



World Air Cargo Market Update

Tom Hoang
Regional Director, Market Analysis – Air Cargo
Boeing Commercial Airplanes
February 6, 2024
Amsterdam, Netherlands

cargo facts emea
2024

Agenda

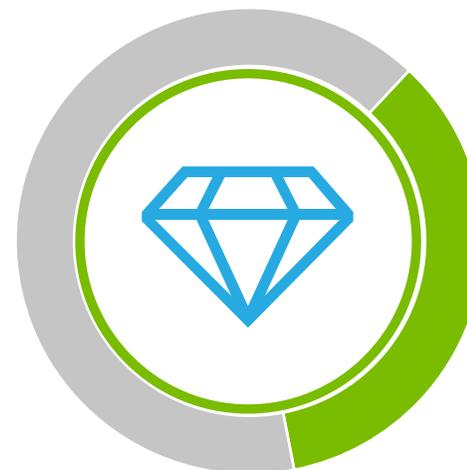


- Current state of the world air cargo market
- World air cargo market and freighter fleet outlook
- Boeing freighter family update



Air cargo has a unique role in global trade

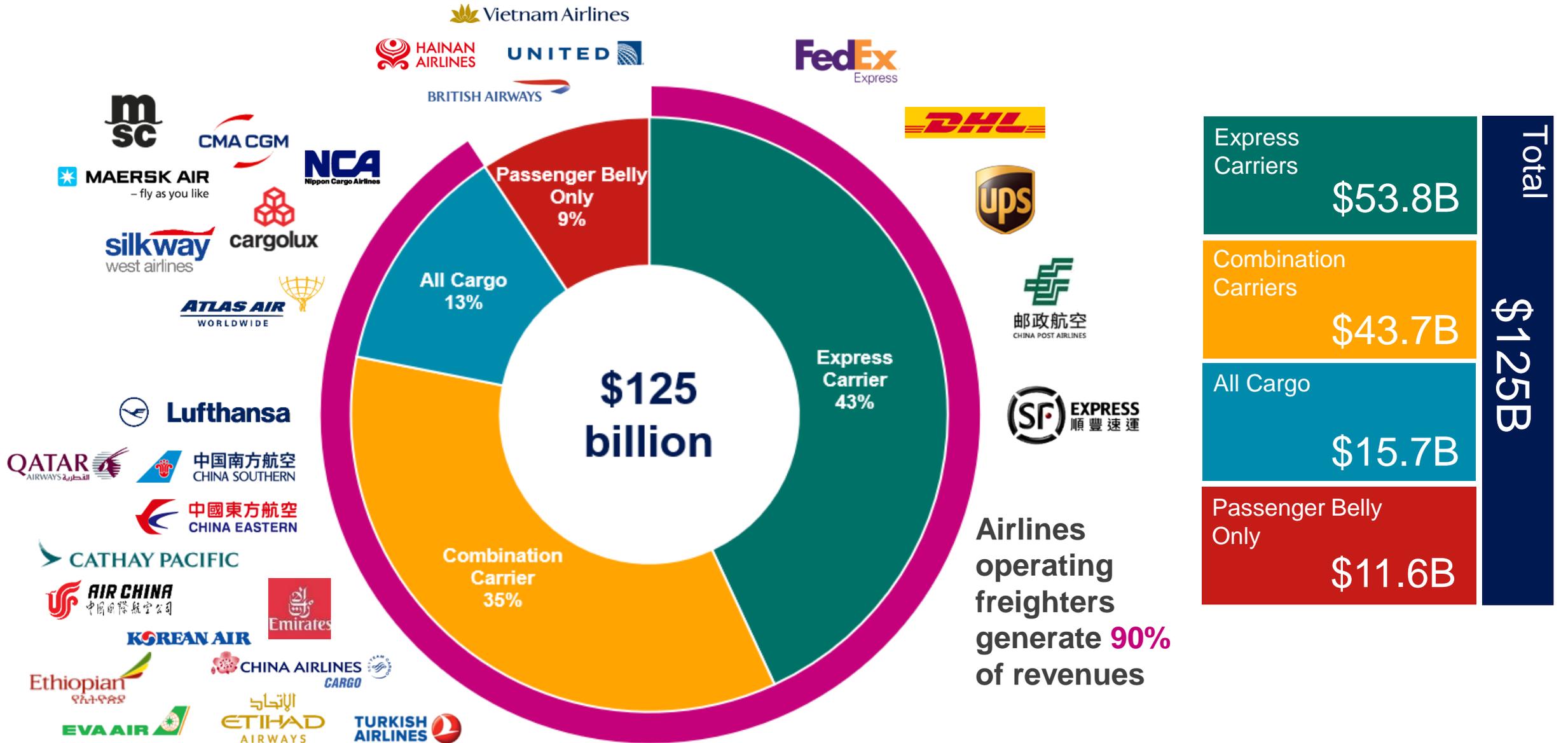
<1%
of reported world
trade **TONNAGE**
is carried by
Air Cargo



35%
of reported world
trade **VALUE**
is carried by
Air Cargo

SOURCES: IATA, ICAO, Flight Global, U.S. DOT, and airline financial reports, Boeing analysis

World air cargo industry is a \$125 billion a year industry



SOURCE: IATA, Cirium, U.S. DOT F41, and airline financial reports for 2023 cargo revenue

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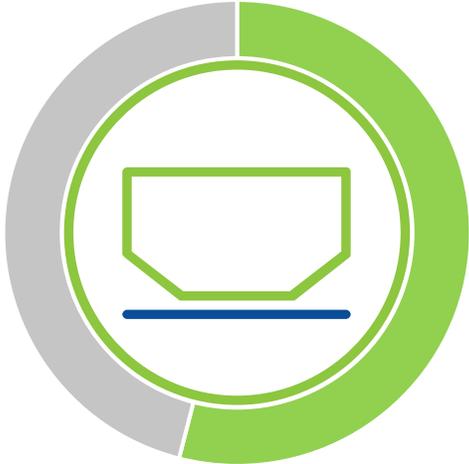
Freighters play a key role in air cargo

<8%

of commercial jet
AIRCRAFT
are
Freighters

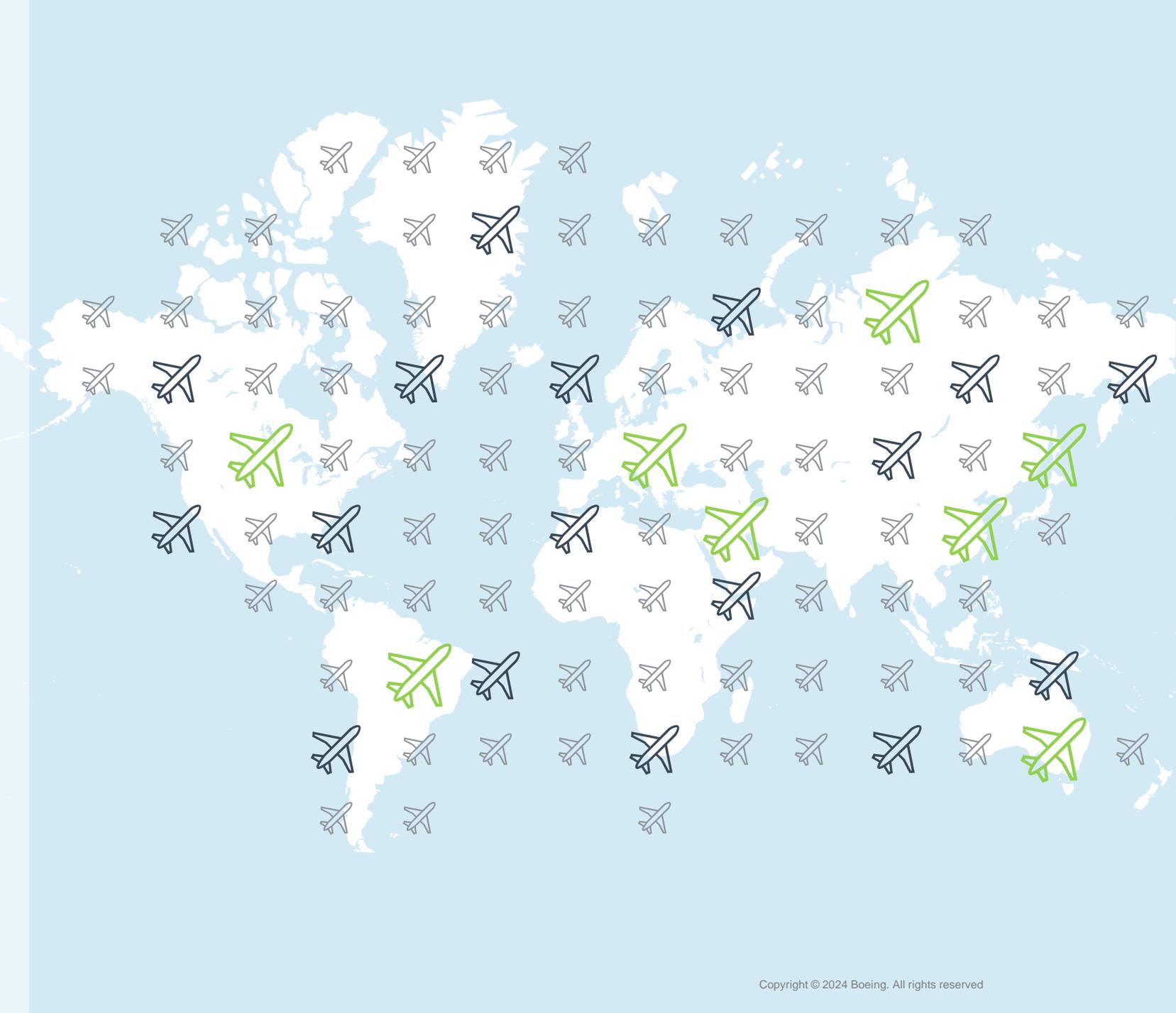


Twin Aisle PAX



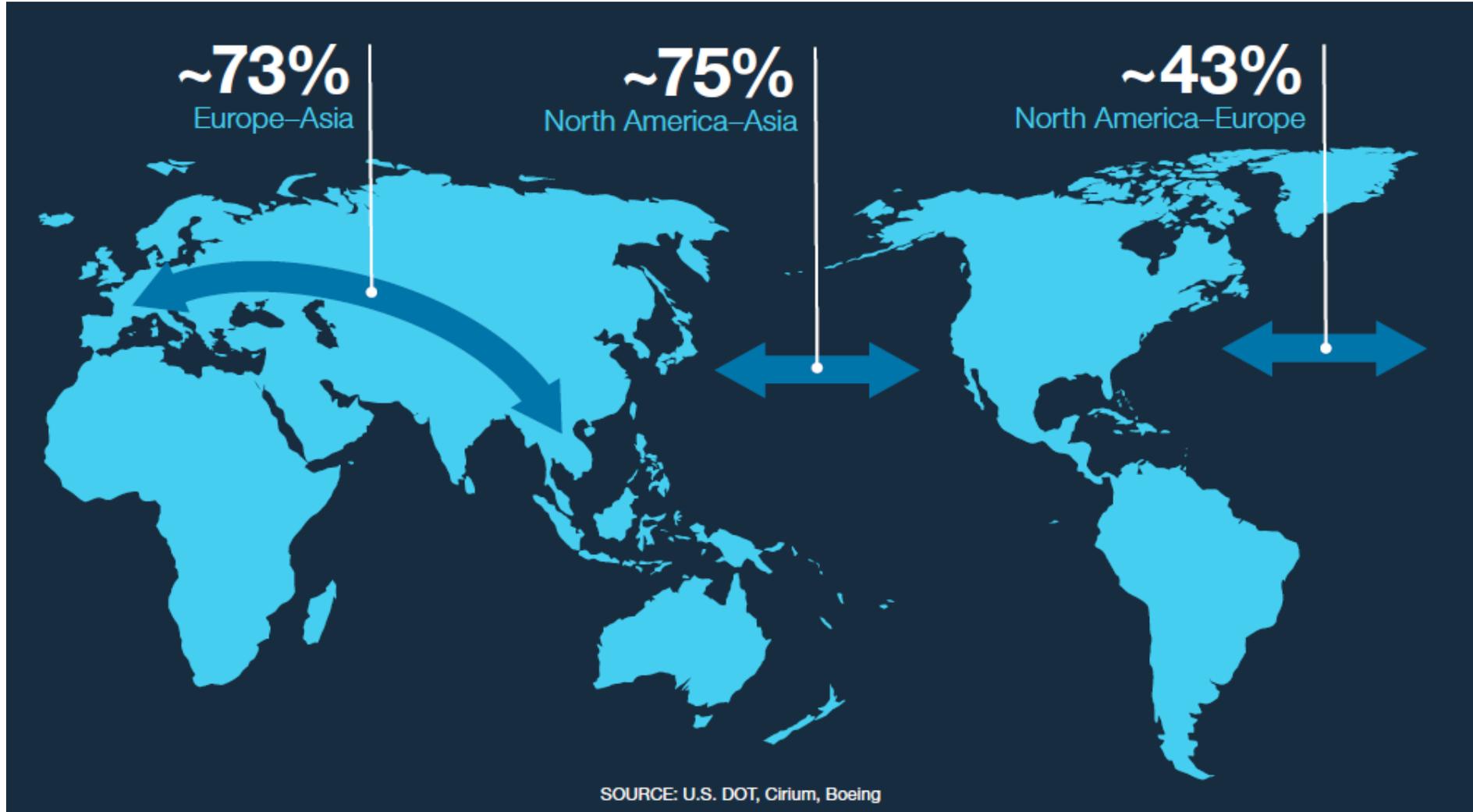
54%

of air cargo
TRAFFIC
is carried by
Freighters

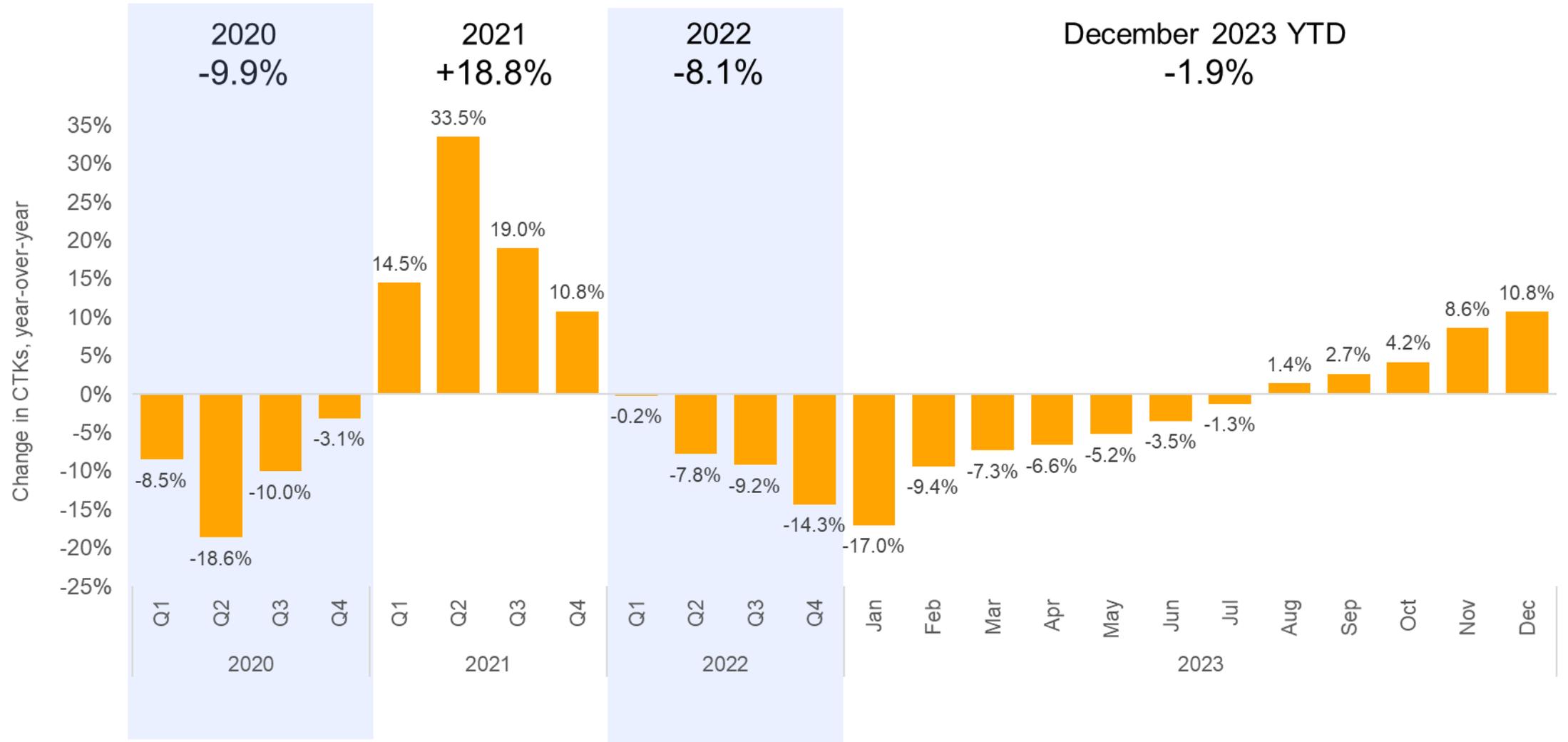


Freighters play key role in major East-West markets

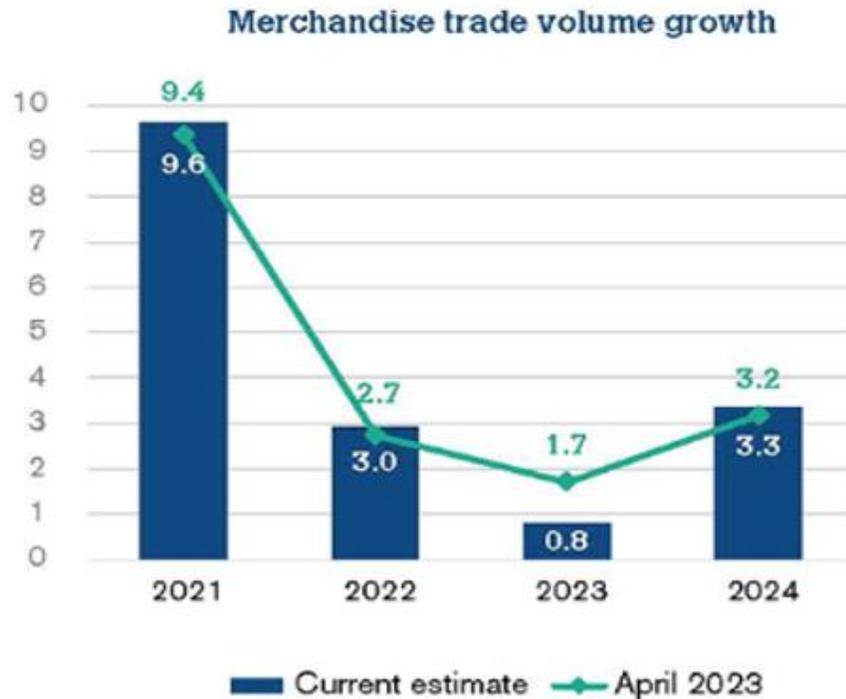
Share of air cargo traffic carried on freighters



World air cargo traffic recovering after bottoming out in January 2023



World trade growth to recover towards trend in 2024

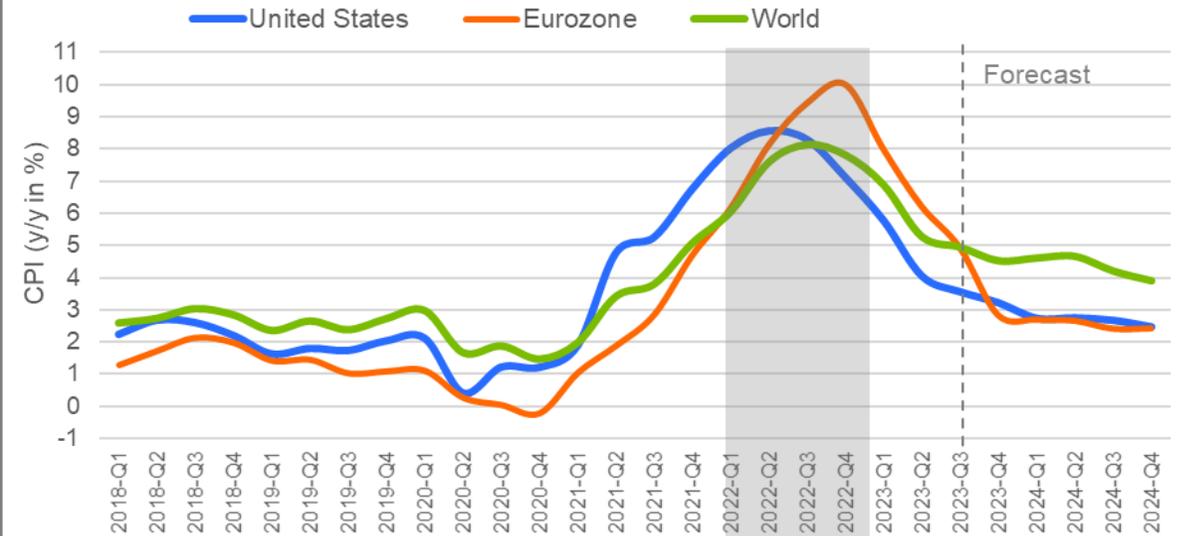


Note: Figures for 2023 and 2024 are projections.

Source: WTO for merchandise trade volume

Source: https://www.wto.org/english/blogs_e/ce_ralph_ossa_e/blog_ro_05oct23_e.htm

Inflation is past its peak in major economies



Sources: S&P Global Market Intelligence, December 2023

Global semiconductor sales is projected to grow by 16.8% in 2024, reaching \$624 billion



Source: Gartner (December 2023)

- The 2020-2023 global semiconductor shortage affected about 170 industries
- Consumer electronics accounts for the largest share of microchips at ~50%
- Automakers are the second largest, accounting for ~15% of the supply
- S&P Global Mobility estimates in 2021 that more than 9.5 millions units of global light-vehicle production was lost as a direct result in the semiconductor shortage

Consumer electronics, transportation equip/parts, and machinery & electrical equip account for ~40% of air cargo tonnes

IATA forecast world air cargo traffic to grow 4.5% for 2024



Industry Statistics

Fact Sheet

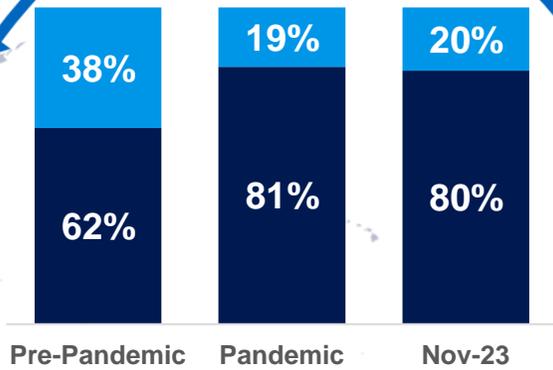
December 2023

System wide global commercial airlines	2019	2020	2021	2022	2023E	2024F
REVENUES, \$ billion	838	384	513	736	896	964
% change y-o-y	3.2%	-54.1%	33.4%	43.6%	21.7%	7.6%
% change vs 2019		-54.1%	-38.8%	-12.2%	6.9%	15.0%
Passenger, \$ billion	607	189	242	436	642	717
Cargo, \$ billion	100.8	140.4	210.0	206.5	134.7	111.4
Traffic volumes						
Passenger growth, RPK, %ch y-o-y	4.1%	-65.8%	21.8%	64.9%	38.4%	9.8%
% ch vs 2019				-31.2%	-4.8%	4.5%
Sched passenger numbers, millions	4,543	1,757	2,291	3,486	4,287	4,708
Cargo growth, CTK+MTK, %ch y-o-y	-3.2%	-9.9%	18.8%	-8.1%	-3.7%	4.5%
%ch vs 2019				-1.7%	-5.4%	-1.1%
World economic growth, %ch y-o-y nominal	1.7%	-2.5%	13.6%	5.4%	4.3%	5.0%
Passenger yield, %ch y-o-y	-3.7%	-9.1%	5.0%	9.5%	6.2%	1.8%
Cargo yield %ch y-o-y	-8.2%	54.7%	25.9%	7.0%	-32.2%	-20.9%

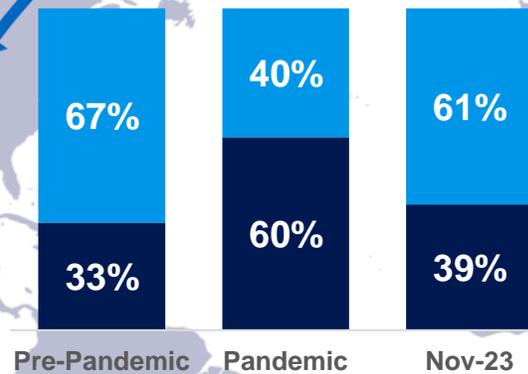
Industry remains reliant on freighters, even as passenger widebody capacity returns

Freighter vs. Passenger Widebody Cargo Capacity Share (%)

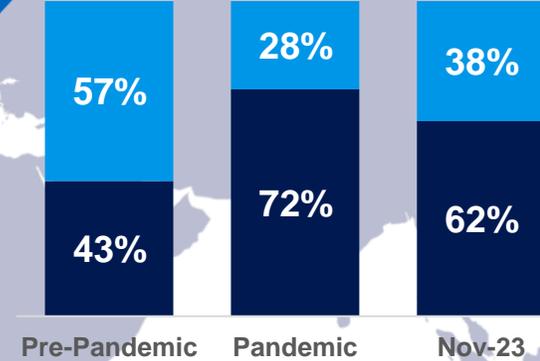
Transpacific



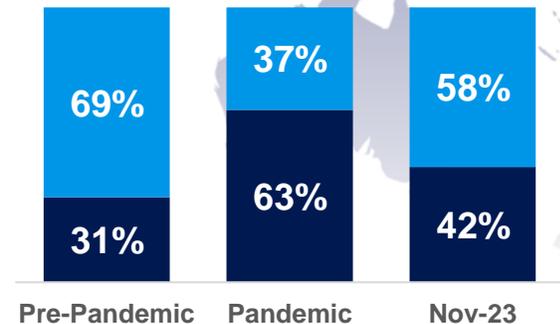
Transatlantic



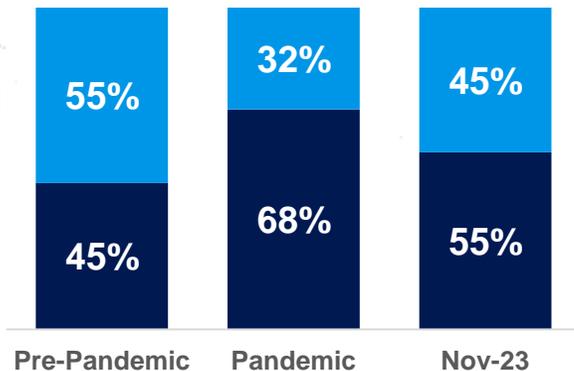
Europe – East Asia



Intra-East Asia



World



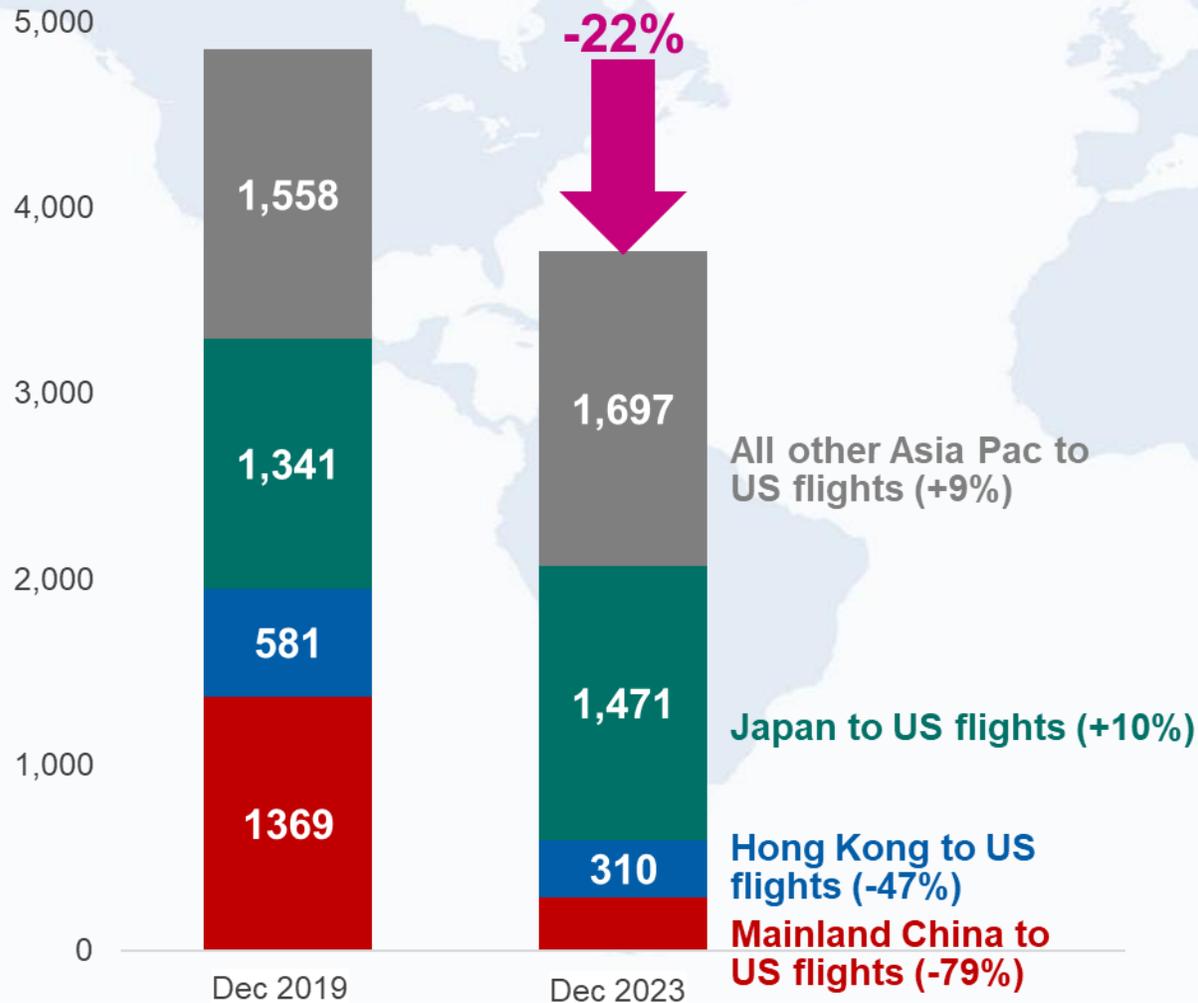
SOURCES: BR&T-E ADAPT/FlightRadar24

Pre-Pandemic = March 2018 to February 2020 | Pandemic = March 2020 to February 2022

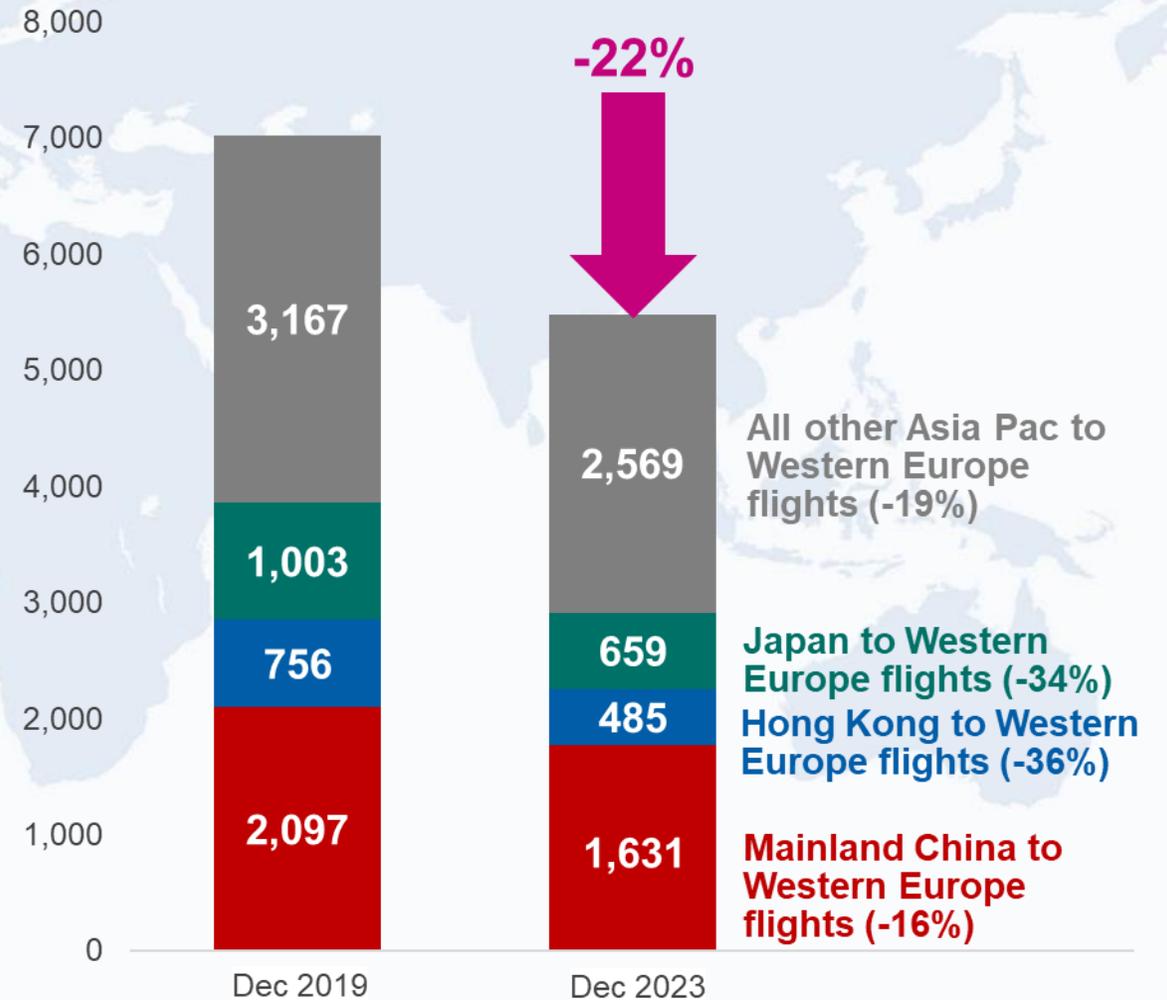
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Passenger flights from Asia Pacific recovering but with Mainland China and Hong Kong still a challenge

Asia Pacific-to-US flights



Asia Pacific-to-Western Europe flights

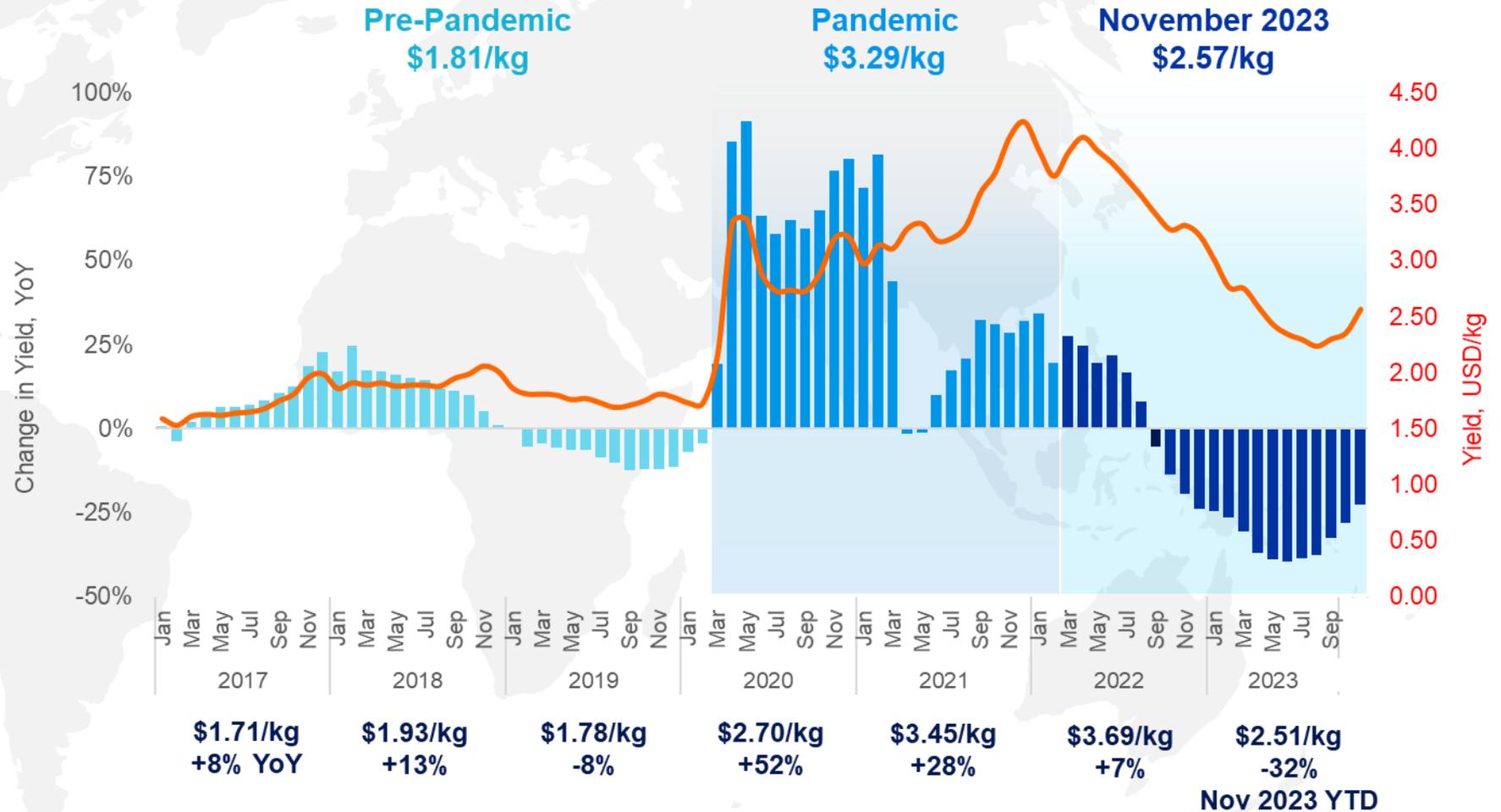


Global air cargo yields remain elevated

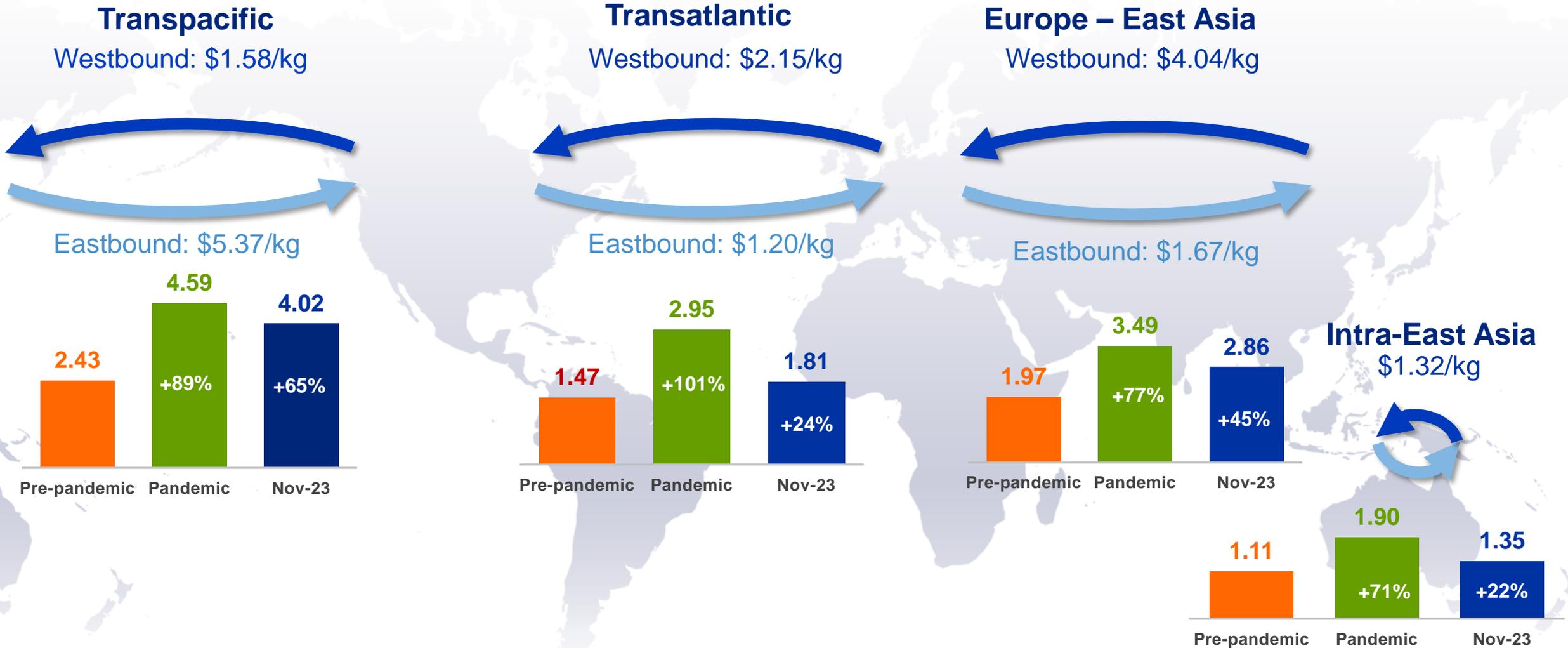
November 2023 global air cargo yields remain

42%

higher than the pre-pandemic average

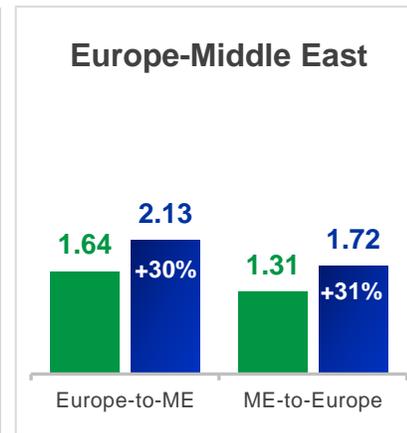
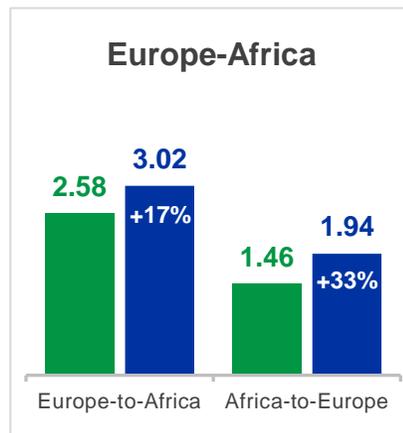
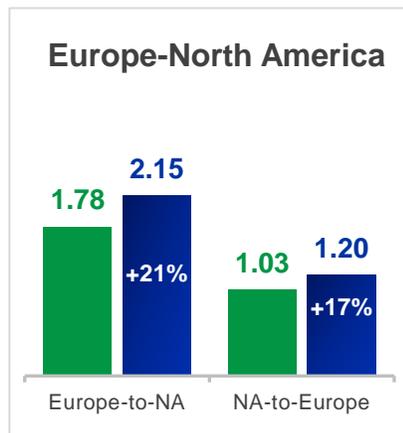
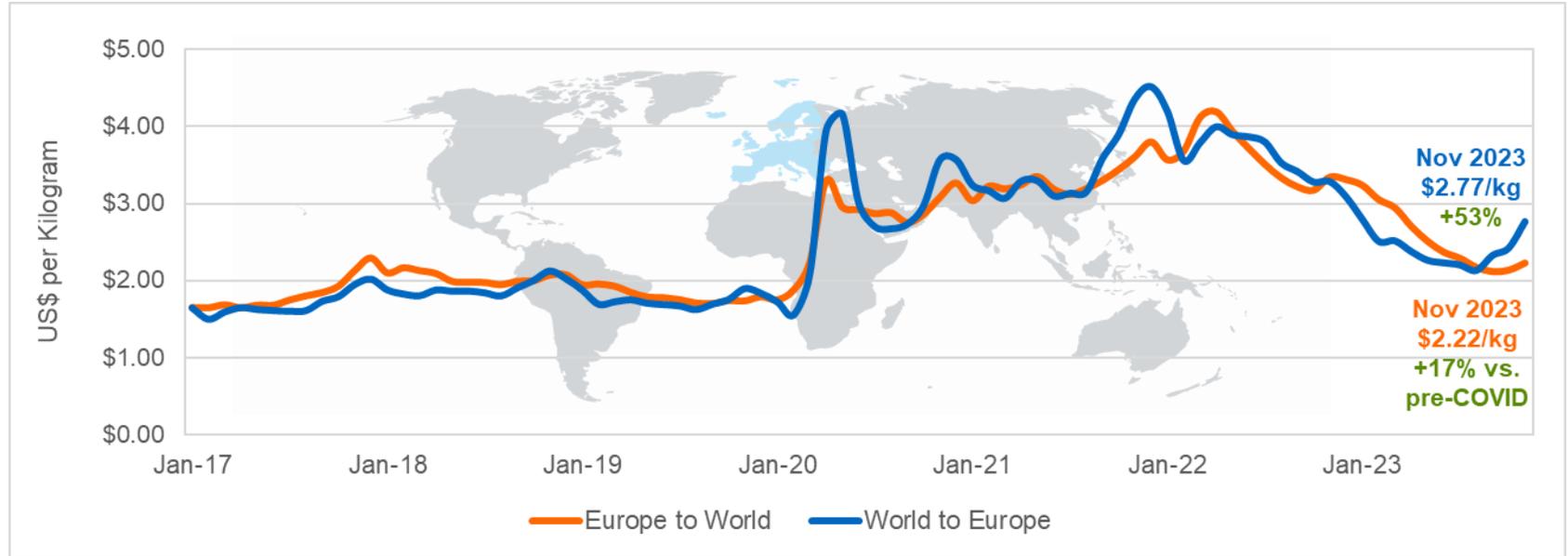


Air cargo yields remain above pre-pandemic levels



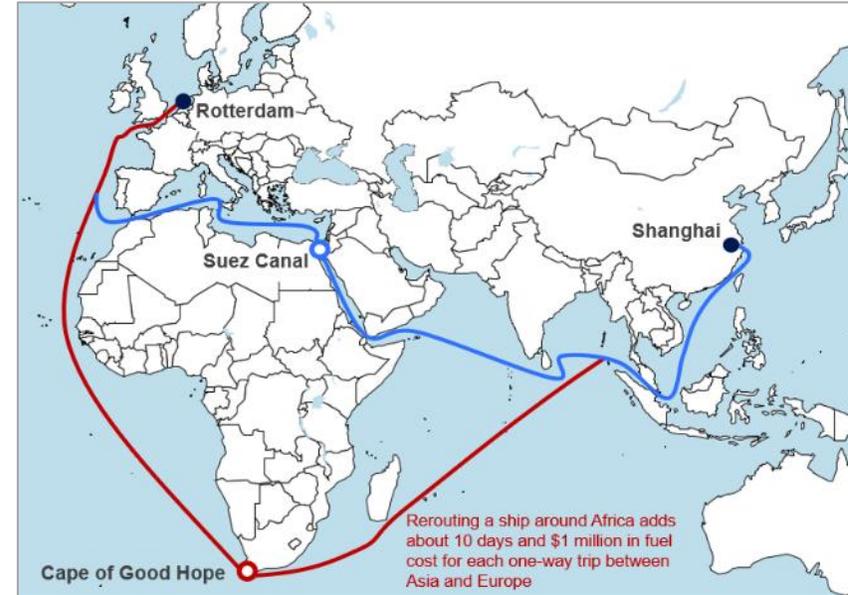
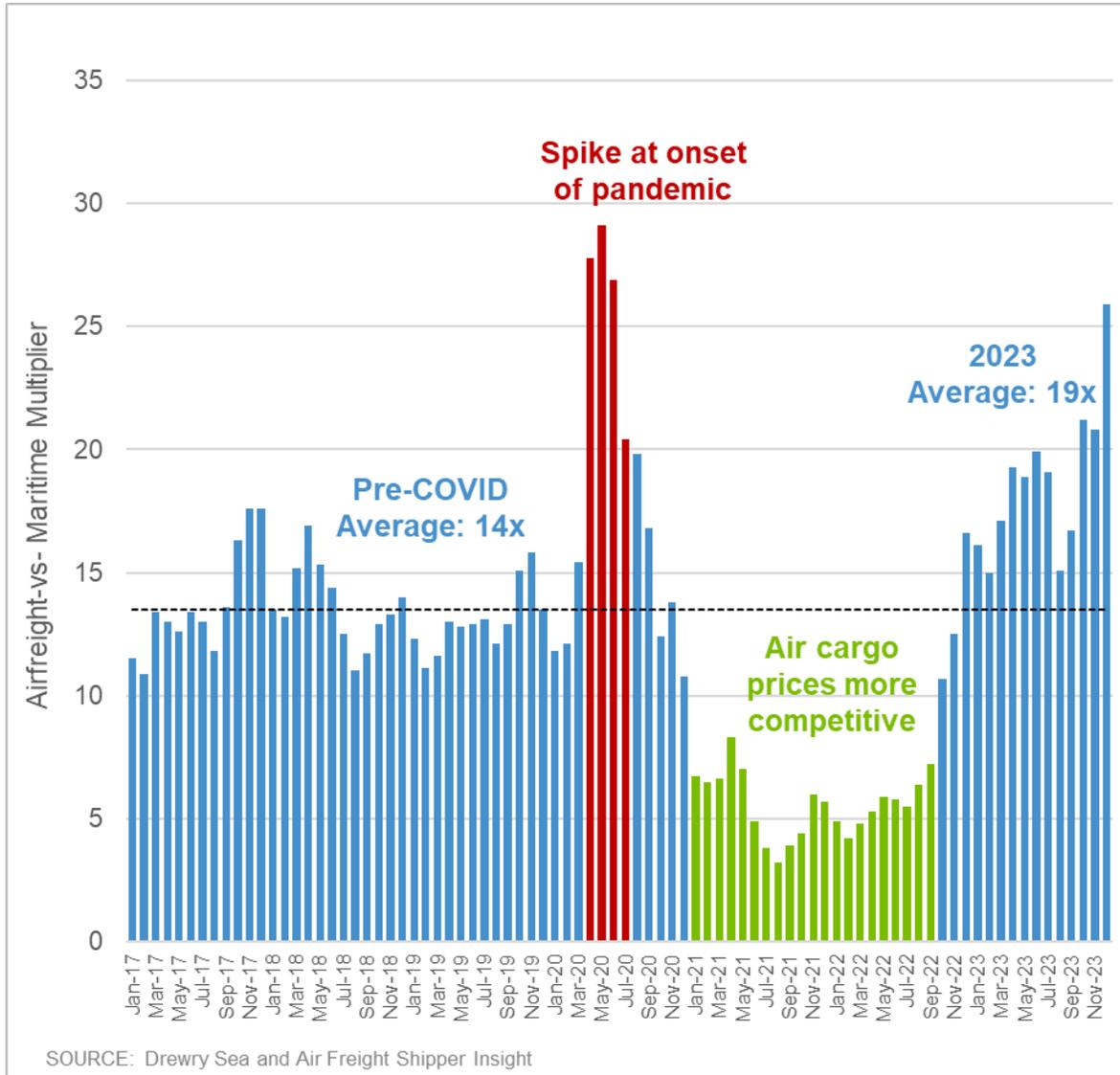


Europe air cargo yield is 32% above pre-pandemic levels



Pre-pandemic cargo yield, \$/kg November 2023 cargo yield, \$/kg

Watch Item: Red Sea disruptions and their potential impact on air cargo



- The Red Sea is the entry point for ships using the **Suez Canal**, which handles about **12% of global trade**
- The Red Sea is vital for the movement of goods between Asia and Europe, accounting for **about 40% of goods traded between Europe and Asia.**

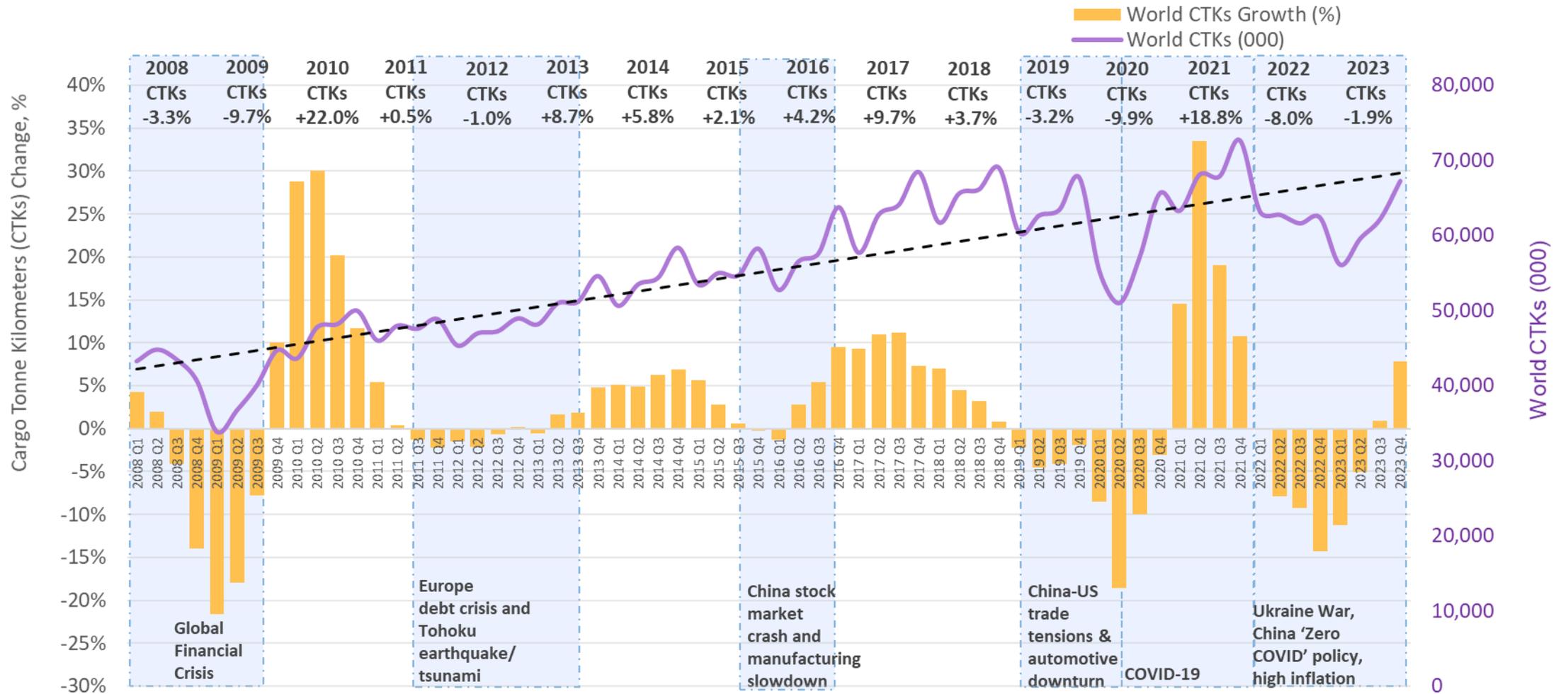
- Tesla, Volvo Car, and Ikea already have reported product shortages or warned of late-arriving goods
- Ocean freight rates from Asia to Europe and the US are increasing
 - **Ocean freight rates from China to Europe were up 282%** to more than \$4,700 FEU as of January 19th, according to Freightos
 - Mediterranean shippers are seeing the cost of spot rates increasing to \$6,500 FEU, from \$2,300, an increase of 183%
 - **Asia-North America spot rate increased nearly 200%** month-on-month to an average of \$4,612 FEU, according to Xeneta
- **Shippers in retail and apparel are beginning to move from ocean to air freight.** Volumes from Vietnam to Europe increased more than 60% for the first two weeks of January, according to Xeneta

Agenda



- Current state of the world air cargo market
- **World air cargo market and freighter fleet outlook**
- Boeing freighter family update

World air cargo market is resilient despite current difficulties



Source: IATA MonthlyTracker

Asian markets will lead air cargo growth over the next 20 years

3.0%

World trade



2.6%

World GDP



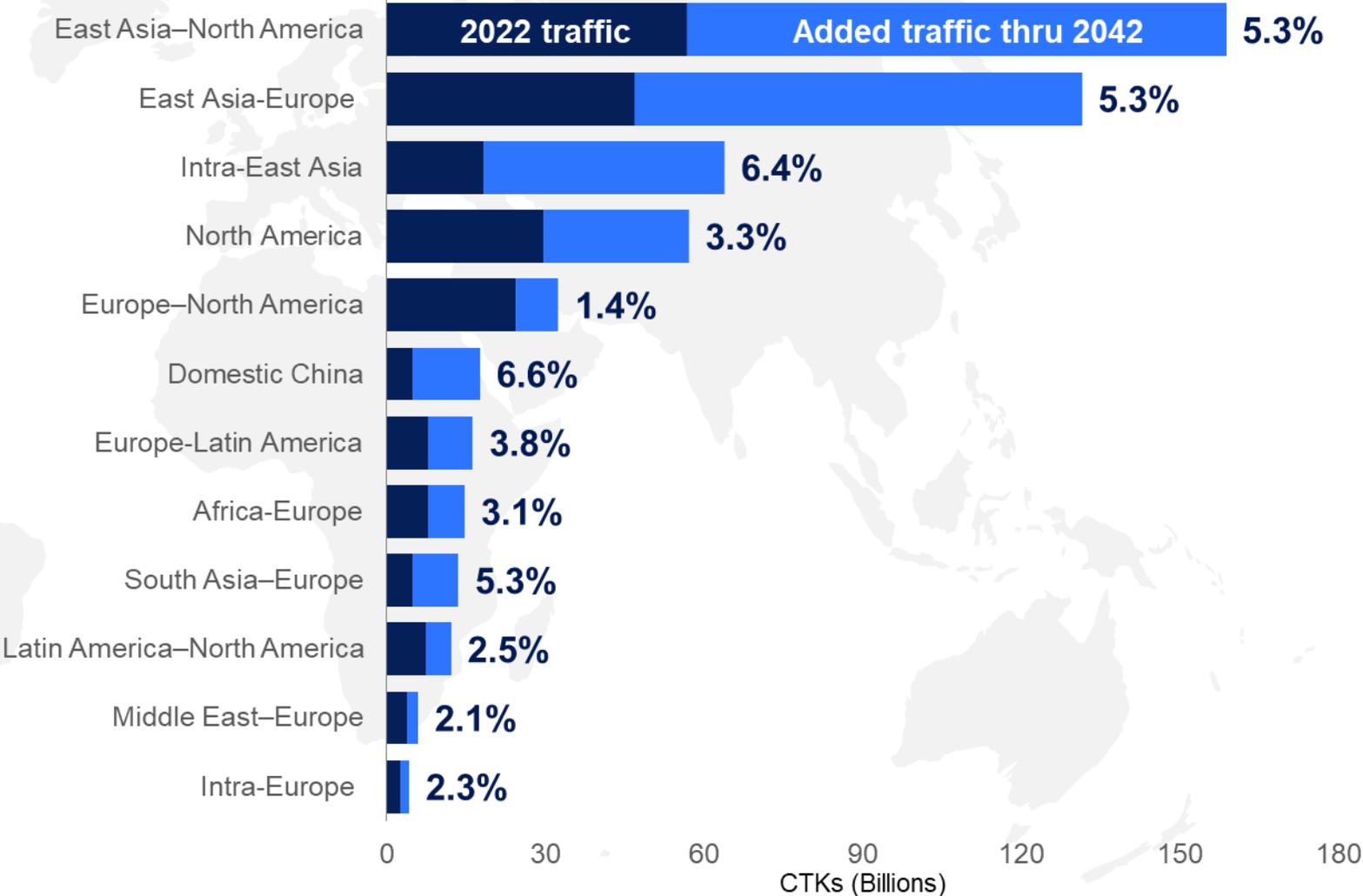
2.2%

Industrial Production

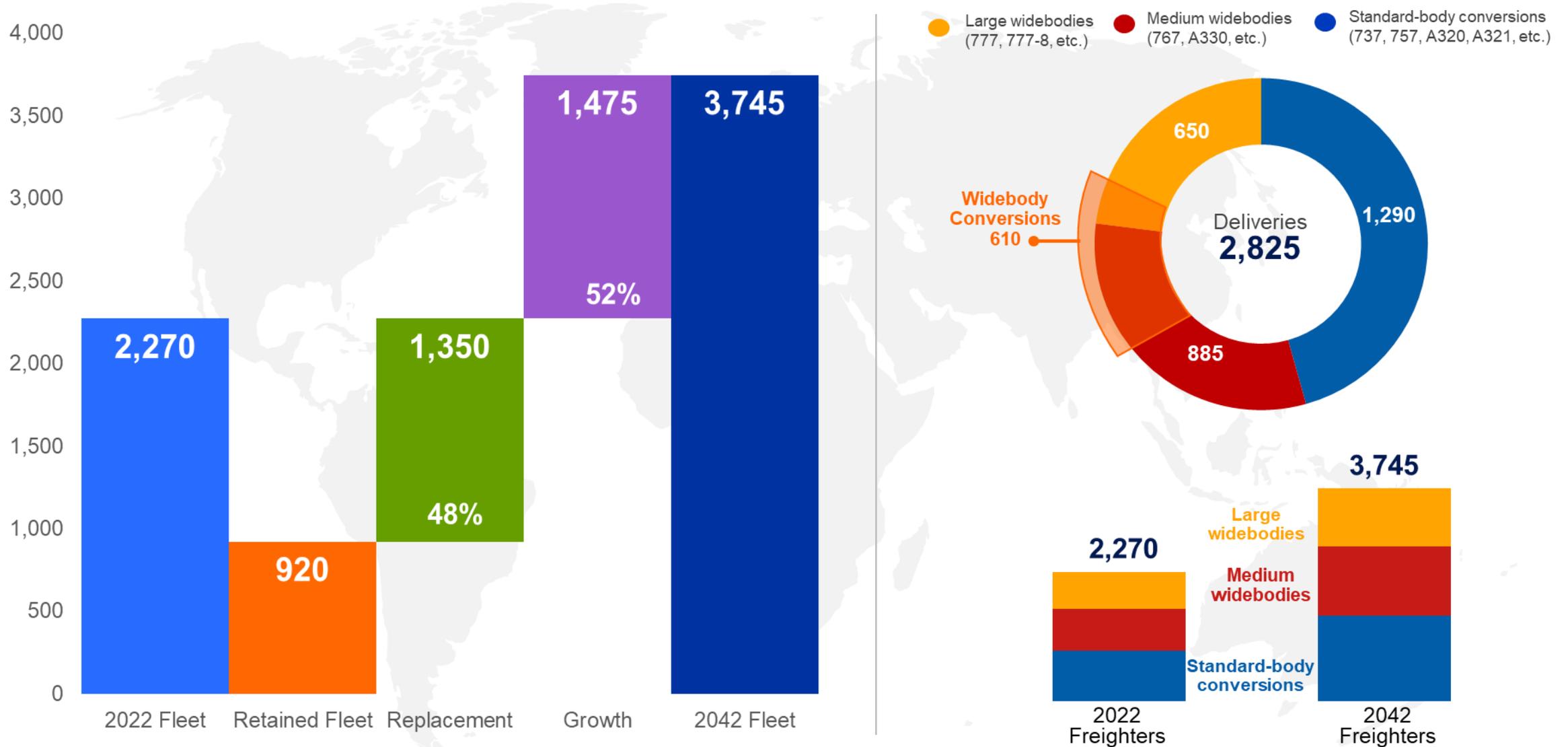


3.2%

Freighter fleet



World freighter fleet to add 2,825 freighters to meet market demand



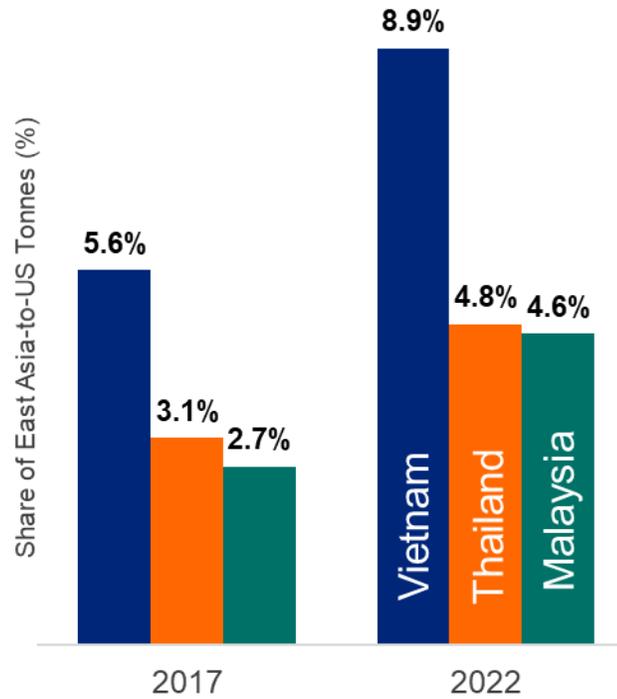
SOURCE: Boeing Commercial Market Outlook June 2023, Forecast period 2023-2042. Results for Russia & Central Asia domicile omitted from deliveries.

Long-term air cargo traffic growth drivers

GDP, trade and industrial production



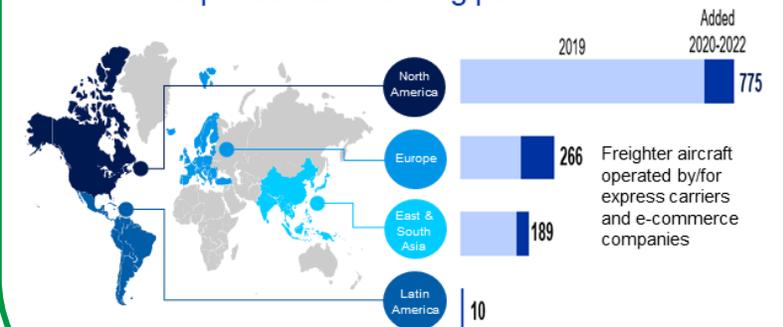
Diversifying supply chain strategies



E-commerce network growth



Express/e-commerce freighter fleet expanded 21% during pandemic



Shein: Fast Fashion made Ultra Fast

Features | March 24, 2022

Behind Shein: China's fashion retailer taking the world by storm

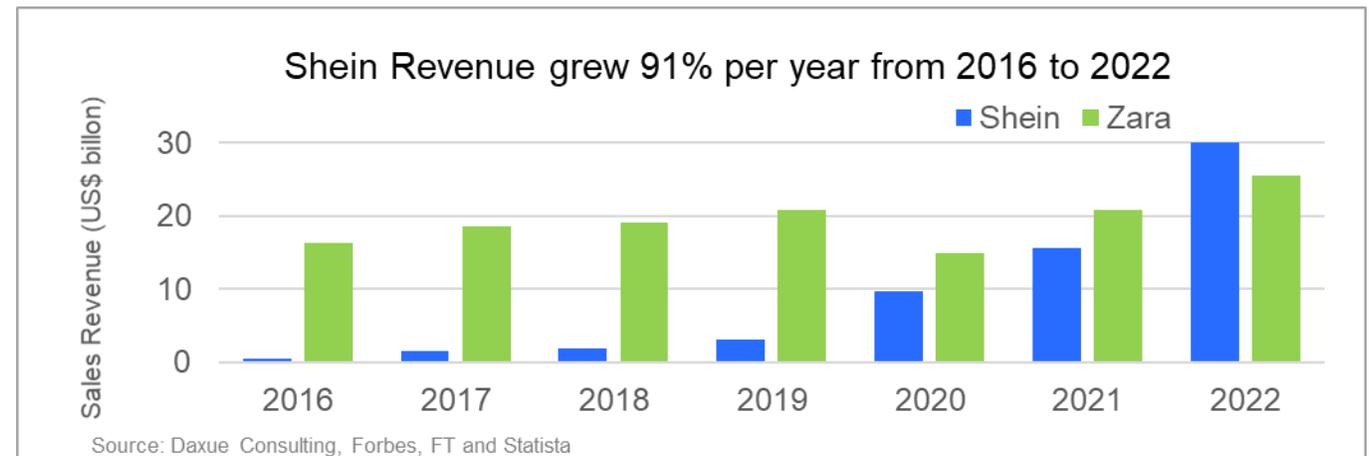
China's fast fashion cross-border e-commerce retailer Shein is little known within the country itself but its profile overseas continues to rise. Just Style investigates the secret behind its success amidst a landscape of US-China tariffs and supply chain challenges.

Jens Kastner



**Transporting ~3,000 tonnes
of cargo by air per day**

- Founded in 2008, Nanjing-based Shein [generated US\\$30 billion in 2022, an increase of 91%](#) on US\$15.7 billion made in 2021
- In-house design team of 800 people dedicated to designs and prototyping for ultra-fast production
- Shein reportedly [adds 2,000 new styles a day](#), compared to Zara who used to make headlines for adding hundreds of new style every few weeks
- Shein is the #2 brand for Instagram influencers and [uses fashion influencers and celebrities](#) like Katy Perry, Lil Nas X, and Rita Ora to promote its brand's image
- Bloomberg considered Shein as the world's third-most valuable startup
- In April 2022, [private investors valued Shein at \\$100 billion during a fundraising round](#), making it the third most valuable private company, after TikTok parent ByteDance and Elon Musk's SpaceX



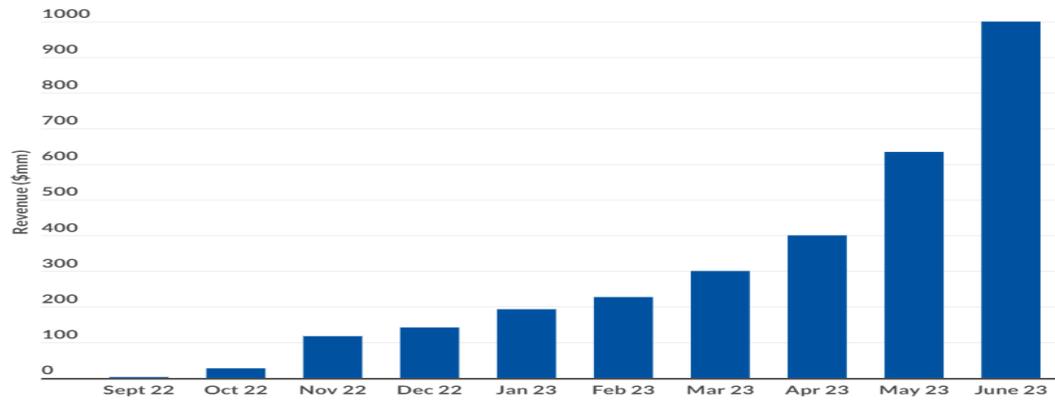


- Owner: Pin Duo Duo
- Launch date: September 2022
- Started with 5.5 millions users in October 2022 and soared to 104.2 million user by April 2023
- Primarily targets users with annual incomes below \$30,000
- 286.6M visits per month
- Temu.com website is in France, Germany, Italy, The Netherlands, Spain, UK, US, Canada, Australia, and New Zealand.
- US is the largest market with more than 40% of total downloads and over 100 million users as of May 2023.

Temu Gross Merchandise Volume

Temu's gross merchandise volume, which is total sales before expenses, surged from \$3 million in September 2022 to \$1 billion in June 2023.

Temu Monthly Gross Merchandise Volume 2022 to 2023 (\$mm)



Source: YipitData

Transporting ~2,500 tonnes of cargo by air per day

The screenshot shows the TEMU website interface. At the top, there's a navigation bar with the TEMU logo, 'Best Sellers', '5-Star Rated', 'Black Friday', 'New Arrivals', and 'Categories'. A search bar contains 'christmas cups'. User account options for 'Sign In / Register', 'Orders & Account', 'Support', and 'EN' are visible. The main banner is orange with white text: 'SHOP LIKE A BILLIONAIRE' and 'Highly rated products at low prices'. Below the banner, there are four rows of product listings. Each listing includes a product image, a 'Deal' badge, 'Limited time offer' text, the product name, price, original price, discount percentage, number of items sold, and a star rating. The products include smartwatches, sneakers, and dresses.

December surge in e-commerce resulting in China outbound cargo yield reaching ~US\$10 per kilogram



5,000 tonnes



4,000 tonnes



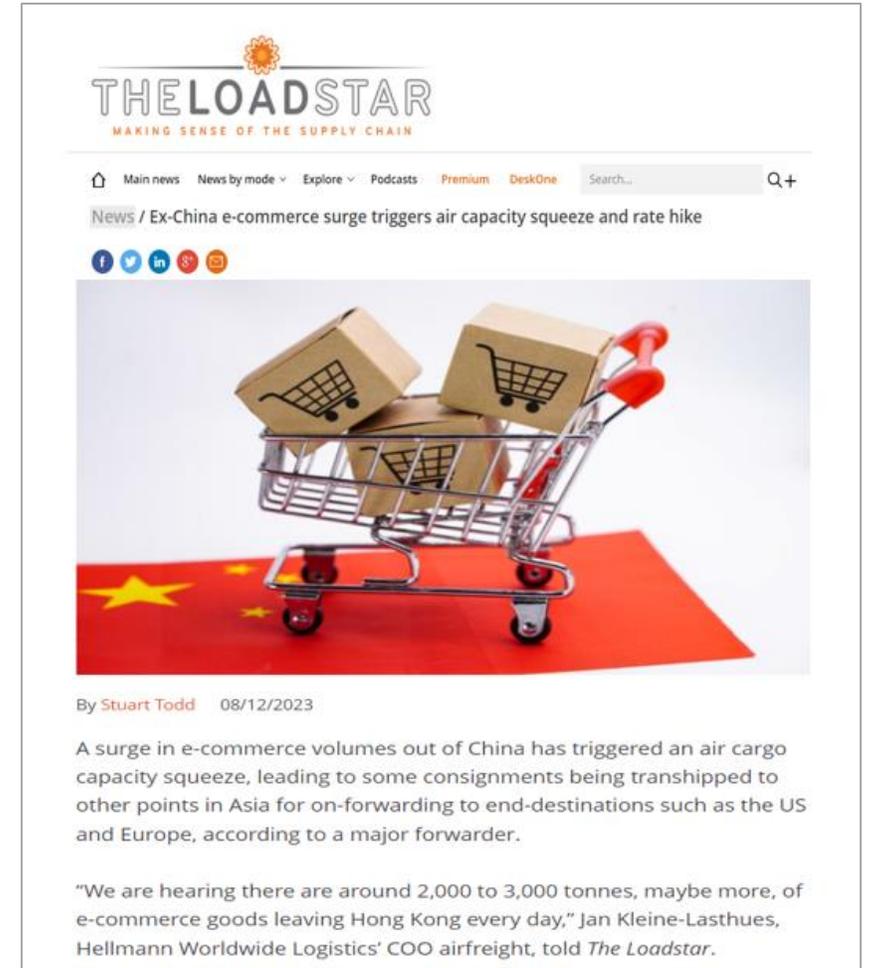
1,000 tonnes



800 tonnes

"... capacity on the transpacific lane out of China was particularly tight and some goods were having to be shipped first to Europe, then on to the US.

He said the going market rate per kg, China outbound to the US, was around \$10, and to Europe a little less.."



Transporting ~10,800 tonnes of cargo by air (an equivalent of 108 777Fs) per day

Agenda



- Current state of the world air cargo market
- World air cargo market and freighter fleet outlook
- **Boeing freighter family update**

Boeing offers a complete family of freighters

Structural payload capability, tonnes [1,000 lb.]

Large widebody freighters
More than 80 tonnes of payload



777-8F (118.2 tonnes)

777F (107.0)

Medium widebody freighters
40 - 80 tonnes of payload



767-300F (56.6)

767-300BCF (56.5)

Standard-body freighters
Less than 40 tonnes of payload



737-800BCF (23.9)

140
[309]

80
[176]

40
[88]

0

737-800BCF | The market-preferred standard-body freighter

250+ orders and commitments, 175+ redeliveries



As of December 31, 2023

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767 Freighters are the preferred freighters in many markets

390+ orders and commitments

767-300F 280 orders and 243 deliveries				
				
				
				

767-300BCF 110+ orders and 90+ redeliveries				
				
				
				



777F | World's most efficient twin-engine freighter



777F Customer	Ordered	Delivered
A/S Maersk Aviation Holding	2	0
Air China Cargo	13	9
Air France	5	5
Altavair LLC	3	3
ANA Cargo	2	2
Atlas Air Worldwide	6	4
Boeing Capital Corp	2	2
CES Leasing Corporation	10	10
China Airlines	10	7
China Cargo	2	2
China Postal	2	2
China Southern Air	17	17
CMA CGM	2	2
DAE 4 Ireland Limited	1	1
Deucalion Capital Ltd	8	8
DHL	28	22
Dubai Aerospace Enterprise	13	13
Emirates	7	2

777F Customer	Ordered	Delivered
Ethiopian Airlines	13	9
Etihad Airways	6	6
EVA Air	9	8
FedEx	52	50
Korean Air	10	10
LATAM Airlines Group	2	2
Lufthansa Cargo	12	11
NAS Aviation Services LLC	10	10
Oak Hill	4	4
Qatar Airways	28	27
Silk Way West Airlines	5	2
Turkish Airlines	8	8
Volga-Dnepr UK Ltd	6	0
Western Global Airlines	2	0
Unidentified	20	6
Total	320	264

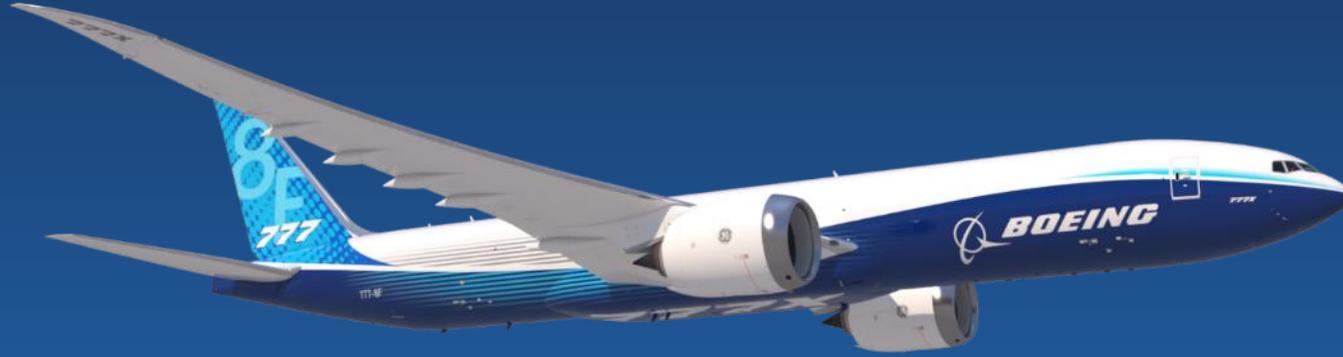
Orders / Deliveries as of December 31, 2023



UNIDENTIFIED



777-8F | World's most capable freighter for a sustainable future



2027 EIS | **118t** Structural payload

777-8F Customer	Ordered
ANA Holdings	2
Cargolux Airlines	10
Lufthansa Cargo	7
Qatar Airways	34
Silkway West Airlines	2
Total	55

Orders as of December 31, 2023



More cargo volume



Folding wing tip for **Code E** airport compatibility



IoT solutions for **connected cargo**



Advanced wing with 72 m span



787-inspired flight deck





777-8F

31% lower CO₂ emissions per tonne
60% smaller noise footprint
vs 747-400F

Levers for sustainable aviation



Fleet
Renewal

15-30% more
efficient freighters



Operational
Efficiency

Up to **10%** in
fuel savings



Renewable
Energy

100% SAF
compatible
before 2030



Advanced
Technology

75%
sustainable
R&D spending

