



World Air Cargo Market Update

Tom Hoang
Regional Director, Market Analysis – Air Cargo
Boeing Commercial Airplanes
April 18, 2023
Singapore

cargo facts *asia*

Agenda



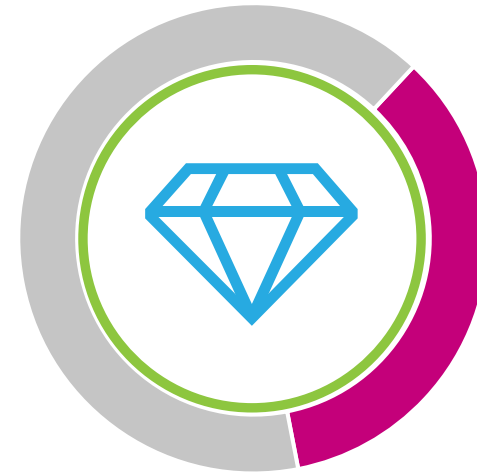
- Current state of the world air cargo market
- 'China Plus One' strategy
- World freighter fleet outlook



Air cargo has a unique place in global trade

<1%

of reported world trade
TONNAGE
is carried by
Air Cargo



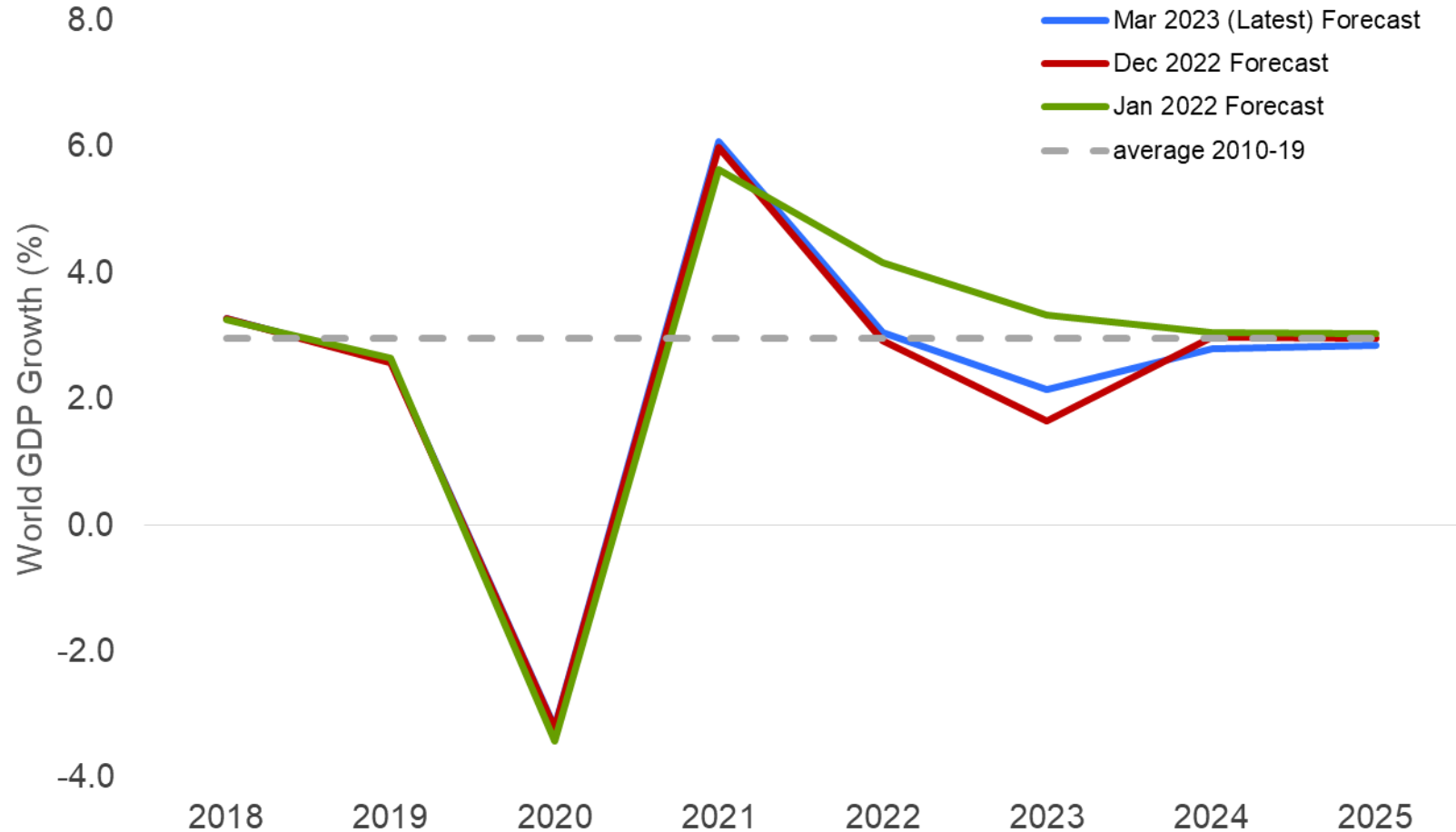
35%

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

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

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World GDP growth back to trend in 2024



Source: S&P Global dated March 2023

- 2021: Strong world trade and GDP growth
 - World trade: 106% of 2019
 - World GDP: 102% of 2019
- 2022/2023: Risks impacting near term economic outlook
 - China and COVID
 - Europe and Ukraine impact
 - High inflation in part due to supply chain stress and energy price increase
- US economic indicators supportive of growth
 - Consumer spending growth remains positive
 - Strong labor market
 - 311,000 jobs added in February
 - Unemployment rate still historically low at 3.6%

Asia air cargo market grew 15% in 2021



North America			Tonnes
1 MEM	Memphis	2	4,480,465
2 ANC	Anchorage	4	3,555,160
3 SDF	Louisville	6	3,052,269
4 LAX	Los Angeles	8	2,691,830
5 ORD	Chicago	11	2,536,576
6 MIA	Miami	12	2,520,859
7 CVG	Cincinnati	21	1,536,998
8 JFK	New York	22	1,461,020
9 IND	Indianapolis	26	1,331,313
10 DFW	Dallas	32	910,623
11 ONT	Ontario	36	807,740
12 EWR	New York	37	780,295
13 ATL	Atlanta	42	734,771
14 OAK	Oakland	48	636,500
15 PHL	Philadelphia	51	583,441
16 HNL	Honolulu	55	533,954
17 SFO	San Francisco	56	528,791
18 IAH	Houston	57	511,814
19 SEA	Seattle	58	498,741
20 YYZ	Toronto	62	416,966

Middle East/Africa			Tonnes
1 DOH	Doha	10	2,620,095
2 DXB	Dubai	13	2,319,185
3 AUH	Abu Dhabi	43	719,976
4 TLV	Tel Aviv	68	375,641
5 NBO	Nairobi	72	363,204
6 CAI	Cairo	76	333,536
7 RUH	Riyadh	78	312,048
8 JNB	Johannesburg	80	304,018
9 ADD	Addis Ababa	98	216,417
10 JED	Jeddah	99	216,284
11 KWI	Kuwait	102	208,721
12 BAH	Bahrain	103	207,976
13 DWC	Dubai	106	205,367
14 LOS	Lagos	107	204,649
15 MCT	Muscat	141	112,733
16 SHJ	Sharjah	143	110,605
17 THR	Tehran	174	80,564
18 BEY	Beirut	193	66,719
19 EBB	Entebbe	196	65,115
20 CMN	Casablanca	197	64,373

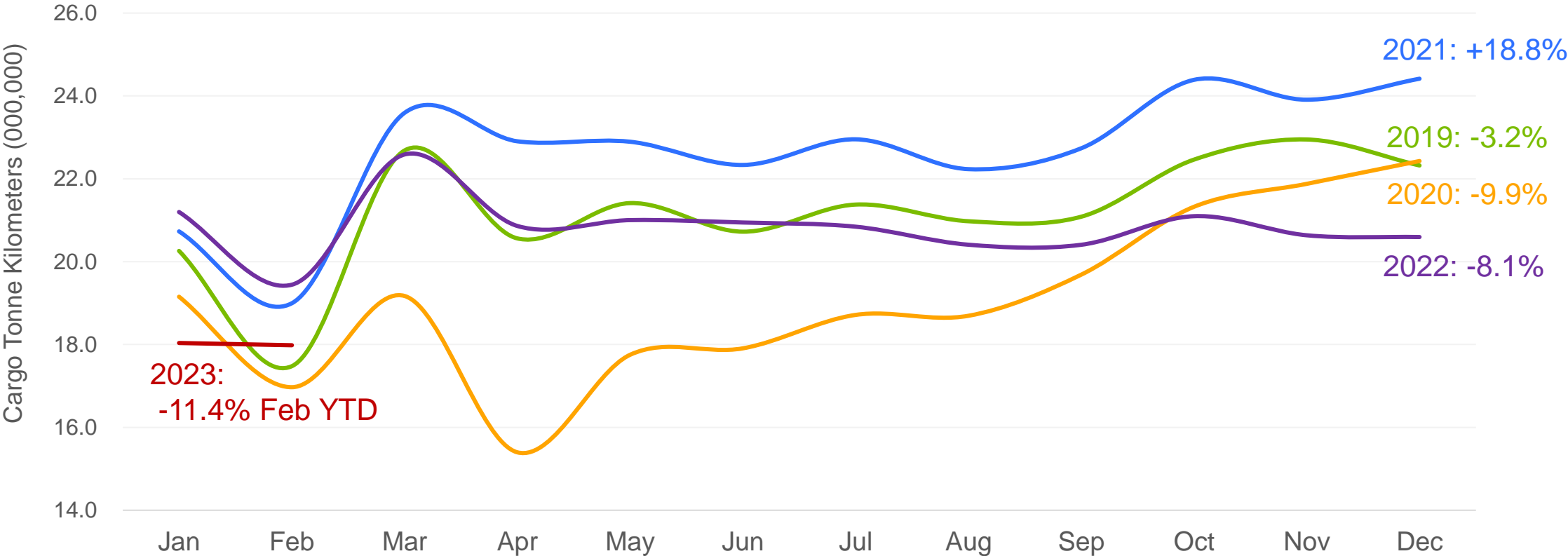
Asia			Tonnes
1 HKG	Hong Kong	1	5,025,495
2 PVG	Shanghai	3	3,982,616
3 ICN	Incheon	5	3,329,292
4 TPE	Taipei	7	2,812,065
5 NRT	Tokyo Narita	9	2,644,074
6 CAN	Guangzhou	16	2,044,909
7 SIN	Singapore	17	1,969,800
8 SZX	Shenzhen	20	1,568,293
9 PEK	Beijing	25	1,401,313
10 BKK	Bangkok	27	1,120,357
11 HGH	Hangzhou	31	914,063
12 HND	Tokyo Haneda	33	893,093
13 KIX	Osaka	34	843,662
14 HAN	Hanoi	39	749,428
15 CGK	Jakarta	44	702,939
16 SGN	Ho Chi Minh City	46	663,166
17 KUL	Kuala Lumpur	47	652,596
18 CTU	Chengdu	49	629,422
19 MNL	Manila	50	588,371
20 SYD	Sydney	52	582,614
21 CKG	Chongqing	59	476,723
22 XIY	Xi An	65	395,604
23 SHA	Shanghai	66	383,406
24 KMG	Kunming	67	377,245
25 NKG	Nanjing	74	359,139

SW Asia			Tonnes
1 DEL	Delhi	30	947,536
2 BOM	Mumbai	38	776,934
3 BLR	Bangalore	63	406,540
4 MAA	Chennai	73	361,525
5 CMB	Colombo Banda	108	201,639
6 CCU	Calcutta	128	144,134
7 HYD	Hyderabad	129	142,051
8 AMD	Ahmedabad	166	88,002
9 KHI	Karachi	170	84,728
10 LHE	Lahore	172	82,883

Europe			Tonnes
1 FRA	Frankfurt	14	2,274,969
2 CDG	Paris	15	2,062,433
3 AMS	Amsterdam	18	1,680,854
4 LEJ	Leipzig	19	1,588,815
5 LHR	London	23	1,453,723
6 LGG	Liege	24	1,412,206
7 LUX	Luxembourg	28	1,088,530
8 CGN	Cologne/Bonn	29	967,440
9 ISL	Istanbul	35	826,338
10 MXP	Milan	40	747,242
11 BRU	Brussels	45	668,110
12 MAD	Madrid	54	535,796
13 EMA	Nottingham	61	454,095
14 SVO	Moscow	81	302,033
15 CPH	Copenhagen	85	286,708
16 STN	London	86	283,719
17 ZRH	Zurich	91	237,565
18 HHN	Frankfurt Hahn	94	233,175
19 ZAZ	Zaragoza	110	194,453
20 OSL	Oslo	113	180,744

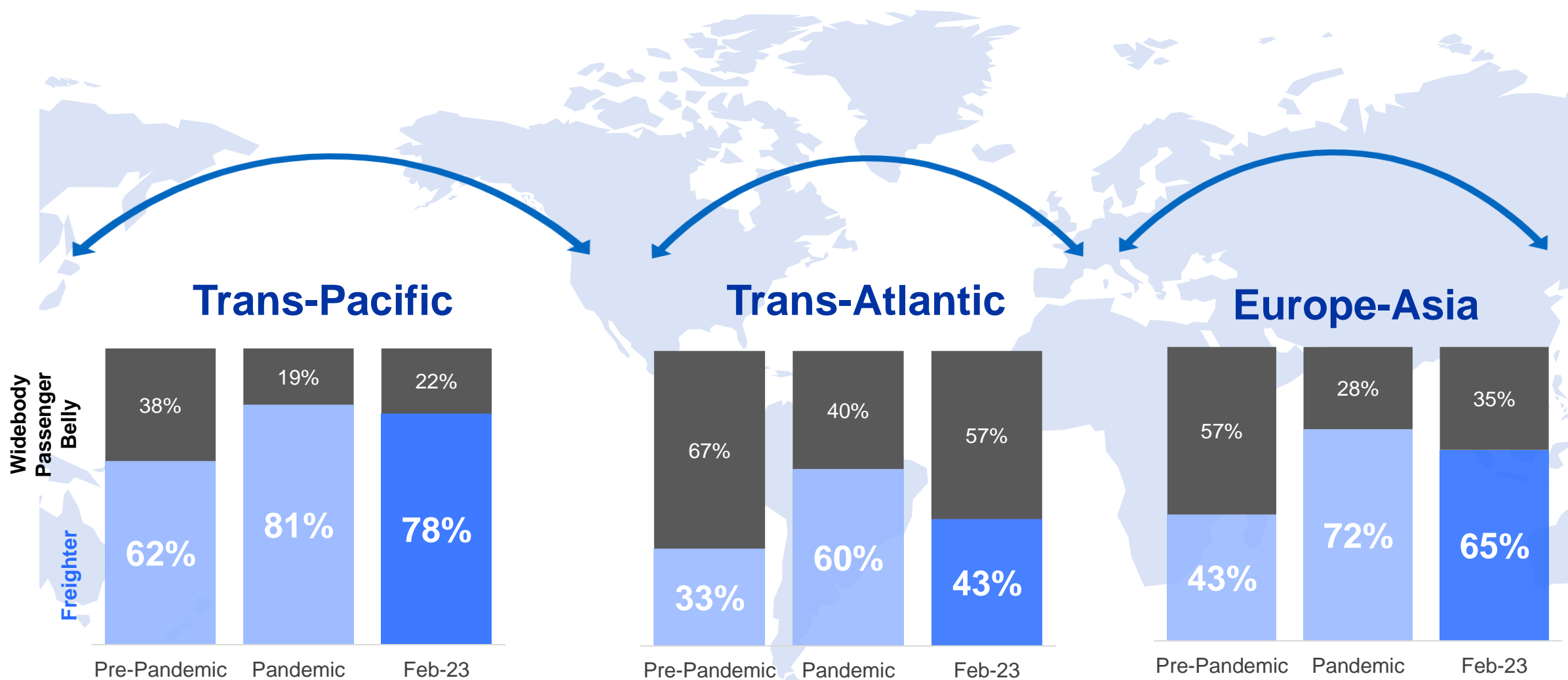
Latin America			Tonnes
1 BOG	Bogota	41	741,809
2 MEX	Mexico City	53	571,328
3 SCL	Santiago	60	475,014
4 GRU	Sao Paulo	69	374,397
5 VCP	Sao Paulo	71	364,367
6 UIO	Quito	84	288,397
7 SJU	San Juan	89	242,020
8 LIM	Lima	97	219,203
9 GDL	Guadalajara	109	197,227
10 EZE	Buenos Aires	118	170,474

World air cargo market declined 7.4% for Feb 2023 vs Feb 2022



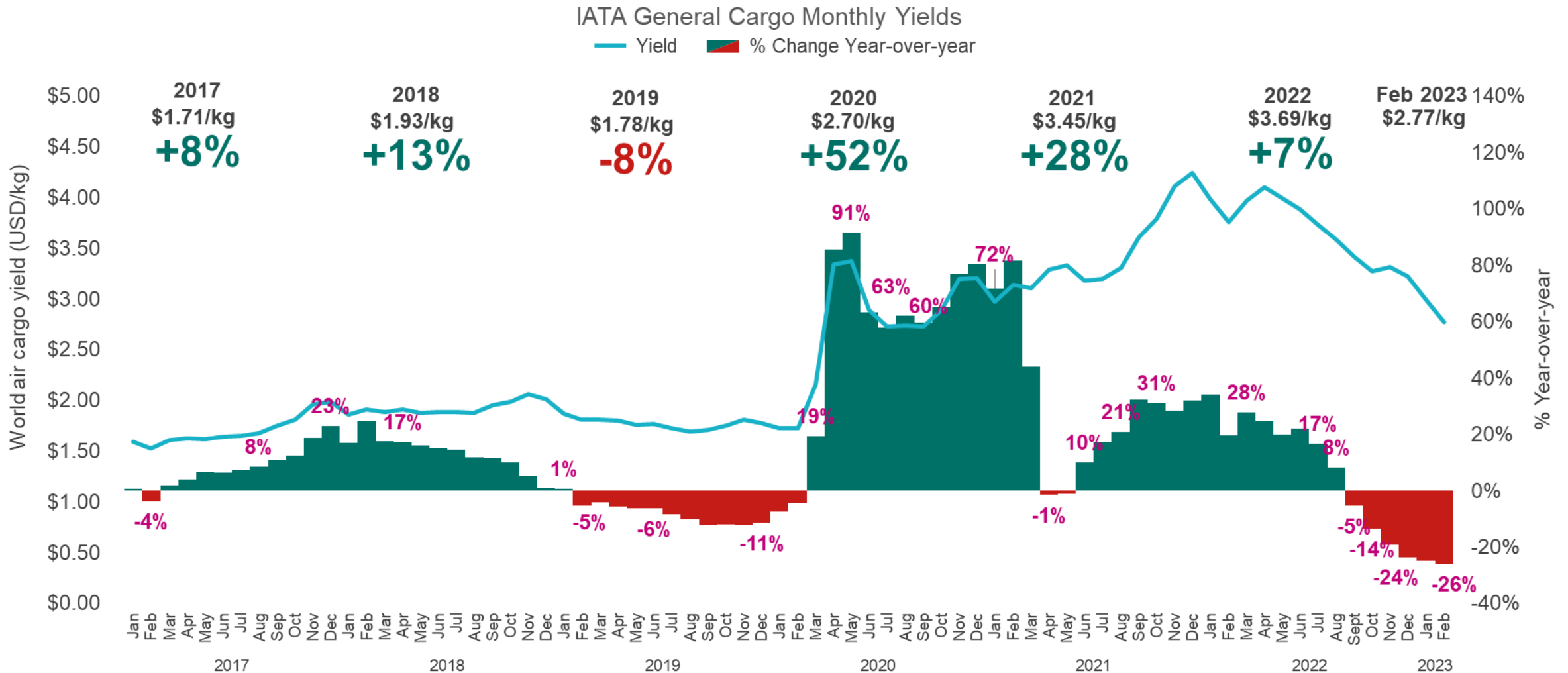
Sources: IATA Monthly Tracker

Industry remains reliant on freighters



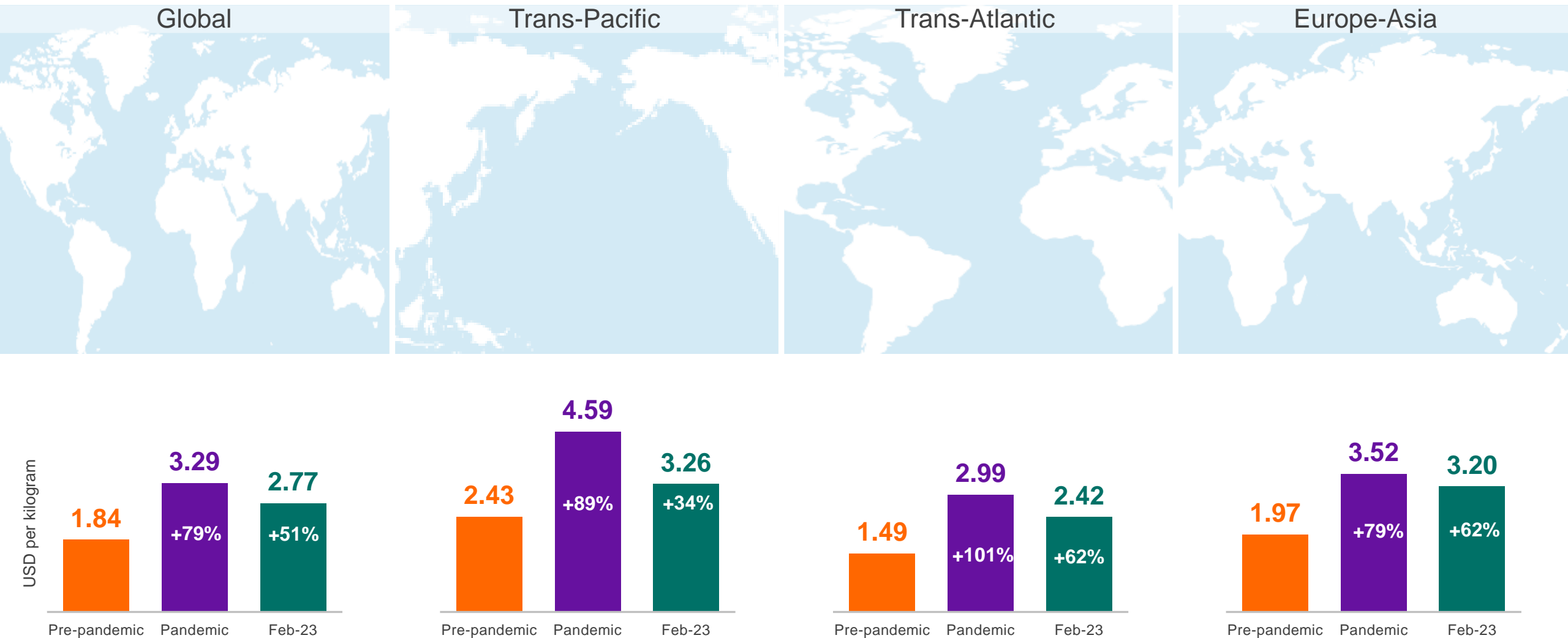
Pre-Pandemic = March 2018 to February 2020 | *Pandemic* = March 2020 to February 2022

World air cargo yields continue to be above historic levels



SOURCE: IATA CargoIS

Global cargo yields remain above pre-pandemic levels

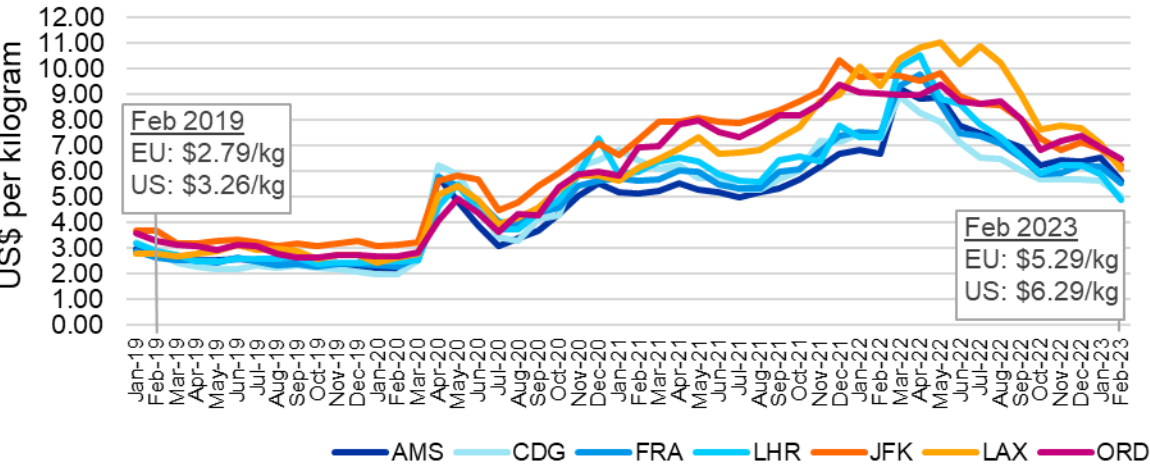


Pre-Pandemic = March 2018 to February 2020 | *Pandemic* = March 2020 to February 2022
SOURCE: IATA CargoIS | Rates reflect "all-in" cargo costs including surcharges

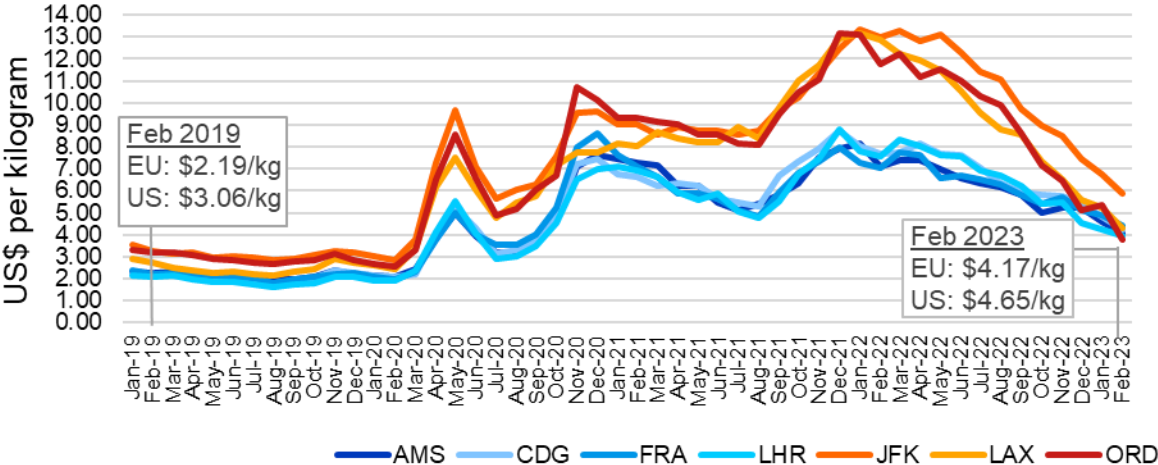
Asia air cargo rates to Europe and the US increased by 66% for February 2023 versus February 2019

Source: IATA CargoIS

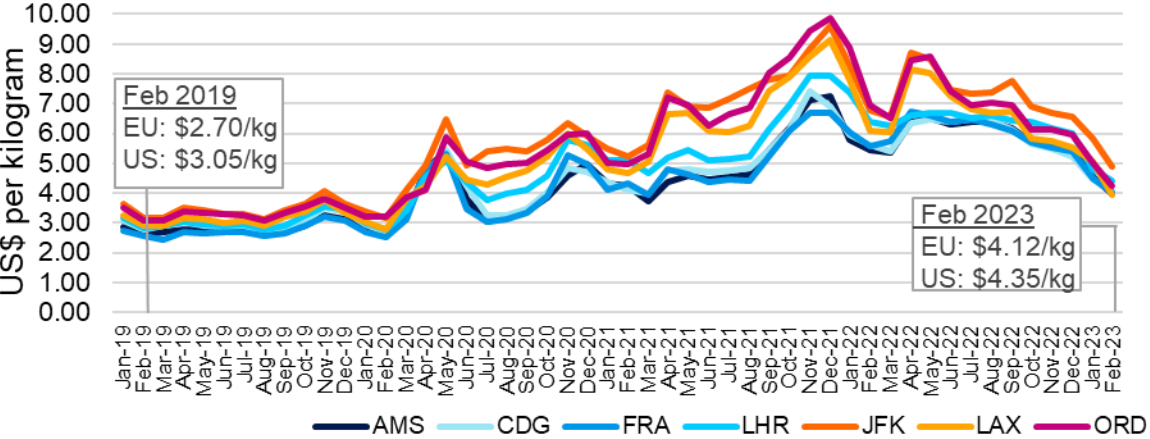
NRT-to-EU/US rates increased 91% for Feb 2023 vs Feb 2019



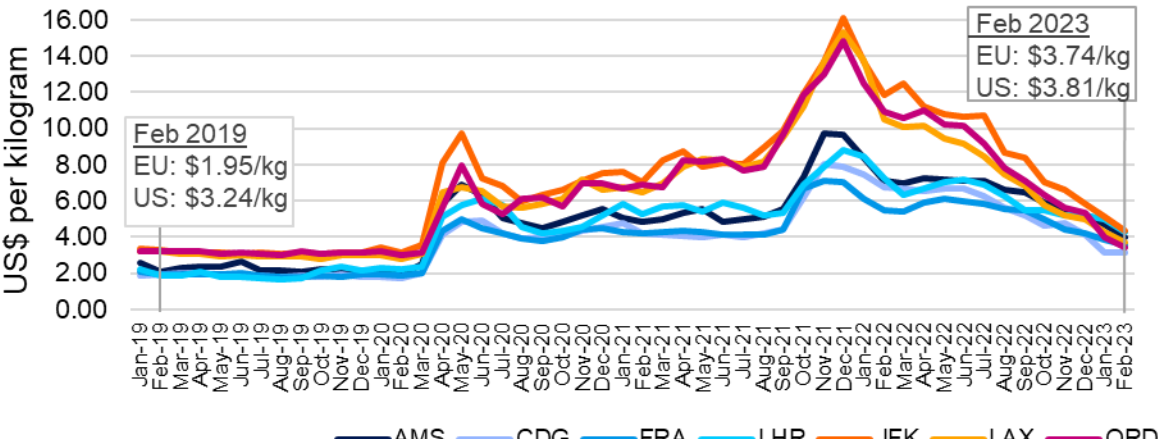
ICN-to-EU/US rates increased 71% for Feb 2023 vs Feb 2019



HKG-to-EU/US rates increased 48% for Feb 2023 vs Feb 2019

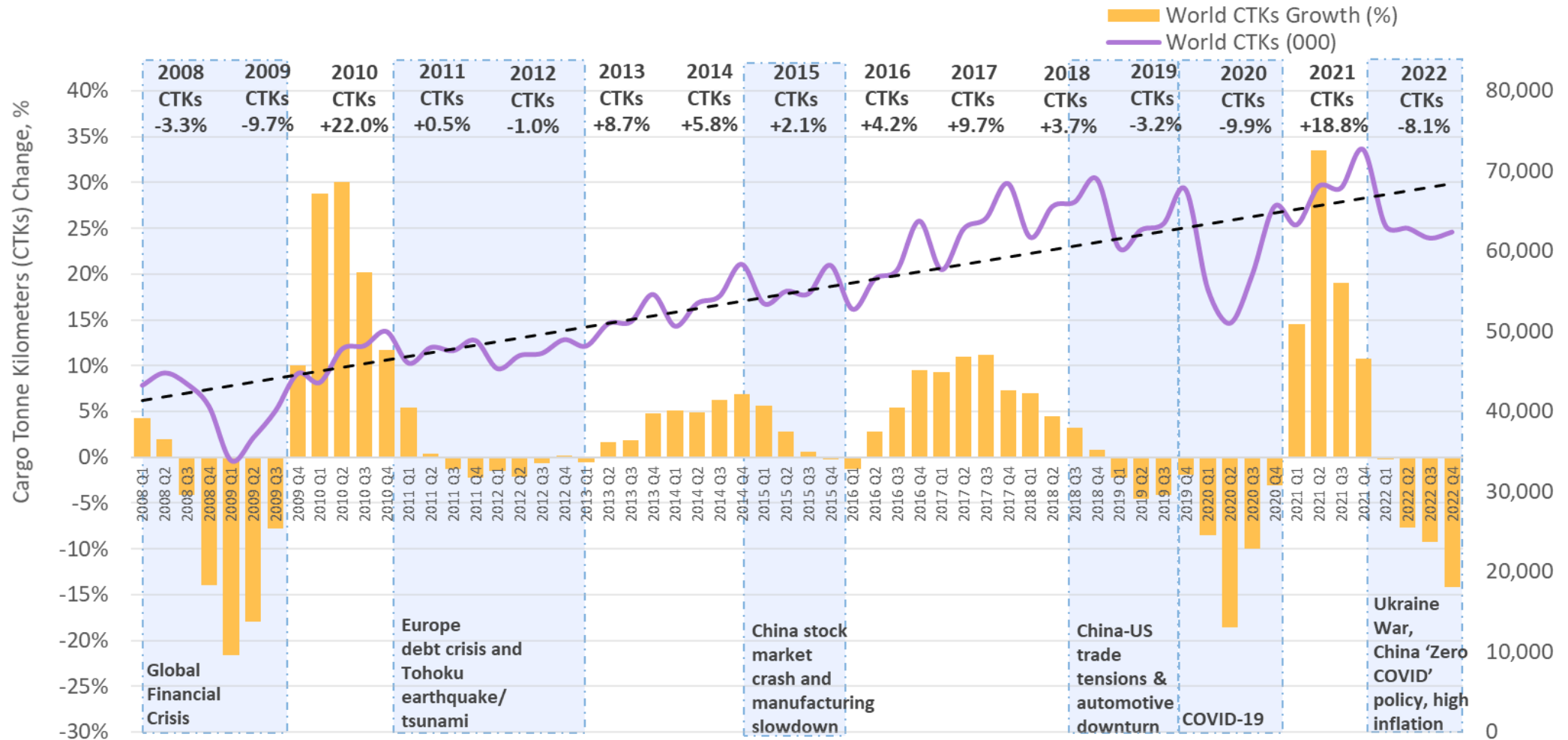


SIN-to-EU/US rates increased 51% for Feb 2023 vs Feb 2019



World air cargo market is resilient

World air cargo market grew 1.1% in 2022 versus 2019



Source: IATA Monthly Tracker

Agenda



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- 'China Plus One' strategy
- World freighter fleet outlook

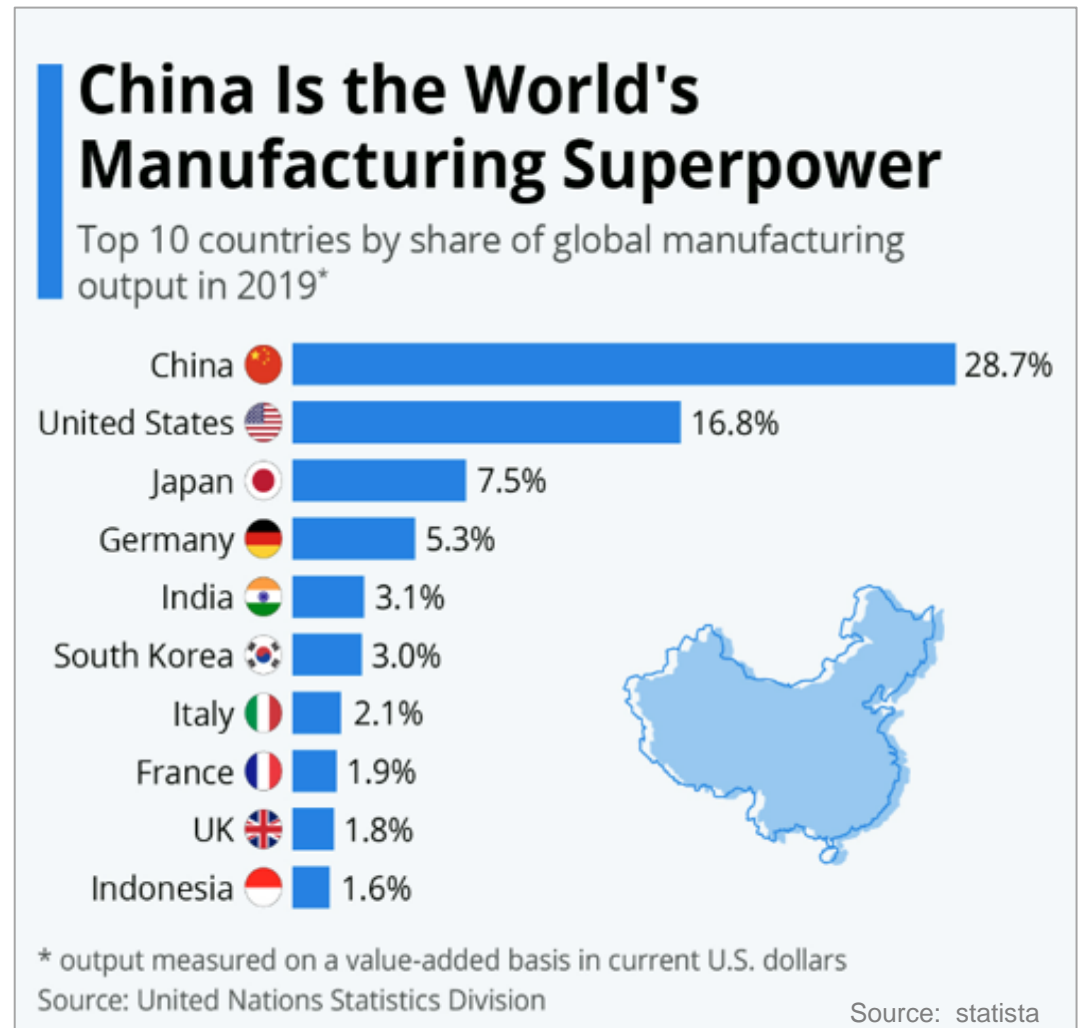
Diversifying supply chain risks through the 'China Plus One' strategy

China is the World's Manufacturing Powerhouse

- China accounts for 28.7% of global manufacturing output in 2019 according to the United Nations Statistics Division.
- China's manufacturing sector is at nearly US\$4 trillion in 2019, accounting for about 30% of China's total economic output.
- Manufacturing in China was attractive due to
 - Low labor cost
 - Technically skilled workforce
 - Excellent infrastructure (i.e., ports, railways, air, and trucks)
 - Strong government support

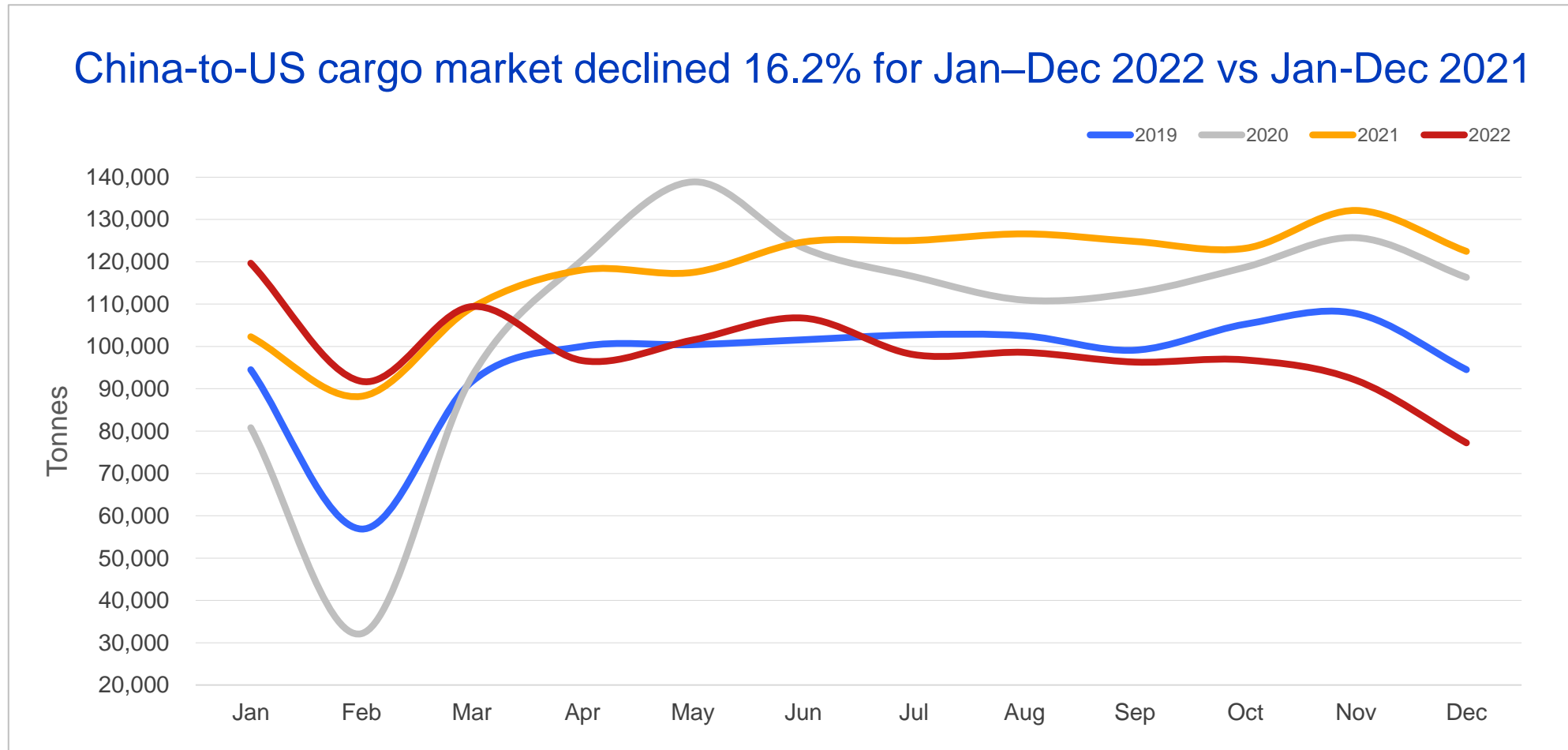
Why 'China Plus One' strategy?

- However, the situation has changed over time due to increasing labor costs.
- Additionally, the China-US trade tension and resulting tariffs led manufacturing firms to diversify its manufacturing outside of China.
- China's "Zero COVID" policy impacted production and further accelerated manufacturers to seek an alternative to the current 'factory of the world'.



Impact of China 'zero COVID' policy: Asia-to-US market declined 10.2% for Jan-Dec 2022 vs Jan-Dec 2021

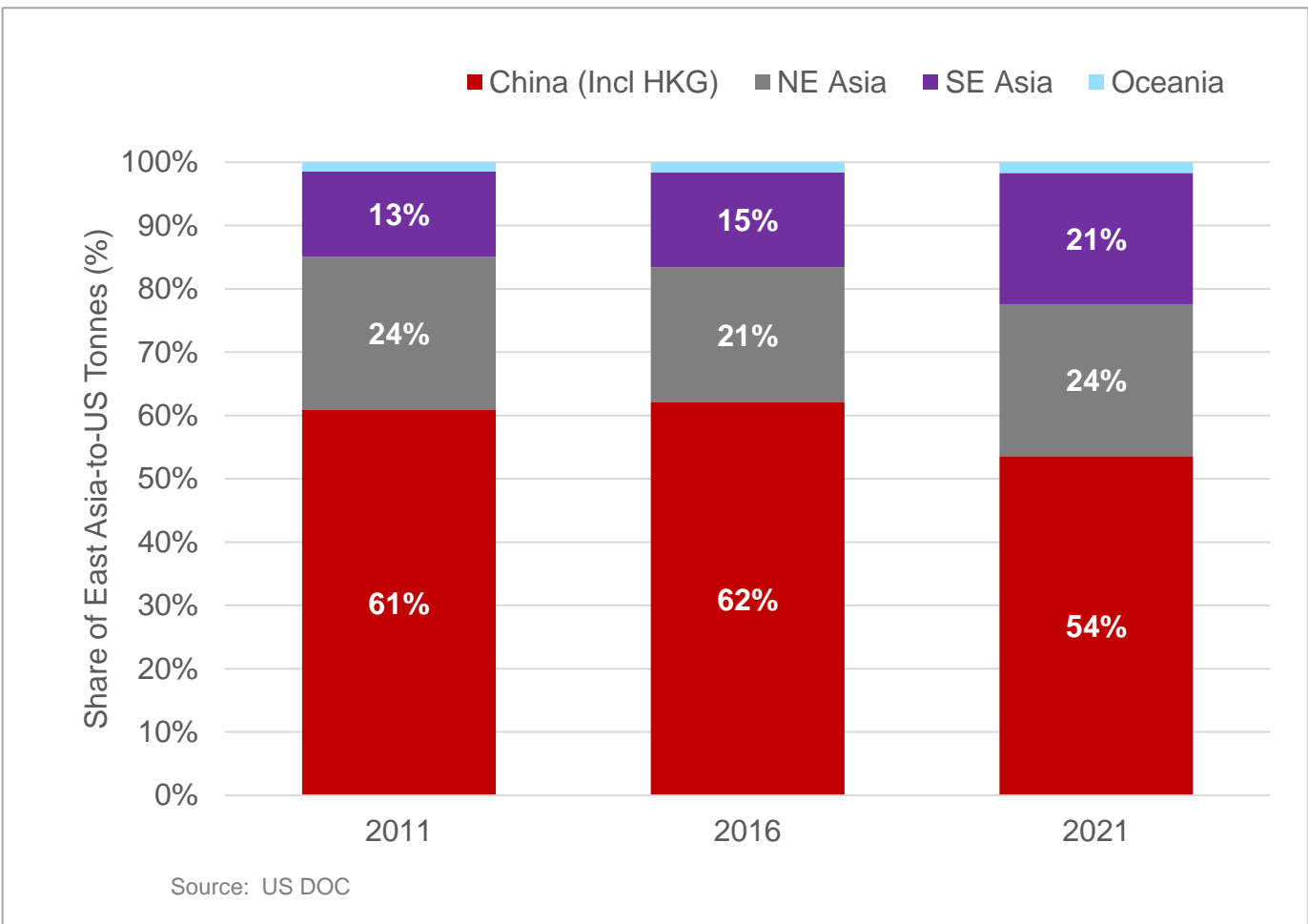
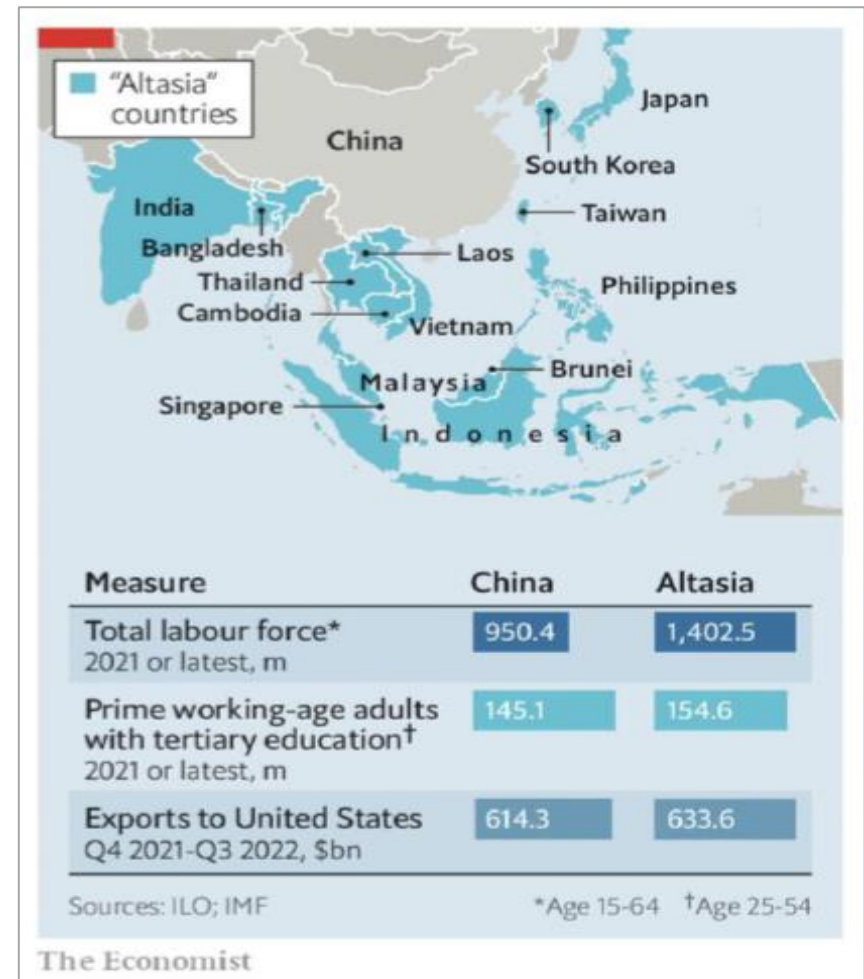
China accounts for 57% of Asia exports to US in 2019



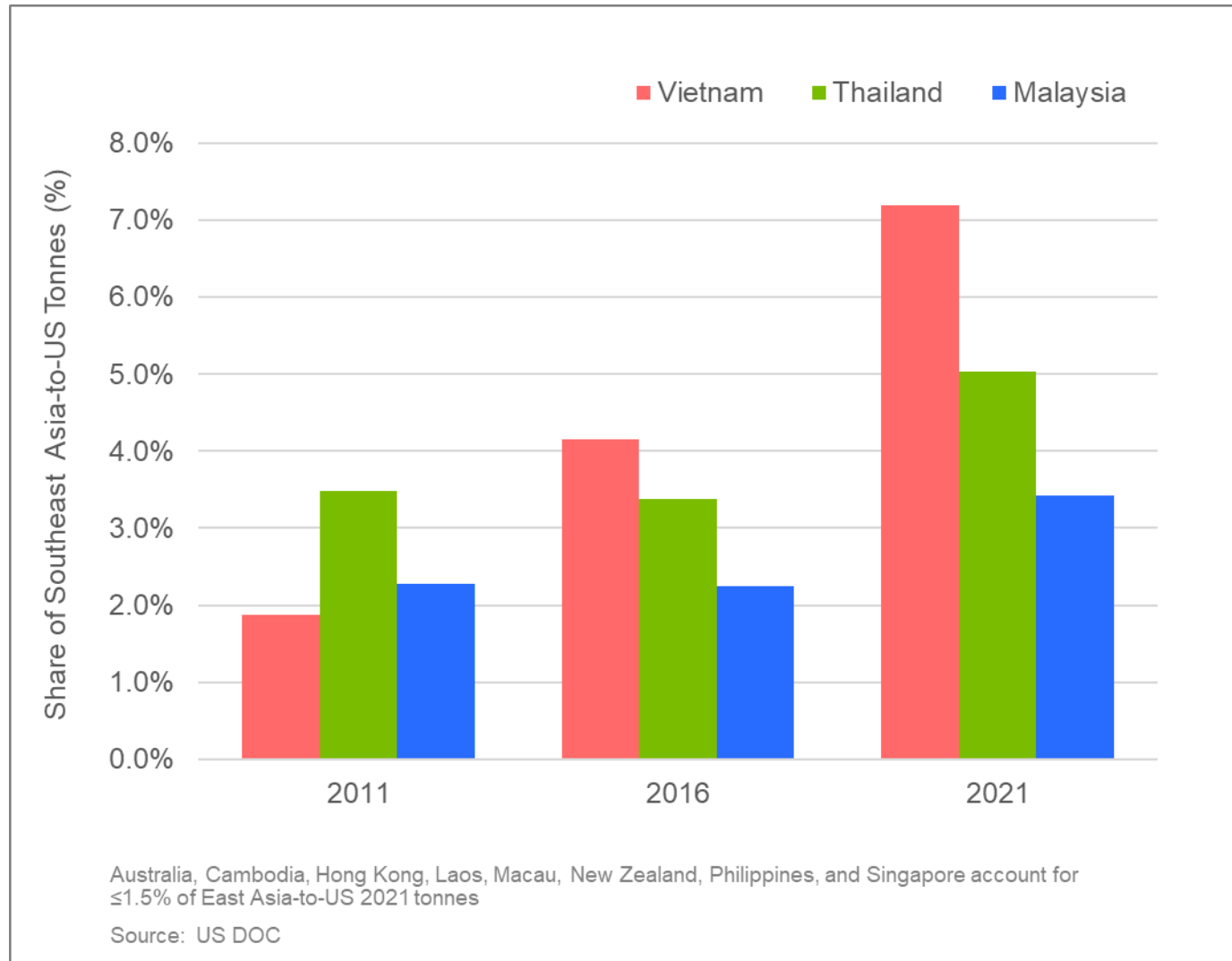
Source: US Census Bureau (FT920 US Merchandise Trade)

An emerging development among Asia's economies offers an opportunity to compete with China's manufacturing base

Regional Comprehensive Economic Partnership (RCEP) is a free trade agreements among Australia, Brunei, Cambodia, China, Indonesia, Japan, South Korea, Laos, Malaysia, Myanmar, New Zealand, the Philippines, Singapore, Thailand, and Vietnam



Southeast Asia countries benefiting from 'China Plus One' strategy



From Made in China to Made in Southeast Asia — Why Are Companies Moving?



Giovanni Pino
Oct 23, 2018 | 4 min read



soa source of asia

Market

HERE TO GET YOU THERE

INSIGHTS - 29.07.2022

Vietnam: a promising option in light of the "China plus one" Strategy

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"Malaysia an attractive alternative for China plus one strategy" Container xChange analysis

August 18, 2022 in

China Plus One Series: Investment Opportunities in Thailand

April 7, 2020 | Posted by China Briefing | Written by Dorcas Wong | Reading Time: 7 minutes

Global brands are moving manufacturing to Southeast Asia

Moving Manufacturing from China to Southeast Asia: An Introduction

July 18, 2022



Foreign companies have used low-cost country sourcing strategies for decades with a strong focus on China. In the past years, we've seen a new trend where increasingly more companies look for alternative sourcing markets in Asia.

In this article, we explore why this move is happening, specific brands that already moved parts of their production to Southeast Asia, what should you pay attention to if you are a manufacturer, and which countries are on the rise as alternatives to China.



Nike

In 2021, [51% of Nike's shoes were made in Vietnam](#) while only 21% were made in China.



Adidas

About 25% of manufacturers for Adidas in China were shut down as foreign businesses stopped their partnerships with Chinese factories. [Opportunities, therefore, open for counterparts in Vietnam, Thailand, Bangladesh, and Indonesia due to low-cost benefits.](#)



Apple

It [plans to have 30% of its classic Air Pods produced in Vietnam instead of China](#). Apple had planned to move more production to Vietnam in 2021, but the plan was postponed due to the pandemic, but the plan was resumed in 2022.



Samsung Electronics

Samsung stopped its smartphone manufacturing in China in 2019, and its TV and PC factory in 2020. Its global production is now based in Vietnam. [The revenue of Samsung Vietnam is equivalent to roughly 20%–25% of Vietnam's total GDP in 2021](#)



HP

HP, Dell, and other tech firms planned to reallocate up to 30% of their notebook production out of China. [HP has reportedly planned to shift 20%-30% of its Chinese production to Taiwan and Thailand](#) to mitigate the risks of rising costs and disruptions, the US tariffs on tech products also reduced profits.

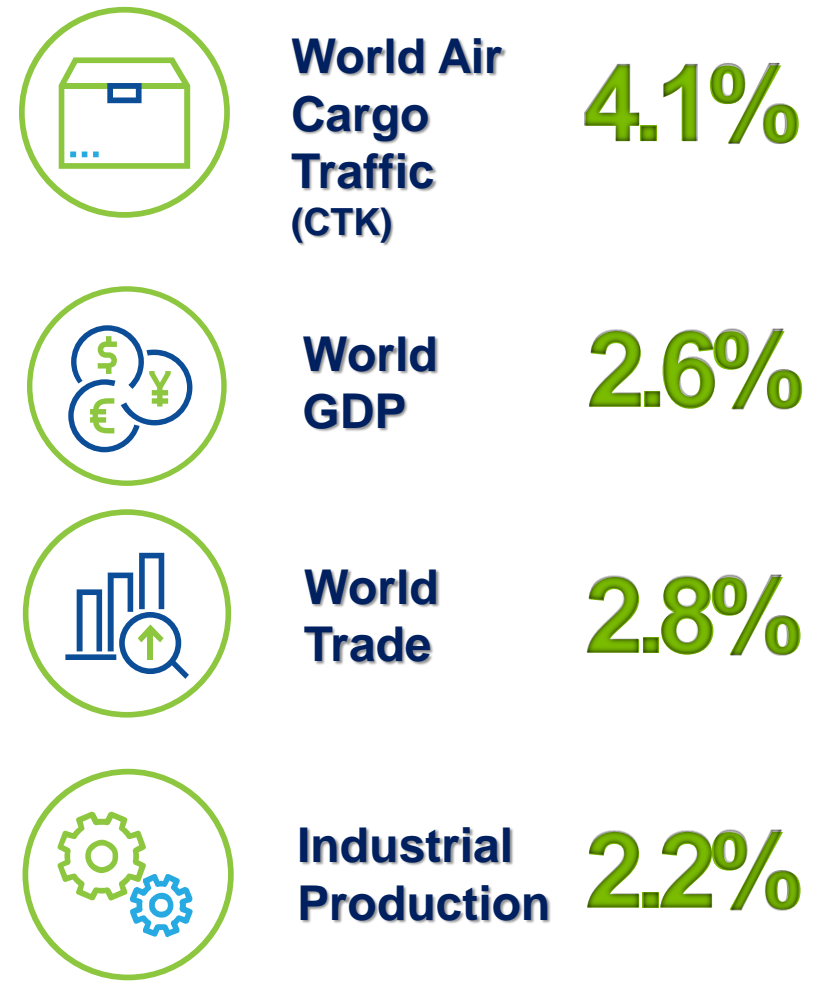
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- Current state of the world air cargo market
- 'China Plus One' strategy
- **World freighter fleet outlook**

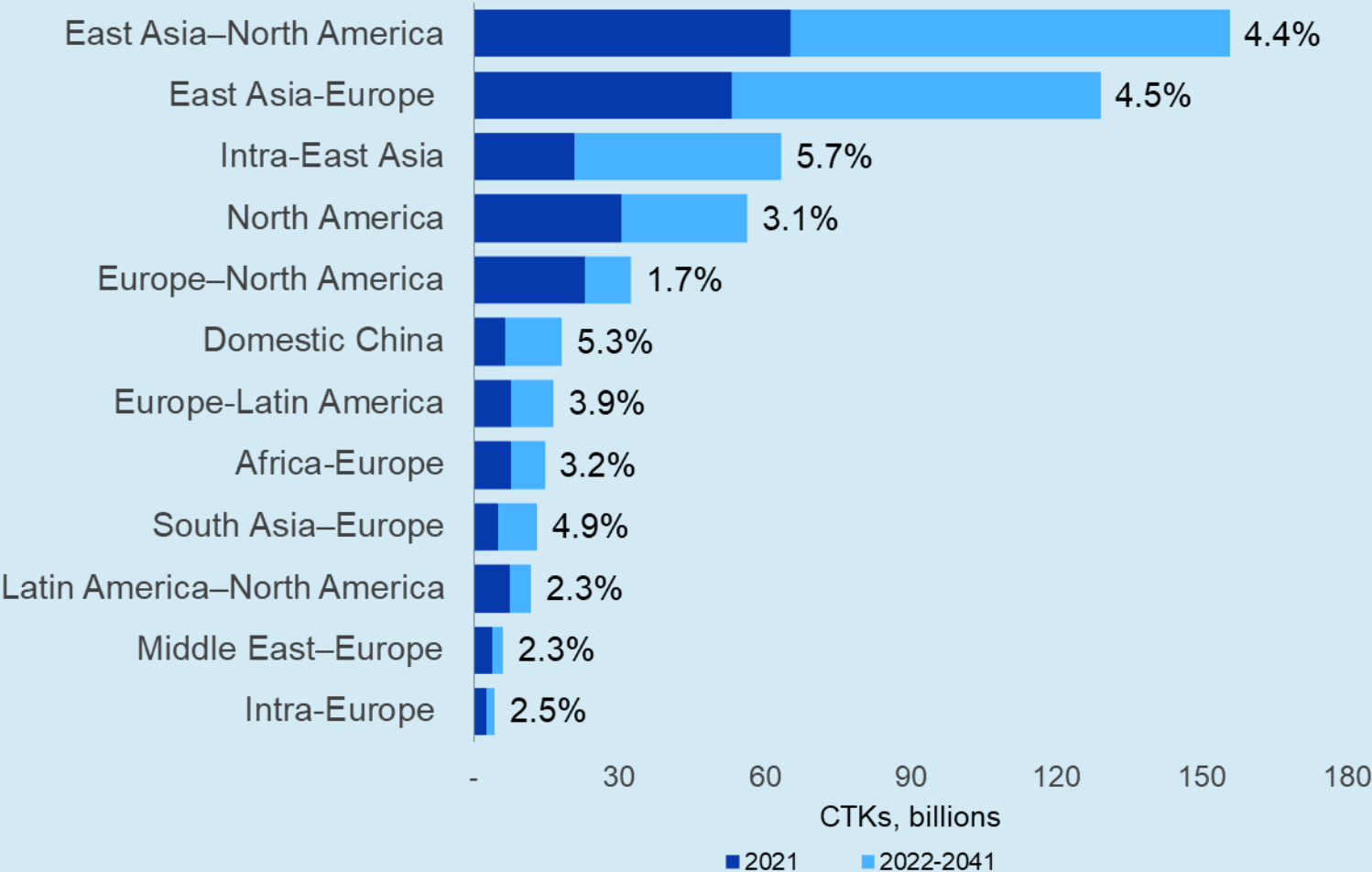
Long-term fundamentals remain intact

Forecast period 2022-2041

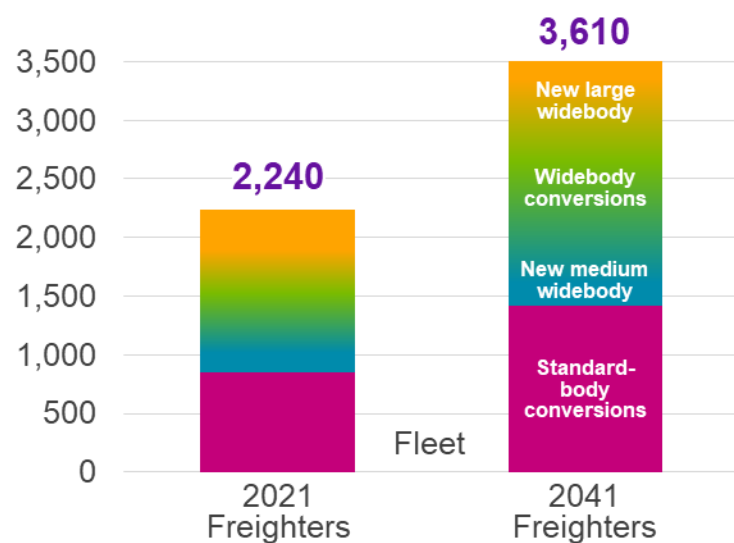


Cargo Tonne-Kilometer (CTK)

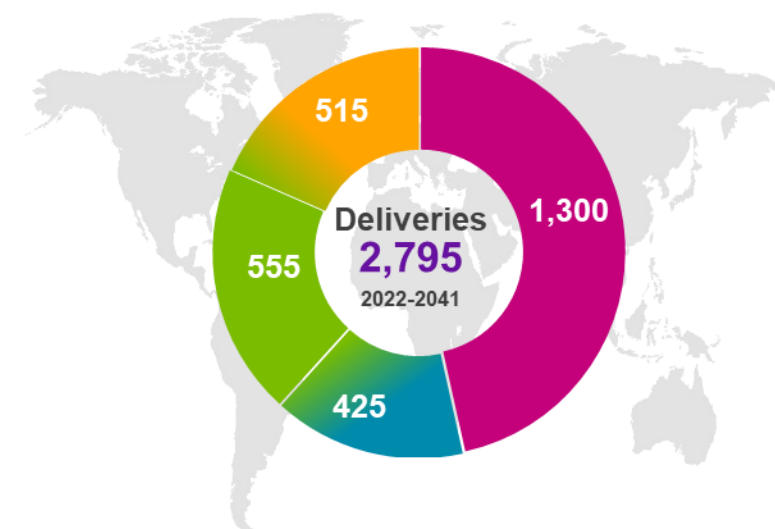
East Asia Markets will Continue to Lead Industry Growth



World freighter fleet to add 2,795 freighters to meet market demand



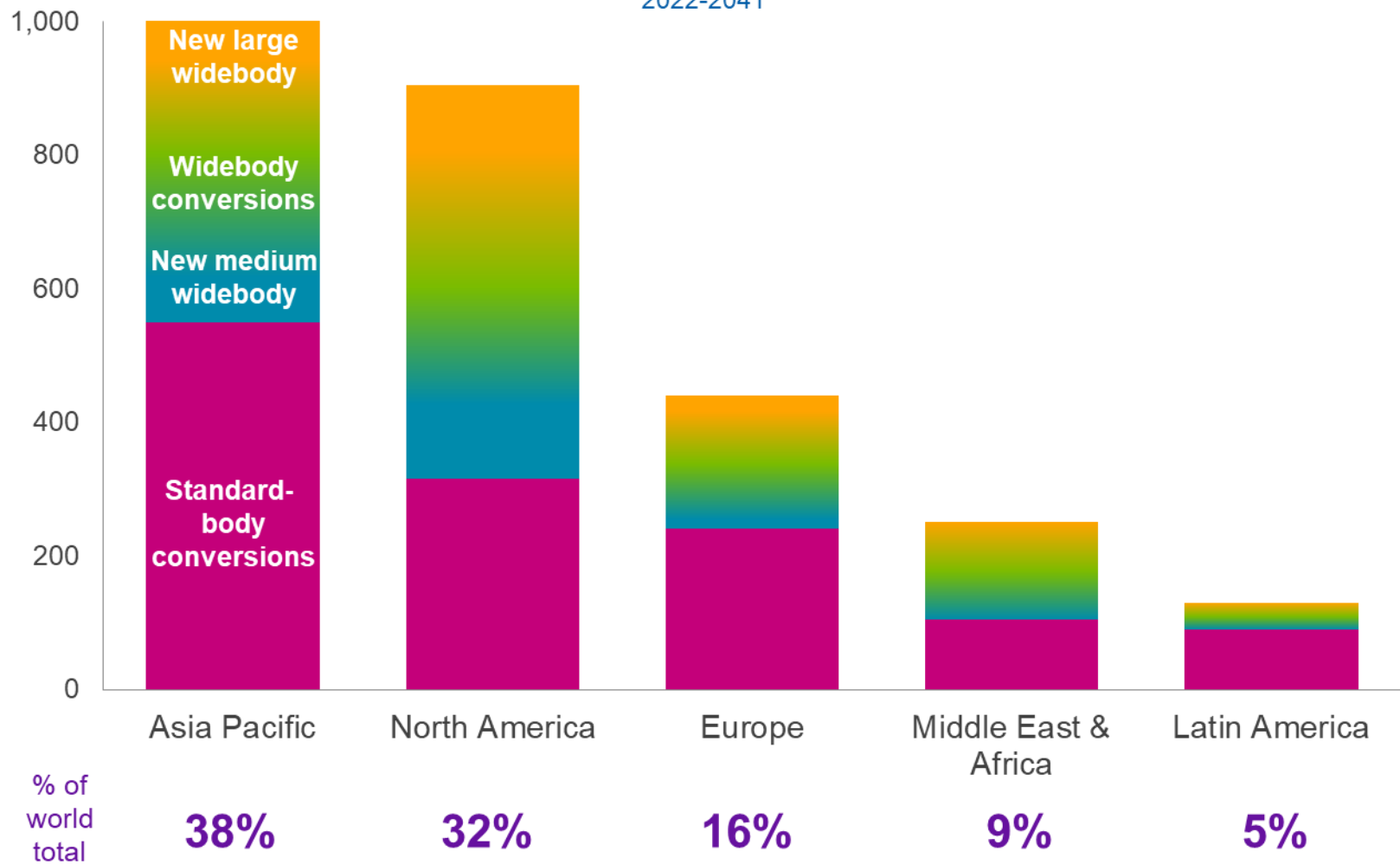
- New large >80 tonnes (777, 777-8, etc.)
- Widebody conversions 40-120 tonnes (767, 777, 747, A330, etc.)
- New medium widebody 40-80 tonnes (767, A330, etc.)
- Standard-body conversions <45 tonnes (737, 757, A320, A321, etc.)



Note: Russia & Central Asia domicile omitted for forecast period 2022-2041

Asia Pacific region to lead freighter deliveries

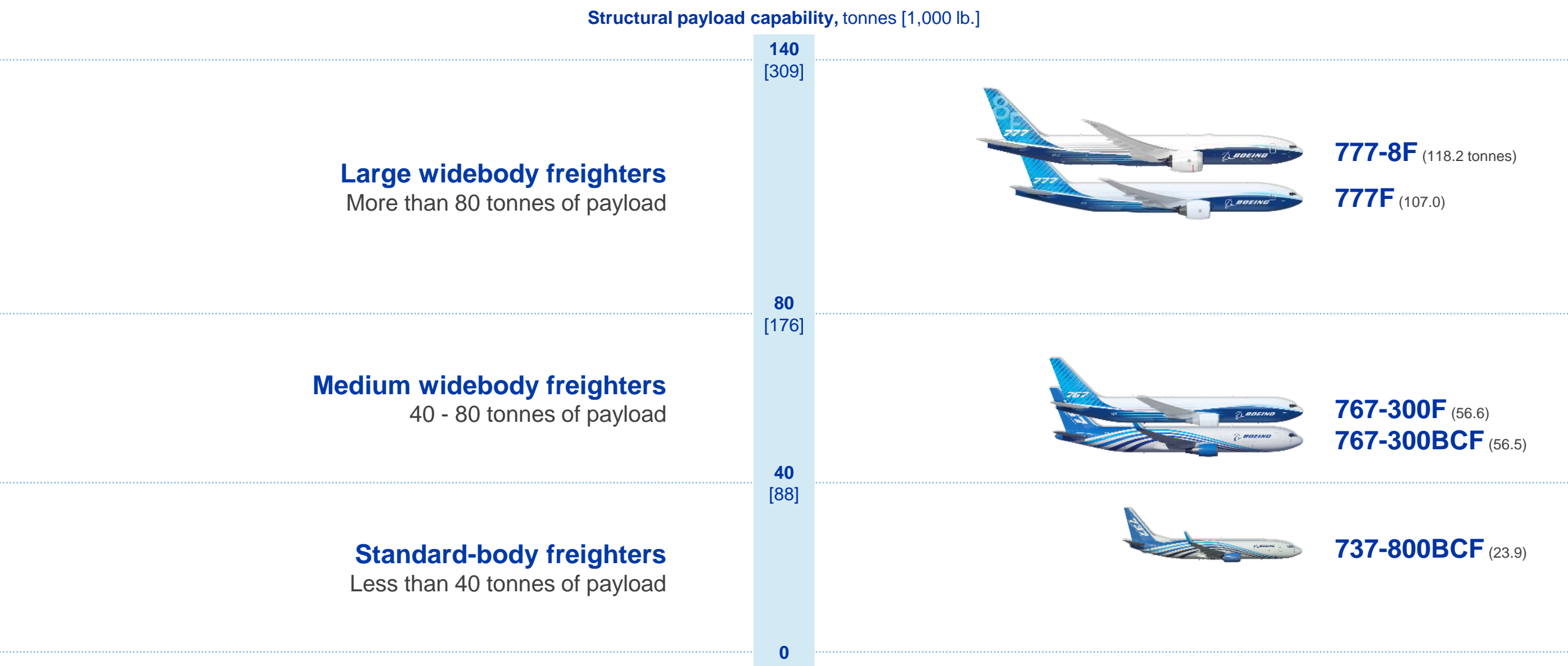
New and converted airplanes
2022-2041



Note: Russia & Central Asia domicile omitted for forecast period 2022-2041



Boeing offers a complete family of freighters



737-800BCF and 767-300BCF shown with optional winglets

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

250+ orders and commitments, 115+ redeliveries













As of February 28, 2023

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767 Freighters are the preferred freighters in many markets

390+ orders and commitments

767-300F 280 orders and 225 deliveries

767-300BCF 110+ orders and 60+ redeliveries



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



777F Customer	Ordered	Delivered
A/S Maersk Aviation Holding	2	0
Air Canada	2	0
Air China Cargo	13	9
Air France	5	5
Altavair LLC	3	3
ANA Cargo	2	2
Atlas Air Worldwide	4	1
Boeing Capital Corp	2	2
CES Leasing Corporation	7	7
China Airlines	10	5
China Cargo	2	2
China Southern Air	15	15
CMA CGM	2	2
DAE 4 Ireland Limited	1	1
Deucalion Capital Ltd	8	8
DHL	28	18
Dubai Aerospace Enterprise	13	13
Emirates	7	2

777F Customer	Ordered	Delivered
Ethiopian Airlines	13	8
Etihad Airways	6	6
EVA Air	9	8
FedEx	52	46
Hong Kong Aviation	6	0
Korean Air	10	10
LATAM Airlines Brasil	1	0
LATAM Airlines Group	2	2
Lufthansa Cargo	12	10
NAS Aviation Services LLC	10	10
Oak Hill	4	4
Qatar Airways	28	26
Silk Way West Airlines	5	0
Turkish Airlines	8	8
Volga-Dnepr UK Ltd	6	0
Western Global Airlines	2	0
Unidentified	19	6
Total	319	239

Orders / Deliveries as of February 28, 2023



UNIDENTIFIED



777-8F operator base continues to expand



LUFTHANSA GROUP

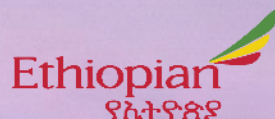
ANA Cargo

2027 EIS

118t Structural payload



silkway
west airlines



More volume
More payload
Lowest cost per tonne

84 orders and commitments



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

