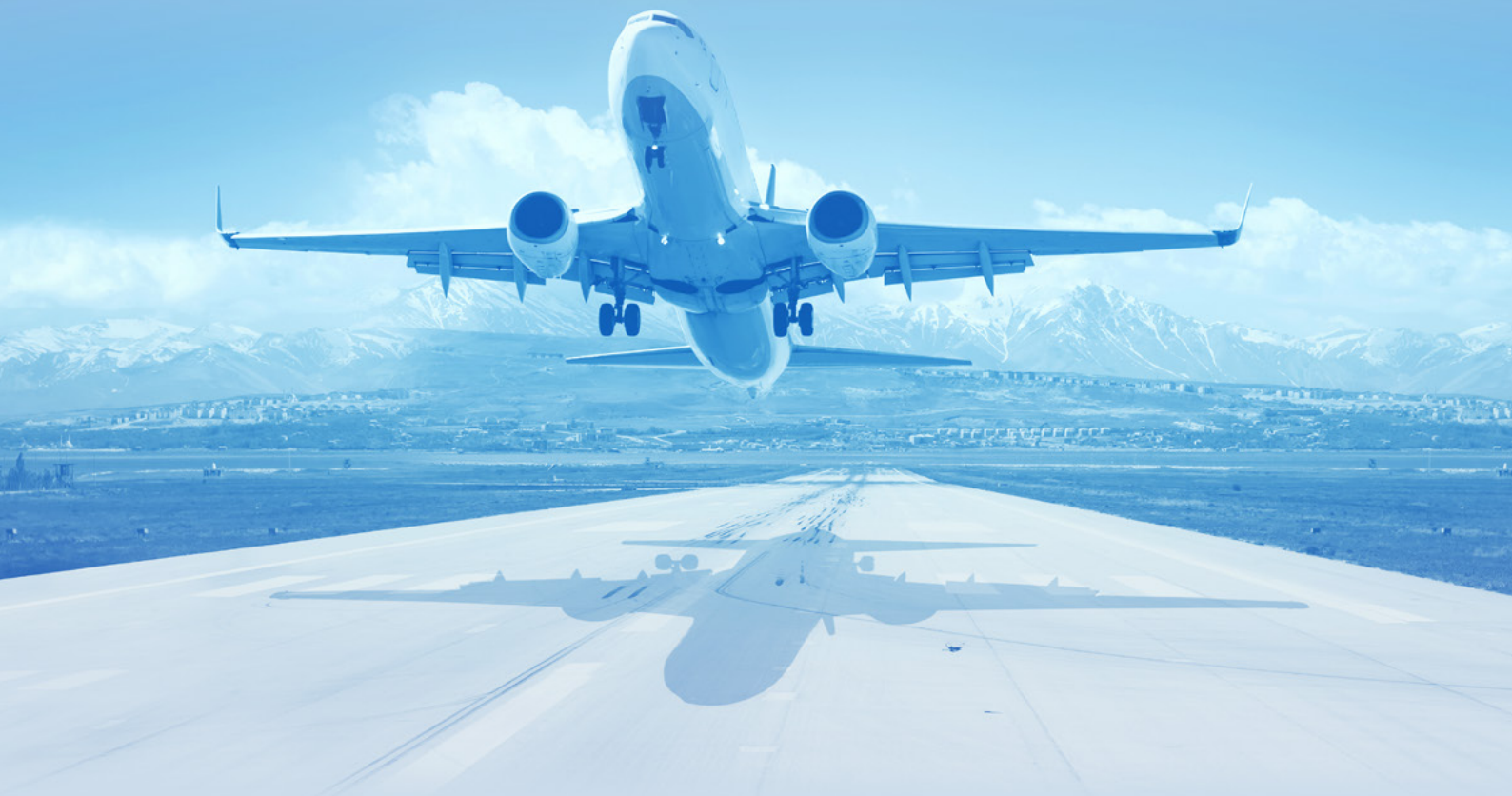
THE VALUE OF AIR FREIGHT IN TEMPERATURE CONTROLLED LOGISTICS



17TH ANNUAL COOL CHAIN

TEMPERATURE CONTROLLED LOGISTICS

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On the back of feedback received on the topic of air freight vs sea freight, Pharma IQ have interviewed two industry experts about their thoughts on the continuing importance of air freight in the transportation of temperature controlled pharmaceuticals.

Amy Shortman, CEO, **ASC Associates**

Amy Shortman has 20 years' experience within Pharmaceutical and Healthcare Logistics. Amy started her career in an operations role for a global specialist clinical trial logistics provider, then went on to establish the UK and Irish operation for one of the world's leading active temperature control container organisations. As well as air freight, Amy has also worked within the sea and road arena and has extensive experience of setting up secure supply chains for High Value Freight.

Francisco Rizzuto, Cargo Specialist & Manager for Europe, **IATA**

Francisco is an Economic Analyst with 25 years of experience in International Cargo Transportation, he has been a Cargo specialist and Manager of Europe for IATA since 2014. He specialises in Freight Management and Risk Management of Temperature Controlled Shipments for Pharmaceutical Products.

Contents:

Air Freight vs Sea Freight

Which factors need to be considered when making the choice between air freight vs sea freight in pharmaceutical TCL?

Multiple factors affect the decision to choose a particular mode of transport for pharmaceuticals. Some in the industry believe these factors are more focused around the product itself and the value of replacing the product, for example low value products are less able to absorb the value of the freight. Others argue that the biggest consideration when choosing transport for pharmaceutical logistics is the risk to the end-user if there is a delay or problem with the shipment. Either way, thorough risk assessments are necessary when selecting a suitable mode of transport and considerations must be made about the costs of replacing the product if something were to go wrong.

A basic element that needs to be considered is the overall cost and speed of transportation, particularly if the product needs to get to market within a short time frame. Rizzuto argues "the shelf-life of the product is critical in decision making between transportation methods", giving the example of long-lasting products such as generic drugs which have a long shelf life, versus products such as oncology treatment drugs which need to be shipped to their destination within 24 to 48 hours.

Shortman asserts that "in the risk assessment you need to consider the stability of a product at certain temperatures" and this includes the impact of a possible temperature deviation during the shipments. Rizzuto adds "you have to take into account how the product will behave if it suffers a temperature deviation" noting that due to regulatory constraints some products cannot be distributed into the market if they suffer a temperature excursion for as little as one hour. According to Shortman, the quality department of most manufacturers can play a key role in providing information to the supply chain about the product temperature storage landscape and where deviations will affect the quality of a product. This insight provides the supply chain with a more realistic approach to deciding how a product is packed and shipped.

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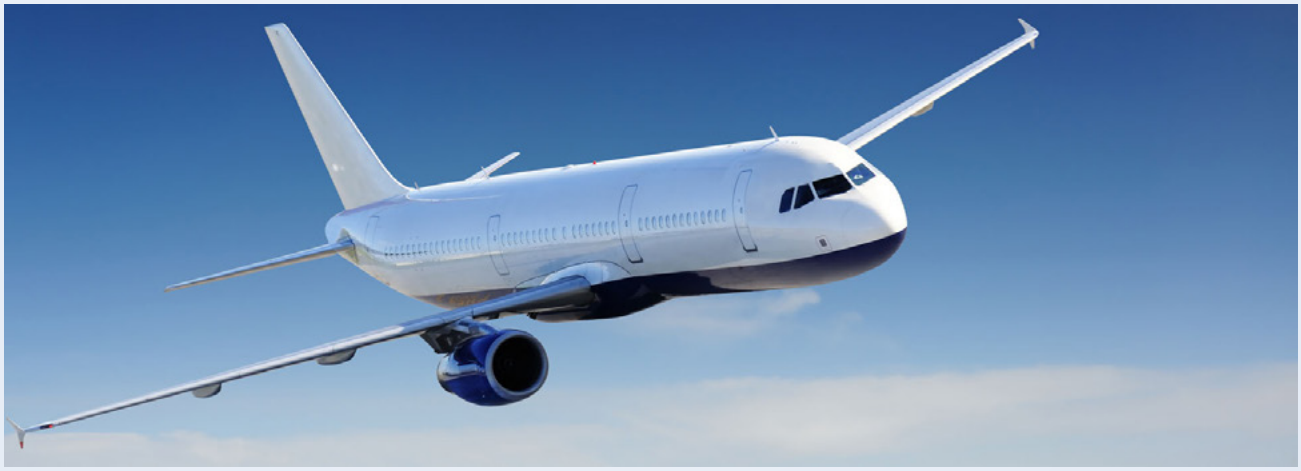
> **- Rizzuto**



Capacity oversupply

How can we tackle overcapacity issues in air freight?

Overcapacity is undoubtedly an issue in the air freight transportation industry, particularly in the cargo industry. "Overcapacity concerns mainly stem from the expansion of the passenger business, as well as an increase in the freighter fleet" says Rizzuto, adding "overcapacity reduces rates and commercial margins for the airlines".

From a manufacture's perspective, capacity oversupply provides more choice in terms of which providers they partner with. Shortman asserts that "overcapacity issues have meant that the air freight industry has had to work harder to secure its market share" and as a result they have developed better services to be able to support the manufacturing industry. Initiatives such as IATA's Centre of Excellence for Independent Validators (CEIV) have come about because of concerns about the shift from air to sea freight. Overcapacity has created a more competitive service for manufacturers and Shortman believes that as a result services have become more temperature-controlled pharmaceutical focused, which is positive for the quality of the products. Capacity oversupply has also arguably served as trigger for developing systems and processes which have increased global standardisation within air freight.

In regard to tackling overcapacity concerns, Rizzuto asserts that "dedicated freighters and cargo-only aircraft are an essential part of air transportation for pharmaceuticals". Fortunately, in the last month there has been stagnation in freight capacity growth and an upward trend in demand has underpinned a 3% rebound in low cargo load factor since early 2016. This means that today they have a load factor of 45% and therefore 55% empty space to be filled which is a step in the right direction for addressing overcapacity concerns. He went on to say that "at IATA we are constantly measuring the development and the performance of the industry through elements such as seasonally adjusted industry wide freight load factors" in order to tackle overcapacity concerns.

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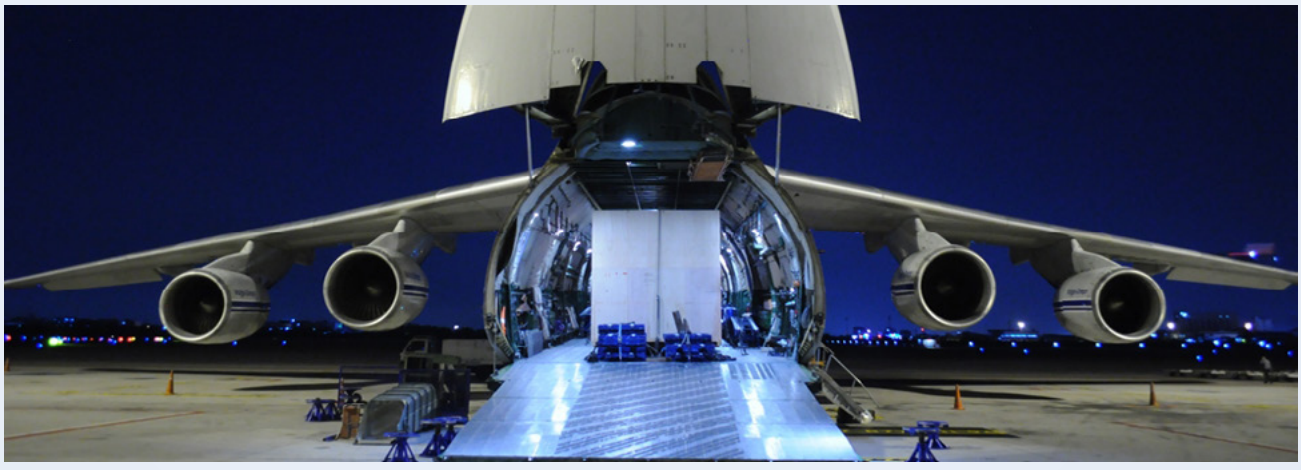


Temperature excursions and weak points

What strategies can be used to combat temperature excursion issues within the air freight supply chain?

It is widely acknowledged that the weakest points in the air freight supply chain are the transfer points between the different players, and according to Shortman these points "generally occur within the airport". Rizzuto states that air freight should be managed under a risk-based approach "considering all critical control points involved in the air cargo supply chain"; and this pertains chiefly to the handover points between the different supply chain stakeholders.

Staff Training

Shortman argues that the ground handling or tarmac environment is the most vulnerable condition for temperature excursions to occur due to the fact that individuals are moving multiple types of products and are "not solely focused on pharmaceuticals". Even within pharmaceuticals handling, a level of attention to detail for each particular shipment is critical in avoiding excursions as standard operational procedures for each manufacturing company need to be considered. The risk of excursions in this scenario is related to personnel issues and lack of training for staff on how to accurately follow operational procedures and handle unexpected issues.

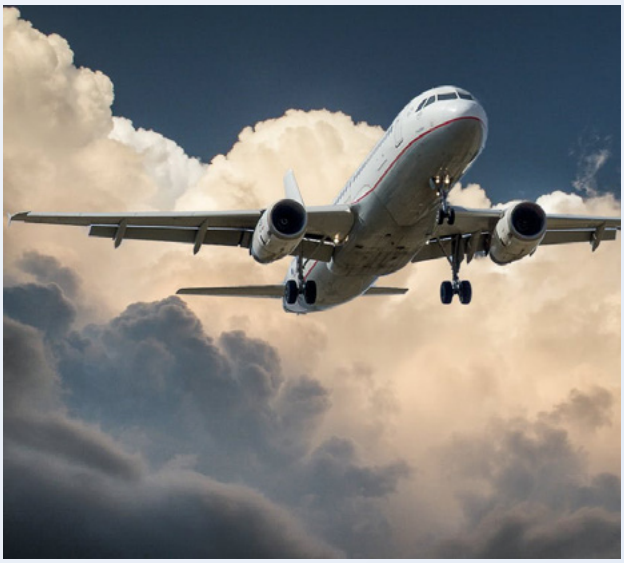
This weak point can be addressed by embedding an employee culture of attention to detail when handling products. Personnel should be trained to approach each shipment and client as a single entity and build an awareness of each manufacturer's standard operational procedures.

Improving Ramp Operations

Rizzuto argues the "most critical control point" for temperature excursions is during ramp operations at airports when loading and unloading the aircraft, as during this process products are unprotected and therefore exposed to the immediate weather conditions. This issue is particularly prevalent when transporting cargo on passenger flights where the passengers and not the cargo shipment are the priority.

This problem can be exacerbated at congested airports where delays are more likely and the loading and unloading of aircraft is therefore inefficient. Ramp operation delays also affect smaller airports where there is a lack of infrastructure, meaning that storage of containers before aircraft loading may not be in a protected or covered area. Insulin, for example, if left exposed to the elements in colder countries is likely to freeze on the tarmac and as a result become unusable.

Some airports are tackling this issue by investing in temperature controlled trucks which move shipments from the warehouses to the aircrafts. In cases where this level of investment is not feasible, process improvement to increase the efficiency of the loading process is helping to combat the risk of temperature excursions.



Temperature excursions and weak points

Conducting Due Diligence

"Mistakes are often made through manufacturers not conducting correct due diligence audits on suppliers" says Shortman. She argues that the manufacturer has overall responsibility to make sure their products are sent through the supply chain ensuring good distribution practises (GDP) are consistently being met. Third parties may not work to the same standards as manufacturers and therefore the challenge is to ensure that GDP is being met when outsourcing elements of the supply chain. Shortman asserts that this issue can be addressed through expert auditing of all elements of the supply chain against good distribution practice. Changes in staffing that occur before a project comes into fruition must also be taken into account to ensure all individuals who interact with the goods are fully trained to meet due diligence areas.

Planning for Aircraft type

Another factor that can affect the likelihood of temperature excursions is the type of aircraft that is being used to transport the cargo. Rizzuto explains that some aircraft have no temperature controls inside the hold and others have issues with engine placement on the aircraft which results in balance issues when it comes to loading and unloading cargo. For example, the MD11 aircraft has a tail engine and this affects the ability to unload cargo from the nose of the aircraft first, as this will unbalance the plane. "Having clear communication between shippers, freight forwarders and airlines is critical to ensuring the smooth running of the supply chain" says Rizzuto, adding that lane risk assessments involving all parties in the supply chain can be hugely beneficial in ensuring the safe arrival of goods at their intended destination.

"Mistakes are often made through manufacturers not conducting correct due diligence audits on suppliers"

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"Having clear communication between all parties is critical to ensuring the smooth running of the supply chain"

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Cost efficiency

What are the cost saving strategies that can be implemented into air freight transportation?

Digitalisation

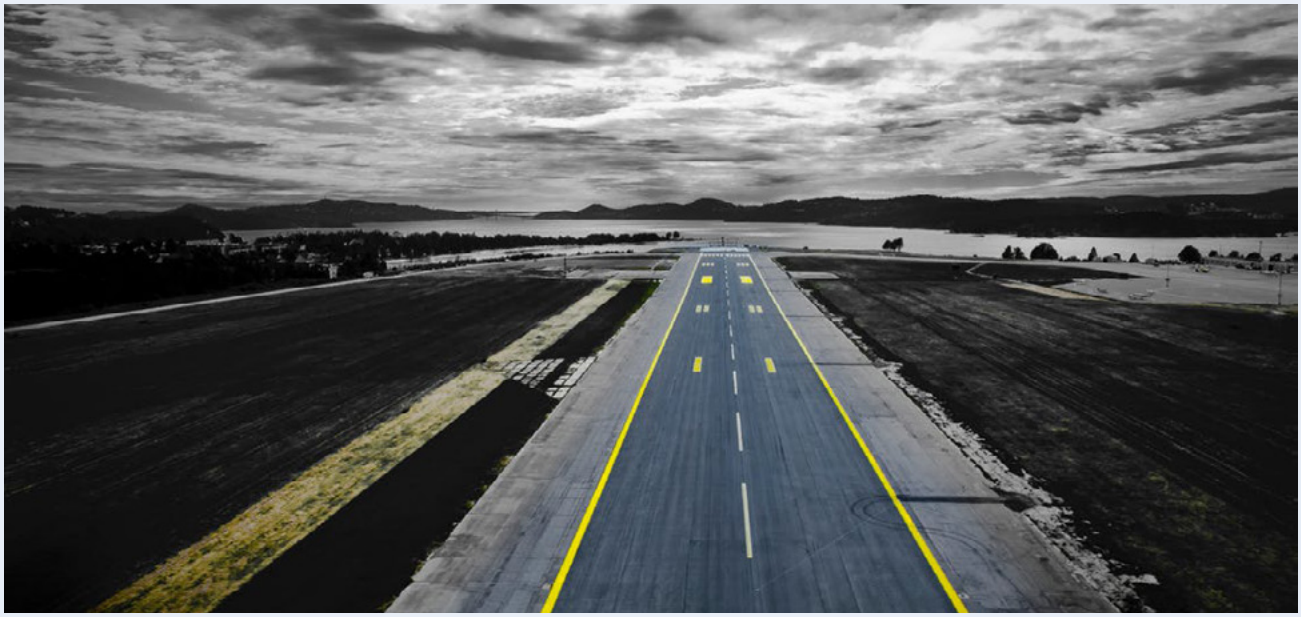
A key element of cost saving and efficiency in the air freight industry is modernisation and the use of technology for process improvement and optimisation. However, Rizzuto notes that a critical barrier to this is that "the air cargo industry is still not a technology-driven industry, it is a manual industry" this means that technological improvement can be slow. Digitalisation and optimisation of the whole supply chain will ideally improve visibility in end-to-end journey planning, and the increased use of paperless projects improves rapid communication and the sharing of data.

Passive solutions

Over the years there have been various methods to improve packaging efficiency in air transportation, both in primary packaging or temperature controls in packaging. Active containers are more expensive to rent and run so passive solutions can be an easy tool to aid a reduction in costs for air freight transportation. However, this element would be the responsibility of the shippers, rather than the airlines or the air cargo industry and this is not always communicated throughout the supply chain. Rizzuto gives the example of shippers delivering goods arriving at airports in simple cardboard boxes which were not protected from the elements, making it impossible for the freight forwarder to maintain the temperature range of the shipment.

Increased flexibility

Shortman suggests that manufacturers should aim to conduct audits on multiple airlines when setting up their supply chain in order that they have more options if one service is not performing well. Having a primary, secondary and tertiary carrier all audited from the beginning of a project can avoid time-consuming risk assessments later stage if a switch of airlines is required. "This strategy of conducting due diligence at the beginning gives the manufacturer flexibility and can create cost savings down the line" comments Shortman, adding "the processes are relatively simple and a will not incur a much greater expense".



The Future of air freight

Where do you see the use of air freight vs sea freight in 10 years time?

With the demise of huge blockbuster drugs hitting the market every couple of years, the generics industry now covers a large proportion of the general medicines that are being delivered to patients. These drugs have much smaller profit margins and therefore transportation methods will be approached in a far more cost-conscious manner. In this sense, manufacturers may look to sea freight as a more cost-competitive method of transportation for these mass-produced generic products. This shift potentially creates a niche for the air freight industry to transport smaller, high-value and personalised medicines. However, Shortman believes that we can expect little transformative change in the next decade as the pharmaceutical industry is very slow moving and companies are generally cautious about implementing changes unless that are very well thought out.

Rizzuto disputes that there is competition between the two modes of transport, arguing that "they complement each other and are both part of the multimodal transportation model". Supporting the air freight industry means focussing on an industry strategy which enhances safety, improves security and facilitates trade. Rizzuto believes that the air freight industry needs to embrace innovation to meet future challenges and meet mounting customer expectations. Topics on IATA's radar for the future of air freight include application of the 'Internet of Things' including automation in storage warehouses at airports, unmanned vehicles and the use of drones for air cargo. These brand new areas currently have no regulations so these will need to be built in collaboration with different governments in order to bring these ideas into fruition.

Simplifying the business through fostering long-term innovation can serve to benefit the airlines and the air cargo industry as a whole. Rizzuto also asserts that specialisation will play a role in the future of air freight, as it provides reassurance for customers that a company is reliable and will carry out the job to a high standard. Having air cargo operators that specialise in the transportation of pharmaceuticals is a key element in protecting the air freight business over the next decade.

Strengthening air cargo's value proposition means the industry will be easier, smarter and faster and more efficient to run, Shortman adds that "increased visibility in the supply chain will give a huge amount of credibility to the manufacturers using air freight for transportation". Additionally, it remains to be seen if the sea freight industry will adhere to good distribution practise standards and which value-added services the air freight industry can offer in the future to retain its market share.