

White paper

Thrust Through Trust

Logistics for the aerospace
supply chain transformation

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Executive summary

The COVID-19 outbreak in 2020 was the most significant disruption ever encountered by the aerospace industry. Nations locked down, flights were cancelled and aircraft were parked and stored. The exceptional scope and speed of the pandemic affected each industry segment: airline, MRO, OEM, vendor and lessor.

Even before this unprecedented turbulence, the sector showed signs of distress. Today, the need for change has become a crucial prerequisite for supporting sustainable growth.

Over the last few years, companies have been affected in many different ways. In 2020, it was about securing cash flow and being agile. Through 2021, resizing and preparing for growth was necessary to assess future needs and suitable business models. For 2022 and into 2023, implementing plans and developing new ways of working help build a more resilient path forward.

As the industry prepares to transform, so must the supply chain that powers it.

Logistics is a success-critical element in every business model and strategy. Four dimensions drive rebuilding a better aerospace supply chain: **data, sustainability, partnership and continuous innovation.**

- **Data** - Clean data and predictive analytics are game-changers
- **Sustainability** - Sustainability leaders will also be the industry leaders
- **Partnership** - Integrating logistics into a business model is a key differentiator
- **Continuous innovation** - companies that innovate and embrace customers' needs will be well-positioned over the long term

Keep reading to learn how dedicated logistics companies support airlines, MROs, OEMs, vendors and lessors so they can exceed customer expectations. Trust and dedication are the key ingredients for achieving sustainable growth in the aerospace industry.

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A message from Kuehne+Nagel

You are taking your first flight in a long time. While boarding the plane, you receive welcoming smiles from the crew. You find your seat, say hello to the passenger next to you and settle in. The aircraft is pushed back and the engines power up. You glance out the window as the plane taxis down the runway, turns to line up and then takes off. You get that familiar thrill of being gently, yet firmly, pressed back into the seat. **The power and the thrust.** Then, you are aloft.

The aerospace industry is climbing out after working in crisis mode during the deepest disruption the sector has ever seen. Supply chains have adjusted, adapted and responded to change while navigating uncertainty. Now the industry is taking off again and rising to new altitudes.

Kuehne+Nagel is part of this upward climb. During the pandemic, our relationships with customers grew more meaningful, becoming genuine partnerships.

Partnerships of trust to accelerate thrust. The past few years have confirmed what we already knew: transactional business is not the way to achieve a sustainable competitive advantage—trust is.

Airlines, MROs, OEMs, vendors and lessors rely on logistics that deliver, but to do so efficiently, the supply chain has to

transform. Trust in companies and people provides the competitive edge everyone seeks.

This white paper highlights the issues we believe are drivers for rebuilding supply chains. It outlines our ambition and vision for the future and what is needed to climb to greater heights.

I, and our entire aerospace team, welcome your feedback. We look forward to exchanging insights and discussing new opportunities for mutual success.

With warmest regards,

Erik Goedhart
Senior Vice President,
Global Head of Aerospace

Looking back and the recovery ahead

The industry has started to recover and each week, more aircraft return to the air. The demand for passenger transport is growing and cargo volumes are stronger than ever. The aerospace sector is regaining its footing, but there are still challenges to overcome before recapturing its full thrust.

Thrust: the force of moving an aircraft through the air

Two industries in disruption

As countries locked down, business travel came to a standstill and thousands of aircraft were parked or stored. With so many passenger flights cancelled, air cargo capacity also declined. The volumes available for “belly cargo” (freight carried in the hold on passenger aircraft) fell by more than 70%. Because belly cargo previously accounted for half of all air shipments, this lead to bottlenecks and rate hikes.

Meanwhile, global sea freight experienced other pressures that unsettled the entire logistics industry. The Suez Canal blockage caused by the 20,000 TEU vessel Ever Given, disrupted 12% of global trade. The market encountered shortages of containers and manpower in ports and on the road. Running parallel to all of this was steady

e-commerce growth that shows no sign of slowing down. These disruptions continue to affect companies and their ability to serve end customers.

More than a bump in the road

In 2017, IATA predicted that China would be the world's largest passenger market by 2036. The same studies projected that India would rise to third place and Indonesia to fifth in air travel rankings. As a result, the global fleet could double from 20,000 to 40,000 aircraft.

This long-term perspective still holds: half the world's population is not yet travelling, but will do so in the near future. Airbus still forecasts a demand of 39,000 new aircraft between now and 2040—with only about 15,000 regarded as replacements.

The aerospace industry is accustomed to disruption, but the pandemic was a global gut punch. The number of flights was at a level not seen in sixty years, making it more than a short-term setback. Such a significant interruption further illuminates the urgent need for change.

The long view

Analyst and consultancy firm Roland Berger anticipates repercussions will affect the aerospace industry until 2026. A planned ramp-up of narrow-body aircraft should surpass pre-2020 numbers as early as 2023. The disrupted logistics market and significant growth in e-commerce created



a lasting demand for dedicated freighter aircraft. Slots for passenger-to-freighter conversions are fully booked for the next five years.

Given these trends and projections, OEMs have asked suppliers to be ready to ramp up quickly. Yet, doing so in a disrupted logistics market calls for greater change with new concepts and ways of working.

The World Economic Forum (WEF) suggests a strong likelihood of similar events re-occurring. The industry has to be better prepared to manage the next disruption. Having a logistics partner who supports the transformation of the present-day supply chain, ensures it stays effective and efficient for the future.

The journey to transformation

Transform: To change greatly the nature, condition or function

The aerospace sector has and continues to experience distinct phases in its journey. The ‘adjust’ phase is over; the ‘prepare’ chapter is closing and the ‘transform’ stage is about to begin.

2020: Adjust

In the early part of the pandemic, masses of aircraft were parked or stored and asset

values plummeted. Governments stepped in to support the industry with securing liquidity as a key focus and concern.

This phase saw companies resizing to ensure their survival as well as a profitable future. In the second half of 2020, 'return' scenarios began to be evaluated, while hyper-care and agile decision-making remained indispensable.

2021: Prepare

After the shock of 2020, aerospace companies began preparations for the expected recovery phase. Passenger travel became possible again and airlines had decisions to make. Which business model and core competencies should they move forward with?

The daily pressures of ground handling, flight irregularities, travel restrictions and safety and security remain. Yet today, air cargo is still driving airline revenue streams.

In the next few years, passenger safety will include touchless travel, flight sanitising and biosecurity guidance. With virtual meetings now part of the new normal, business travel is likely to remain around 30% below pre-pandemic levels, but air cargo is expected to keep growing at a CAGR of 4%.

2022: Transform

2022 should see a move to the 'transform' phase with an amplified competitive landscape. This includes developing a resilient infrastructure that can cope with the next challenge.

The freighter-connecting the dots

As the need for passenger flights diminished, airlines scrambled to find ways to keep their assets productive. The sudden demand for goods such as personal protective equipment (PPE) opened up other opportunities. Wherever possible, aircraft were used for cargo only, with main passenger decks temporarily converted for cargo carrying purposes: the freighter was born.

Kuehne+Nagel brought air cargo expertise to the table, helping airlines and lessors swiftly transform passenger aircraft into freighters. Working closely with customers, Kuehne+Nagel devised a new 'Passenger to Freighter' (P2F) solution that shortens lead times by 10-15%.



Passenger travel will recover. New concepts, like long-haul narrow-body (LHNB) services using Airbus A321LR and A321XLR, will start to earn market share on intercontinental flights.

A good example of a different business model is the significant shift in the cargo value chain. Logistics providers are buying airlines and cargo aircraft to secure their capacities. Moving forward, the decision is between whether we change strategies or the way we work. Whichever is preferred, returning to past actions is not an option. On the passenger side, increased sanitisation along with aspirations for a touchless cabin will prompt a boom in aircraft refurbishments.

The supply chain transformation has to meet new demands and lay the groundwork to manage challenges in this modified competitive landscape.

Logistics insight

In April 2020, Kuehne+Nagel evaluated the situation and discussed potential strategies. We decided to remain committed to the aerospace industry and aim for an increased share in a now-smaller market.

Our dedicated aerospace team launched ambitious initiatives and bonded globally with customers as never before. This included developing new offerings for lessors, ramping up engine logistics services and developing a dedicated P2F solution.

Driving the transformation

Before 2020, aerospace was highly profitable for logistics providers, but as the market came to a standstill, interest rapidly declined. As a labour-intensive sector, the workforce substantially downsized and many people left the industry entirely. In this low-volume, high-value business, the outlook for logistics providers was significantly different.

To position for the future, the way forward is driven by four key dimensions: data, sustainability, partnership and continuous innovation.

Data: Predictive analysis

In the past, and to some extent today, estimates have been reactive and based on old data. Business predictions were inaccurate because the models paid too little attention to the rapid pace of change. Real-time data is integral to accurate forecasting. With it, airlines, MROs, OEMs, vendors and lessors can acquire knowledge and insights that are invaluable for managing supply chains and making agile decisions.

The key is to have one single source of data for all transactions: movements, trade, operations, finance, CO2 and more.

Companies benefit from the power of data interpreted and contextualised by skilled analysts. It offers essential opportunities for staying agile, flexible and resilient. Real-time



- 1. Data**
- 2. Sustainability**
- 3. Partnership**
- 4. Continuous innovation**

myKN- A single source of data

myKN is Kuehne+Nagel's global digital visibility platform. It is a one-stop-shop for customers to quote, book and track their shipments.

myKN relies on a powerful database that brings together data for all shipments. This single source keeps evolving and allows for predictions of aerospace logistics dynamics

data and transparency are already available for shipment visibility, but the predictive value is even higher. When fully tapped, the impact on strategic decisions, business scenarios and operational actions is invaluable.

Clean data and predictive analysis are game changers.

Sustainability

To meet the 2050 carbon neutrality target, the entire aerospace sector will invest in innovation and establish mutually beneficial ecosystems. **While environmental motivators are not the main driver, change can only be successful with a heightened focus on sustainable solutions.**

In the short to medium term, these green gains can be achieved through leading engine technologies and greater use of SAF. New electric and hydrogen propulsion systems will play a significant role in the mid to long term.

The role of the logistics partner is to support the industry by developing solutions that promote sustainable processes and lead to carbon neutrality. For the present, making environmental impact visible and measurable is key. From there, companies can discuss and agree on ways to reduce, avoid or offset. Transparency and a single source of data are simply the starting points.

The Zero Carbon initiative

As the industry commits to achieving carbon neutrality by 2050, Kuehne+Nagel has rolled out an initiative to support reaching that goal. Since launching in 2019, the Zero Carbon initiative outlines two main targets:

1. Be fully carbon neutral in our direct sphere of influence as of 2020
2. Reduce CO2 emissions by 33% for our footprint, as well as our suppliers and customers, by 2030 (including scope 3 of GHG protocol)

After reaching the first target as planned our attention shifted to solving the second. An important step was offering customers the choice of sustainable aviation fuel (SAF) for air shipments. This is just one of many advancements that let us support the industry and our environment.

The sustainability leaders will also be the industry leaders.



Partnership: logistics as an integrated part of the business model

With both industries disrupted, the role of logistics is changing. Currently managed as indirect procurement, companies try to secure the lowest price per transaction—much like sourcing paper clips. However, the basis for tenders has been data that is at least a year old. For the long-range outlook, data will inform business decisions rather than outcomes and the process will shift to direct procurement.

These changes were already underway before the pandemic. Organizations

reduced the number of logistics providers and entered into strategic collaborations with a few trusted partners. Price was still the dominant factor, but strategic data transparency and sustainability were growing in importance. Supply chain design also became interconnected with end-customer satisfaction.

With the pandemic's impact and global markets in turmoil, logistics climbed to the top of every C-suite agenda. Its business-critical nature was vital for transparent and efficient supply chains beyond any company's procurement teams. Logistics is indisputably contributing to the make-or-break strategies of the future.

Logistics as an integrated part of the business model—and not as a commodity—will be a pivotal differentiator for end-customer satisfaction.

Continuous innovation

With market dynamics shifting, the aerospace and logistics industries have to remain resilient, adapt quickly and

advance new ideas. We cannot expect different results without changing the way we operate. By infusing agility and flexibility into an organization's DNA, teams that are empowered and entrepreneurial will better position their companies.

Those who innovate and make customers' needs a priority are leaders in the aerospace supply chain transformation

Kuehne+Nagel insight

As the pandemic evolved, we acted quickly to launch three initiatives to support customers through the disruption:

- **Connecting the dots** – The urgent need to increase airfreight capacity resulted in our P2F solution. It ensures aircraft conversions are implemented fast and without any logistics-related delays. **With P2F, we have reduced conversion time by 10-15%.**
- **The touchless cabin** – Based on lessons learned, the world is seeking ways to reduce health risks. For travel, this means replacing human interaction with electronic support, where possible. **We develop specific processes to help airlines adopt the touchless cabin.**
- **Leasing support** – The leasing segment has been challenged by aircraft, engine and component repossession—and values have not yet bottomed out. In the recovery phase, aircraft have to be prepared for their next operator or disposed of in an eco-friendly way. **We launched a solution to support leasing companies throughout the product life cycle.**

A transformed supply chain: “Thrust through trust”

Trust: confidence in a person or quality

The recovery and ramp-up have begun, and aerospace is on track to exceed pre-pandemic growth. Founded on real-time data and nimble decisions, the sector is

climbing again to be more resilient and sustainable. With the importance of personal collaboration on the rise since the beginning of 2020, confidence in partnerships will be the future of any competitive edge.

Airlines, MROs, OEMs, vendors and lessors look for partners they can trust to co-devise solutions, keep promises and set new industry standards.



Every company seeking to build long-term trust with a logistics partner will ask and address three fundamental questions:

1. Who are they?

What is the DNA, identity and authenticity of the logistics company? What is their industry commitment track record? Do they speak our language?

2. What are they?

Do they see logistics as a key element in a sustainable future? Do they view logistics as a commodity or closer to direct procurement in the business model? Can they offer purposeful insights and deliver a beneficial end-customer experience?

3. Where are they?

Is the logistics partner ready for the next disruption? Can they navigate through uncertainty? Can they identify improved methods and offer better solutions? Do they work with one global source of real-time data to predict business developments?

The way forward

Transforming the aerospace supply chain is a complex undertaking. It is an opportunity to gain a competitive advantage in a new business landscape, requiring all the expertise, experience and commitment of a chosen logistics partner.

Through innovation and collaboration, beneficial and sustainable ecosystems are created. The industry will be able to scale up—and, if necessary, scale down. A solid partnership is established with the backbone of a single data source.

Continuous interactions among all the industry's players will make the difference. Complacency and trying to replicate the past are not an option. The pandemic has taught us better ways of working together and bonding as partners through challenging times. Let's make the most of this experience to set new industry standards.

Kuhene+Nagel is pleased and proud to be working alongside the aerospace industry to transform its supply chain. Together we can reach higher altitudes, generating thrust through trust.

About us

Kuehne+Nagel is one of the world's leading logistics providers. We support our customers in sea, air, road, and contract logistics with a focus on integrated and industry-specific solutions.

We continuously work to offer relevant and innovative supply chain solutions to the aerospace community. Our network of global and local specialists ensures compliance with all regulations and industry requirements.

Learn more about our services

→ kuehne-nagel.com