also interested in the technology, but adds that Schiphol would not pursue this solely for pharma traffic. The benefits would have to be broader, he says.

In any case, operators will continue to look to technology to improve their capabilities.

"Technology will continue to be a big focus," Martins says. "For us, the next big initiative is to use more AI to route shipments in the best possible way, and faster. Today it still requires a lot of human intervention. We want to get better at prediction. For example, at this time of the year you don't route shipments through Chicago because of snowstorms."

Personalised medication

Over the past four-and-a-half years MNX has boosted the share of its revenues from healthcare traffic from 29% to 68%. With its strategic focus on time-critical pharma and life science traffic it has been an avid user of technology and high-end service offerings.

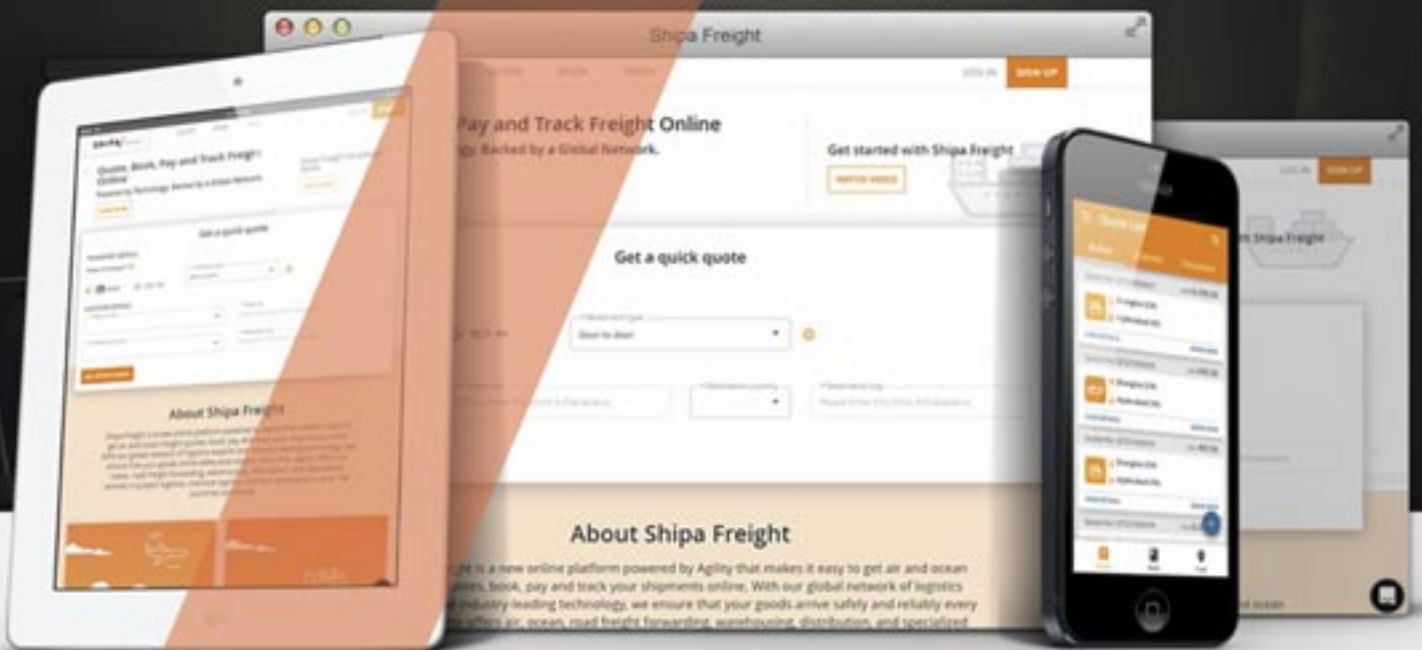
According to Martins, the company is the largest user of SenseAware, the premium FedEx offering for shipment monitoring, and "probably the largest user" of Delta's Dash express service.

"We worked closely with Delta on their Bluetooth trials," he says, adding that sometimes MNX notifies pilots of the shipments it puts on their aircraft.

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Given the nature of its traffic, MNX has to be able to spot problems in real time and take corrective action. Sometimes this means retrieving a shipment from an airline and putting it on a charter, or using an onboard courier. For luxury items, scripts for movies or similar shipments, it uses third-party couriers, but its medical shipments are handled by its own couriers.

“Our people understand the handling and the paperwork. Lab technicians don’t want to be involved in paperwork,” Martins says.

He has seen strong growth in radio-pharma shipments moving all over the world.

“The half-life is very short. We do exclusive logistics for one customer moving medicines for brain tumours. These have a half-life of 36 hours. You can’t afford to have them stuck in customs,” he says.

Personalised medication, such as immuno-cellular therapies, have been transformational for the medical industry, and they are raising the bar for logistics requirements and add new complexities.

“With radio-pharma, you have to know exactly where to load them on the van to have a safe distance from the driver,” Martins says.

This and the expertise required of its employees, such as dealing with paperwork and packaging when collecting shipments from laboratories, sets the company apart from most pharma logistics, he believes – “We’re Amazon-proof,” he quips.

E-commerce and consolidation

For AirBridgeCargo, e-commerce flows have been a different game from pharmaceuticals, as the rising flow of vitamins and nutritional supplements do not require special temperature conditions.

“We keep embracing these volumes through our ABC e-com dedicated services, because customer requirements from this sector are

slightly different and they value such added services as last-mile delivery, 24/7 transparency and tracing, one-stop shop option and others,” says Novikov.

Going forward, the rise of the e-commerce giant raises question marks.

“E-commerce will play a critical role in the near future. Consumers already buy a lot of supplies on-line, including healthcare elements like vitamins,” says Gruber. “Are we going to see the rise of e-pharmacies?”

So far, retailers and wholesalers have to be licensed and must comply with GDP requirements. This is a bit of a grey area with on-line providers, she says.

“All pharma shipments should be handled in a certain way. It doesn’t

“What we see a little of, and expect to see more, is cross-fertilisation of pharma and e-commerce. There is an expectation for it to be quicker, to be made available at destination quicker,” says Fordree.

This expectation will not require a change in processes in the warehouse. With larger volumes, however, challenges may arise.

“E-commerce requires more open warehouse space, not hugely dedicated solutions,” he says.

At the high end, the need for highly sophisticated and tailored solutions insulates players like MNX from the incursion of e-commerce, but logistics behemoths are buying their way into this segment. In November, Kuehne + Nagel bought time-critical specialist Quick International Courier, a move

that K+N board member for airfreight Yngve Ruud describes as a “milestone” purchase.

“With unique expertise in time-critical shipments in aviation and pharma – key strategic focus and investment areas – the company perfectly complements our existing global portfolio,” he says.

Two years earlier, UPS acquired Marken, a global provider of supply chain solutions to the life sciences sector.

MNX itself changed owners in the summer, when Audax Private Equity bought the company from investment firm Riverside. The new owners stated they were looking forward to “continuing to build a leading platform through organic growth and add-on acquisitions”.

In early December, MNX announced the acquisition of the express division of Network Global Logistics, a provider with a strong focus on temperature- and time-sensitive traffic. A year earlier MNX had taken over Melbourne-based Logical Freight Solutions.

And Martins is not done with his acquisition strategy. Having established a strong presence in North America, Australia and Asia, he is now setting his sights on Europe.



matter if it’s e-commerce, courier or something else. In the future there may be differences,” adds van der Ent.

Kleppers notes that the majority of pharma streams to date are business-to-business, moving through intact and often certified supply chains.

“Business-to-consumer is uncharted territory,” he says.

Halleux urges caution: “E-commerce is a fast-growing vertical and players look at innovative ways to extend e-commerce to pharmaceutical logistics.

“However, it requires a closer look, due to the intricacies of regulatory requirements in the transportation of healthcare products. It is something we need to pay attention to as disruptive technology, and creative solutions may offer new opportunities for the future.”

Most would agree that developments in this space will not be long in coming.