



White Paper 2025

# Air Cargo and E-commerce Enabling Global Trade

## Abstract

“Air cargo and e-commerce are driving global trade by creating faster and more efficient supply chains, connecting businesses with customers worldwide. This synergy between technology and logistics is shaping the future of commerce and boosting global economic growth. This whitepaper explores how air cargo networks have evolved to meet the unique demands of e-commerce, focusing on the need for collaboration among industry stakeholders, governments, and regulators to harness the full potential of this partnership.”



## Air Cargo and E-commerce Enabling Global Trade: An Overview

In an era marked by rapid globalization, the evolution of technology, and changing consumer behaviors, the landscape of international trade has undergone a profound transformation. At the heart of this transformation lies the symbiotic relationship between two pivotal forces: e-commerce and air cargo. The convergence of these two domains has not only reshaped the way businesses operate but has also catalyzed the globalization of commerce like never before.

### A not-to-be-missed opportunity

E-commerce, driven by the digital revolution, has become a ubiquitous part of everyone's daily lives. Global retail e-commerce revenues are expected to have increased by 56% from 2021 to roughly reach around \$8.1 trillion by 2026.<sup>[1]</sup>

E-commerce has not only transformed the retail industry but has also broken down geographical barriers, giving customers access to an enormous range of goods and services from all over the world. As a result, the concept of global trade has transcended the limitations of traditional brick-and-mortar commerce, giving an upsurge to a new era considered by borderless trade. In addition to rising domestic volumes sent by large and small e-retailers, the fast-growing cross-border e-commerce market remains a key growth driver. The global cross-border B2C e-commerce market was valued at \$785 billion in 2021 and is expected to expand

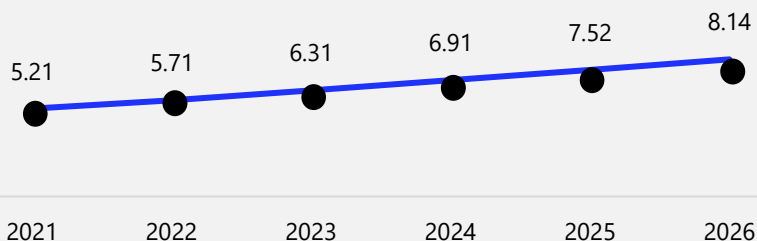
to \$7.93 trillion by 2030 with a CAGR of 26.19%.<sup>[2]</sup> Online shopping is predicted to grow the worldwide cross-border B2C e-commerce business. The market is anticipated to expand as more local consumers use cross-border shipping. In the coming five years, approximately 200 million local consumers are expected to use cross-border shipping.

Parallely, the air cargo industry has been the lifeline of this global exchange, serving as the conduit through which products, both large and small, traverse the skies to reach their destinations with unparalleled speed and efficiency. This mode of transport has proven indispensable, particularly in the context of e-commerce, where swift deliveries and reliability are the cornerstones of customer satisfaction.

The dynamic synergy between e-commerce and air cargo has not only expedited the delivery of goods but has also opened doors to new markets, connecting businesses with consumers in distant corners of the globe. This symbiosis has sparked innovation, fostered economic growth, and transformed the very essence of global trade.

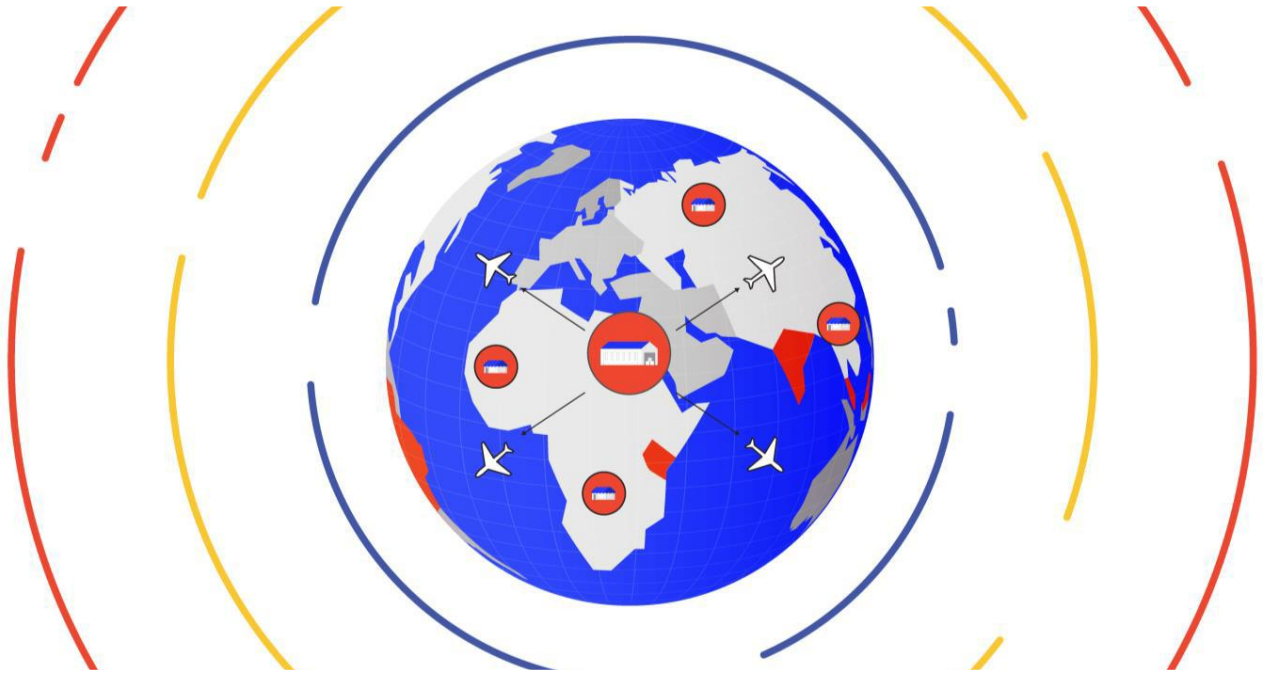
E-commerce is a key factor in the industry's future growth because it increases demand for international parcel delivery services. In aggregate, over the past ten years, the industry's parcel volume more than doubled, expanding at a rate far higher than economic growth.

Retail e-commerce sales worldwide from 2021-2026



**\$16.6**  
**Trillion**  
Global e-commerce market 2022.<sup>[3]</sup>

## Cross-Border E-commerce



As e-commerce platforms continue to break down the barriers of traditional commerce, the concept of national borders has become increasingly porous, allowing businesses and consumers to engage in international trade with unprecedented ease. Online shoppers are now buying more and more often, and cross-border e-commerce volumes are growing. Over 80% of online shoppers make purchases at least once every month.<sup>[4]</sup> Customers' expectations are no different for domestic and cross-border e-commerce. Customers want speed, predictability of delivery times, and visibility. The ease of online purchasing is the main factor driving consumer spending, with 56% of respondents identifying direct home delivery as a pro. Convenience, avoiding crowds, and lower prices are also on the list.<sup>[4]</sup> Air cargo plays a pivotal role in this regard, providing the speed and reliability needed to meet the expectations of online shoppers. Network coverage, frequency of flights, tracking capabilities, and flexible and varied final mile delivery solutions are critical to serving e-commerce customers.

According to a poll, 22% of consumers worldwide shop online once a week, 27% shop online once every two weeks, and 29% shop online once a month.<sup>[4]</sup>

The study shows that currently, cross-border e-commerce is predominantly for low-cost and lightweight products: nearly 72% of the products purchased through cross-border e-commerce have a weight of less than 1 kilogram.

The majority of online customers prioritize free shipping for returns. Online customers wanted same-day or next-day delivery only 10% of the time in 2022, down from 18% in 2021. Similarly, compared to last year's 52%, only 44% prefer or anticipate a two to three-day delivery timeline window.<sup>[4]</sup>

## Linking What the Online Consumers Want and What Air Cargo Can Deliver

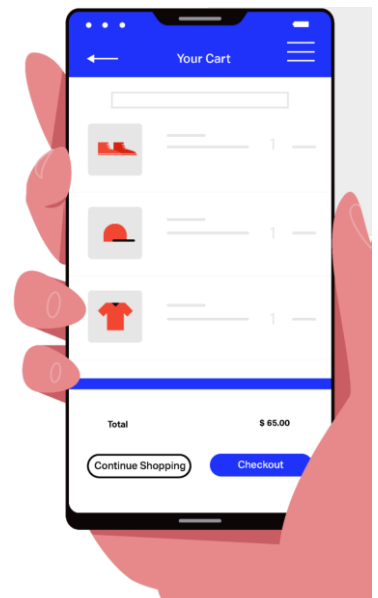
The online marketplaces provide transparency regarding inventory availability and anticipated delivery schedules. Digital shoppers expect a range of shipping choices, including free options, as well as tracking features and hassle-free return processes. To offer free shipping, retailers seek cost-effective solutions from their logistics partners. Similarly, to provide swift, including same-day, delivery choices to their customers, retailers require high-priority and utterly dependable logistics services.

High Priority	<ul style="list-style-type: none"><li>▪ Faster delivery</li><li>▪ Expedited Customs clearance</li><li>▪ Customized final mile / delivery</li></ul>	Normal	<ul style="list-style-type: none"><li>▪ Regular air cargo service</li><li>▪ Basic final mile</li></ul>
High Visibility	<ul style="list-style-type: none"><li>▪ End to end tracking</li><li>▪ Instant notification</li><li>▪ Disruption alerts</li></ul>	Low Cost	<ul style="list-style-type: none"><li>▪ Deferred delivery</li><li>▪ Low touch final mile</li></ul>

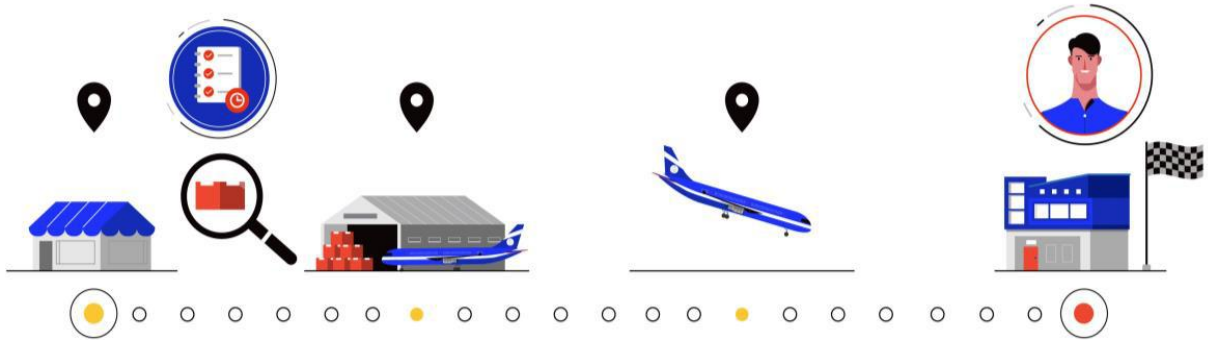
## The Increasing Need for Speed, Visibility, and Easy Returns Profoundly Impacts the Logistics Chain

The remarkable expansion of e-commerce has already brought about a profound impact on the logistical requirements of retailers and manufacturers. Logistics will be a crucial factor in determining whether or not e-commerce will flourish.

For logistics providers, e-commerce presents a formidable task. They are striving to efficiently and economically reach their customers while ensuring transparency in the supply chain. In addition to the demand for swift and cost-free delivery, enabling quick, effortless, and often complimentary returns has emerged as a critical criterion for online consumers. Shipping items incur substantial expenses, and effectively overseeing the supply chain, along with the complexities of reverse logistics inherent to e-commerce, are quite challenging.



# Air Cargo Responding to the E-commerce Challenge: The Industry Action Plan



## **Enhancing Air Cargo and Airmail Safety and Security**

Improving safety and security through increased cooperation and adherence to training programs, the identification of trusted partners, and compliance with regulations and industry best practices. The e-commerce industry will benefit from these initiatives in terms of image and also in terms of efficiency and non-rejections of goods.

## **Embrace emerging technologies to enhance visibility, transparency, and efficiency**

Accelerating digitization, developing real-time interaction, testing drones and robots, implementing sensors and data loggers, making sense of Big Data, and developing new screening technologies will enable the air cargo industry to adapt, respond, and anticipate e-commerce needs.

## **Simplifying operations, streamlining processes, and accelerating transactions while implementing industry-leading practices**

Selling speed is a priority, and it's essential to safeguard that speed. Strengthening the value proposition is crucial for airlines, forwarders, and ground handlers to harness the potential of e-commerce growth. To minimize the delay of stationary freight before and after flights or to increase transparency regarding the reasons behind these temporary events.

## **Engage with e-commerce players to align understanding of air cargo safety and security matters**

Stronger collaboration between commercial partners will benefit all. Interactive dialogue to transmit information like predictive and effective volumes, bookings, and allocations can help optimize capacity, load factors, routes, physical flows, and environmental footprint.

## **Challenge the status quo and reinvent business models**

Evaluate and consider re-purposing the excess capacity of the cargo warehouses into modular e-commerce logistics centers and distribution facilities. Encourage forwarders and ground handlers to explore opportunities in the first and last-mile sectors using inventive approaches and modern vehicles like drop boxes, versatile lockers, or drone technology.

## **Call for and promote stronger industry coordination**

An association of e-commerce vendors would facilitate discussions with international organizations representing airlines (IATA), freight forwarders (FIATA), postal operators (UPU), customs (WCO), etc.

## IATA's Pipeline of Initiatives Supporting E-commerce



IATA (International Air Transport Association) represents about 275 commercial airlines globally, covering over 83% of air traffic. Its main mission is to support and lead the airline industry. IATA's focus is on improving the air cargo supply chain's security, profitability, and sustainability by setting standards, offering financial services, implementing projects, forming partnerships, and advocating for change.

### **SAFETY AND SECURITY**

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#### **Mail Safety Guidelines**

Enforcing the Mail Safety Guidelines jointly established by IATA and the Universal Postal Union, airlines and postal services work together to guarantee the non-acceptance of hazardous materials and restricted items in airmail shipments.

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#### **e-CSD**

Creating and executing adaptable measures to electronically exchange security-related data (e-CSD) for cargo and mail, ensuring compliance with regulatory mandates in an efficient and automated manner, all while maintaining the uninterrupted flow of goods.

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#### **Innovative screening technologies**

Encouraging the development of cost-effective, automated screening solutions that can inspect all types and sizes of goods, including dangerous items, while meeting regulatory certification requirements.

### **DIGITALIZATION**

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#### **Cargo and mail IT systems mapping**

Integrating disparate systems for both mail and cargo to enable visibility via bookings and allocations, utilize volumetric data for planning, and enable tracking through compatible messaging.

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#### **Interactive Cargo**

Developing crucial standards for seamless cargo sector communication, including piece-level tracking, real-time notifications, and device interconnectivity.

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#### **ONE Record**

Establishing unified standards and guidelines for a single digital shipment record, consolidating all paper and electronic documents, including border formalities.

### **OPERATIONAL EFFICIENCY**

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#### **Smart Facility**

Elevating air cargo handling by setting top-notch standards for cargo facilities, ensuring safety, security, efficiency, and transparency. These standards will be assessed globally, with outstanding facilities recognized based on IATA's criteria.

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#### **Cargo Facility of the Future**

Creating recommendations for optimizing facilities through advanced technologies, processes, and architectural innovations, whether upgrading current ones or constructing new ones.

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#### **Fast Cargo**

Enhancing ground speed with smart regulations, efficient operations, and modern technologies.



# IATA's Pipeline of Initiatives Supporting E-commerce

## DATA

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### WCO Measurement and analysis

Investigating Big Data applications, assessing global organizational efforts, analyzing e-commerce models, measuring transaction impact, and promoting capacity building and awareness in e-commerce education.

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### Cargo iQ

The management of air cargo shipment planning and performance monitoring relies on established business processes and milestones. Within this system, the Master Operating Plan (MOP) outlines the standardized process for transporting cargo from start to finish. Recently, Cargo iQ initiated a strategic transformation aimed at enhancing its significance, positioning itself as the primary source for quality standards and metrics within the air cargo industry.

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## STAKEHOLDER ENGAGEMENT

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### Trusted trader programs for e-commerce players

Encouraging the utilization of established trusted trader programs to identify and distinguish e-commerce participants who possess the necessary knowledge, training, and compliance with safety and security regulations.

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### Collaboration

Establish collaborative partnerships and joint initiatives aimed at deepening comprehension of the diverse needs and demands of various stakeholders, including UPU, IPC, Cainiao, JD, and others.

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## BORDER PROCEDURES

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### Advanced cargo and mail information

Creating and enacting adaptable strategies to fulfill customs' pre-departure and pre-arrival risk assessment needs for cargo and mail in accordance with regulatory mandates.

## SUSTAINABILITY

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### Seal of quality for e-commerce platforms

Creating a certification framework or a code of ethical conduct for e-commerce platforms engaged in the sale of lithium battery products aimed at recognizing those that adhere to established standards and safety protocols.

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### Illegal Wildlife Trade

Engage in partnerships with e-commerce platforms and logistics providers to promote awareness regarding the importance of recognizing endangered species and the imperative need to educate employees in combating the illegal wildlife trade.

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### Environment

Strongly support the necessity of creating sustainable business models that prioritize environmental preservation. This involves addressing waste management, optimizing packaging efficiency, and implementing effective reverse logistics solutions.

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## NEW BUSINESS ENHANCEMENTS

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### Drones for tomorrow's air cargo

Creating essential standards, guidelines, and partnerships to safely integrate this emerging sector of civil aviation into commercial airspace, thereby unlocking fresh possibilities for the air cargo industry.

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### PASS

Collaborate with industry stakeholders to create an automated system that enables postal operators and airlines to expedite the billing and settlement procedures through a unified global platform.

## Conclusion

Air cargo and e-commerce play pivotal roles in facilitating global trade. As the e-commerce sector continues to expand, it is imperative for the air cargo industry to adapt, innovate, and streamline its operations to meet the rising demand for swift and efficient logistics solutions. By doing so, the industries can collectively support and foster the growth of international trade, ensuring that goods move swiftly and seamlessly across borders. By embracing technological advancements, streamlining operations, and ensuring regulatory frameworks align with e-commerce needs, this dynamic partnership can unlock new opportunities and meet the evolving demands of a digitally connected world. As for the future of global trade, the collaboration between air cargo and e-commerce remains central, promises to reshape industries, and elevate the standards of convenience and speed for businesses and consumers alike.

## References

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## About DNA Growth

DNA Growth is an emerging business planning, financial analysis, and accounting solutions firm dedicated to serving the global market with deep domain expertise and strategic insights. Its 120+ team members are from diverse professional and educational backgrounds (Deloitte, PwC, EY, Thomson Reuters, S&P Global, PNB, etc.); focused on powering client growth via innovative solutions. It is proud to be part of Stanford Seed 2023 cohort.