

# Welcome to the



Wednesday 22<sup>nd</sup> June

Villa Marina, Douglas

Organised by



MARTYN FIDDLER AVIATION

Supported by





# Welcome to the 2022 Isle of Man Aviation Conference

Registration and Coffee 08:30 – 09:00

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**GLOBALJET**  
CAPITAL



# Welcome to conference delegates

Graham Williamson (Conference chair)

Organised by



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# Global Aviation update

Richard Koe

Managing Director, WINGX

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# STATE OF THE INDUSTRY



**WINGX**

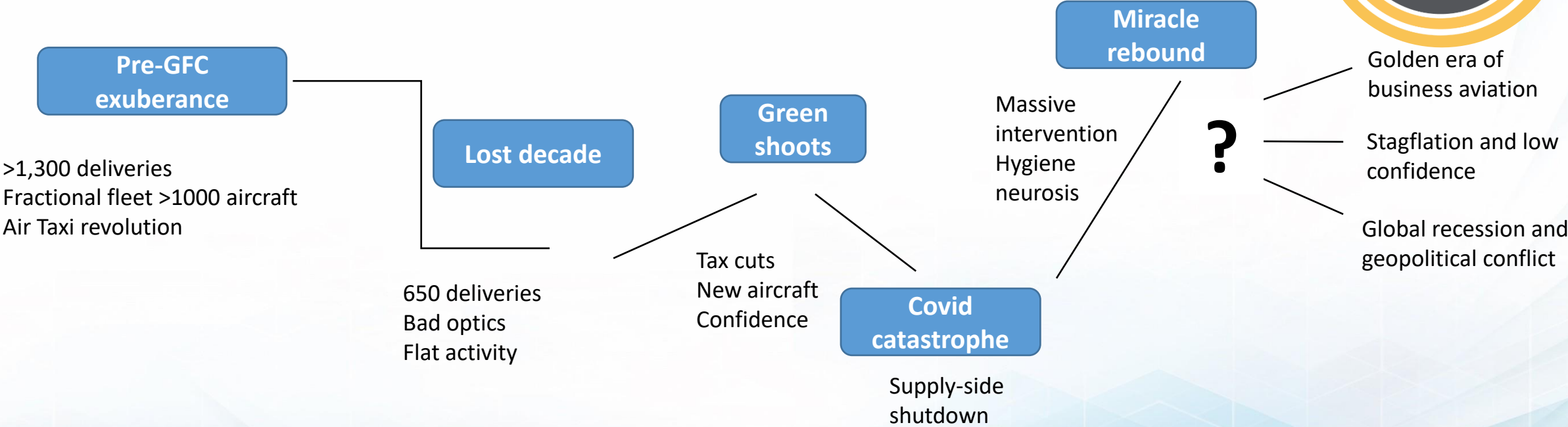
MAKING AEROSPACE INFORMATION INTELLIGENT

Source: WINGX, ATC, ADSB

Got a question? Ask us on Slido! Enter the code **'1881404'** to join.

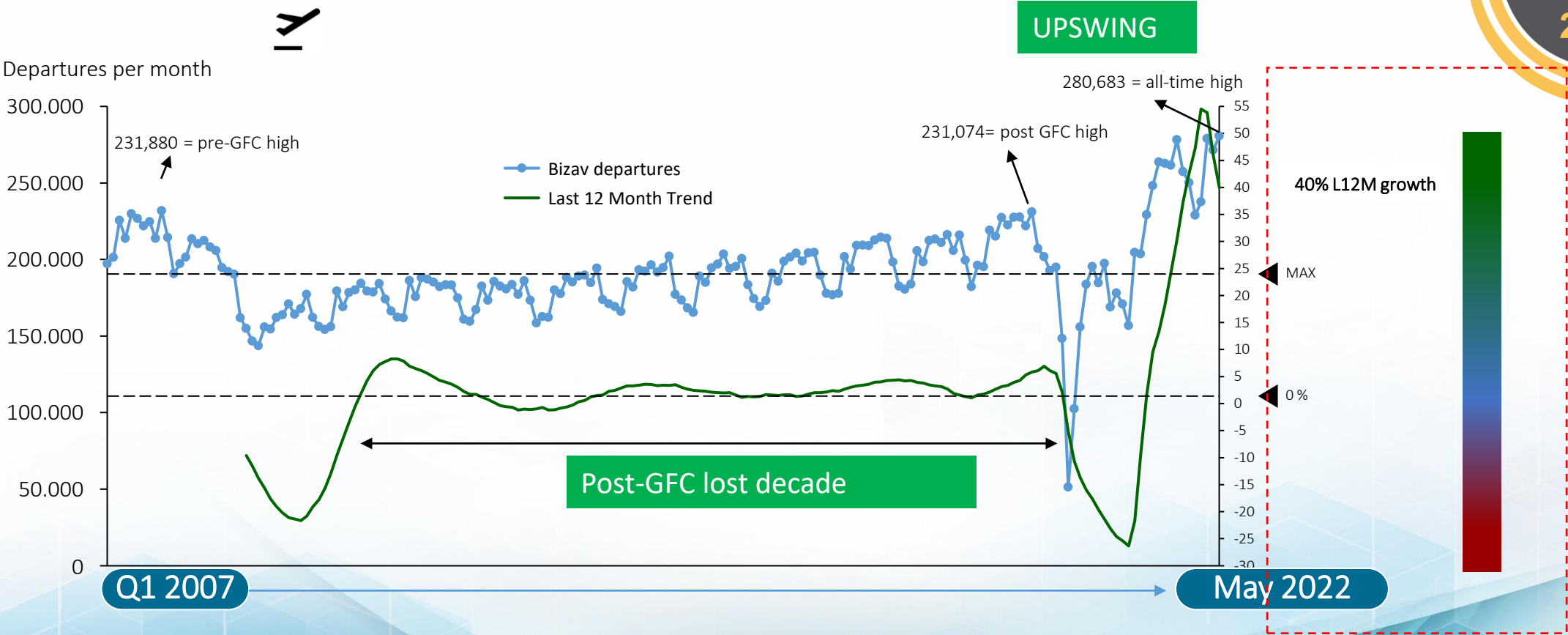
■ [www.sli.do](https://www.sli.do)

# Where are we...a schizophrenic environment...



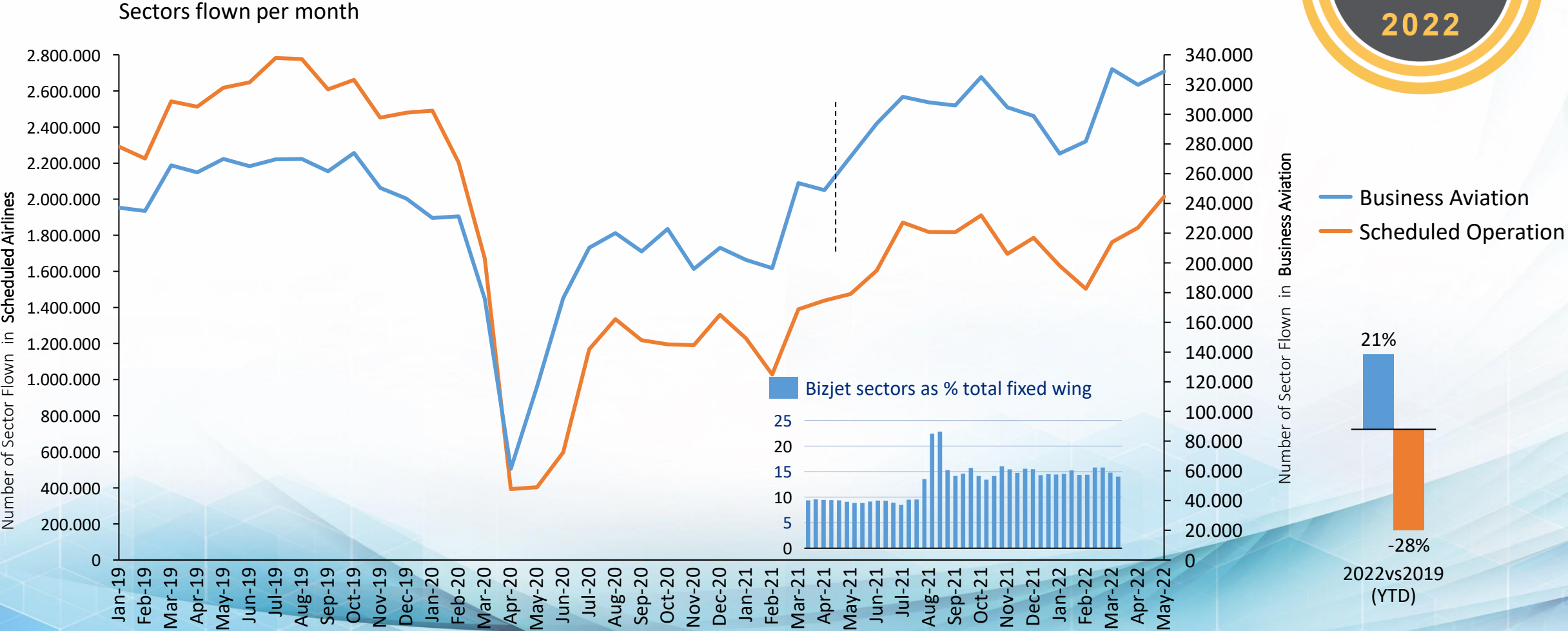
Source: WINGX, ATC, ADSB

# 15 year context: pandemic conditions transformed stagnating utilisation



US and Europe only  
L12M = activity in last 12 months compared to 12 previous months

Big picture: worldwide business jet sectors +21%. Contrast airlines, still 30% behind pre-pandemic



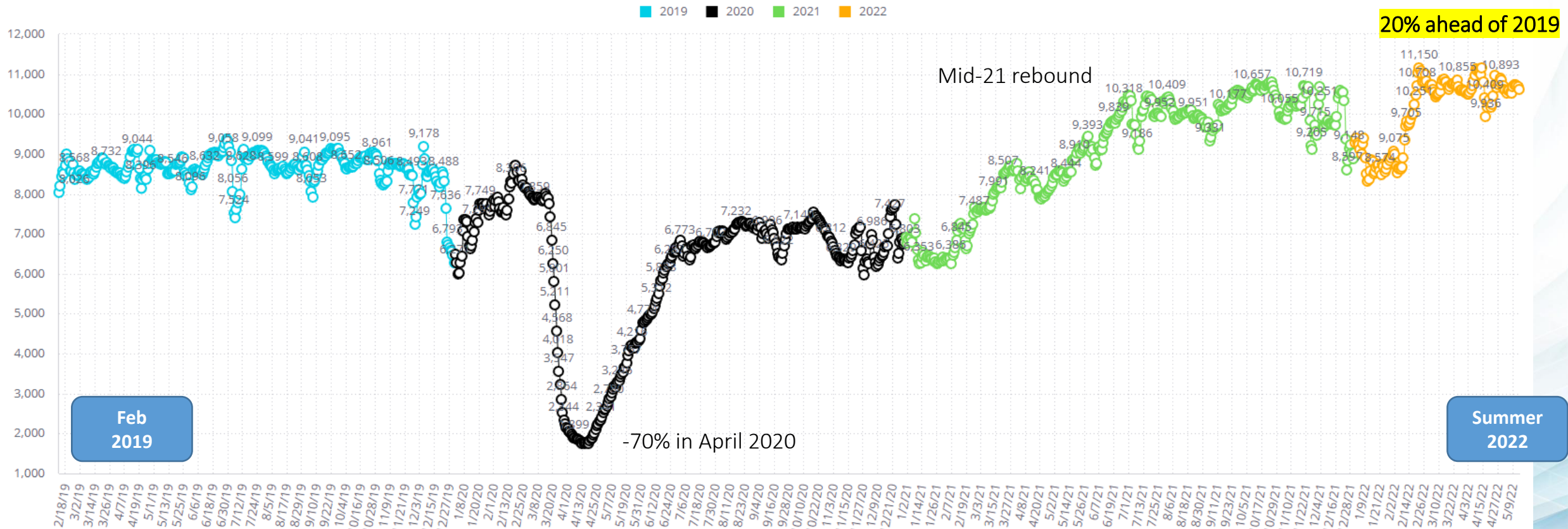
Source: WINGX, ATC, ADSB



# The Rollercoaster, and what's driving it



Rolling 7 day departures, Global, Business Jets only



Repatriation and Medical

Leisure and Lifestyle

Back to Business

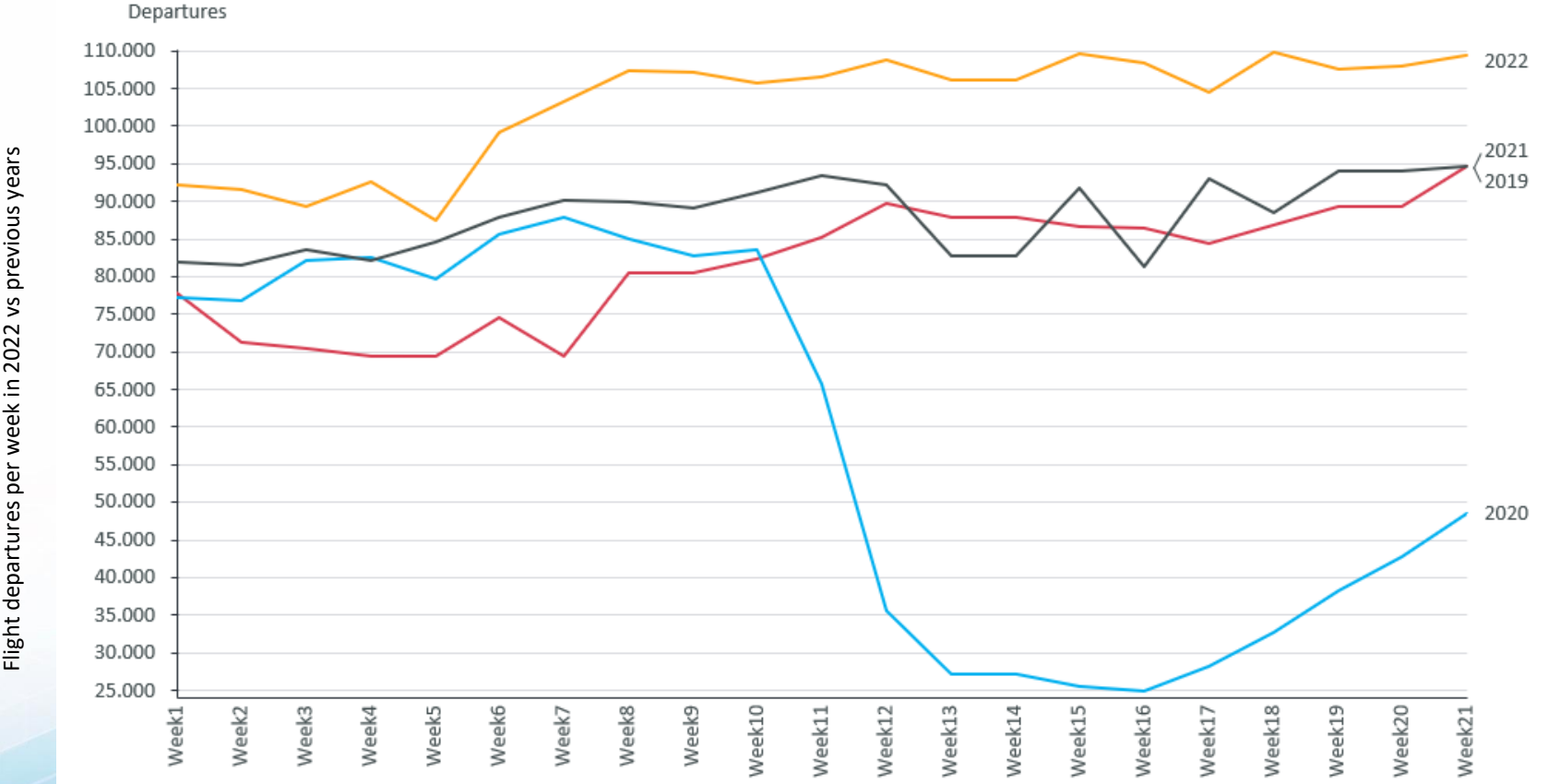
FOMO?

Source: WINGX, ATC, ADSB

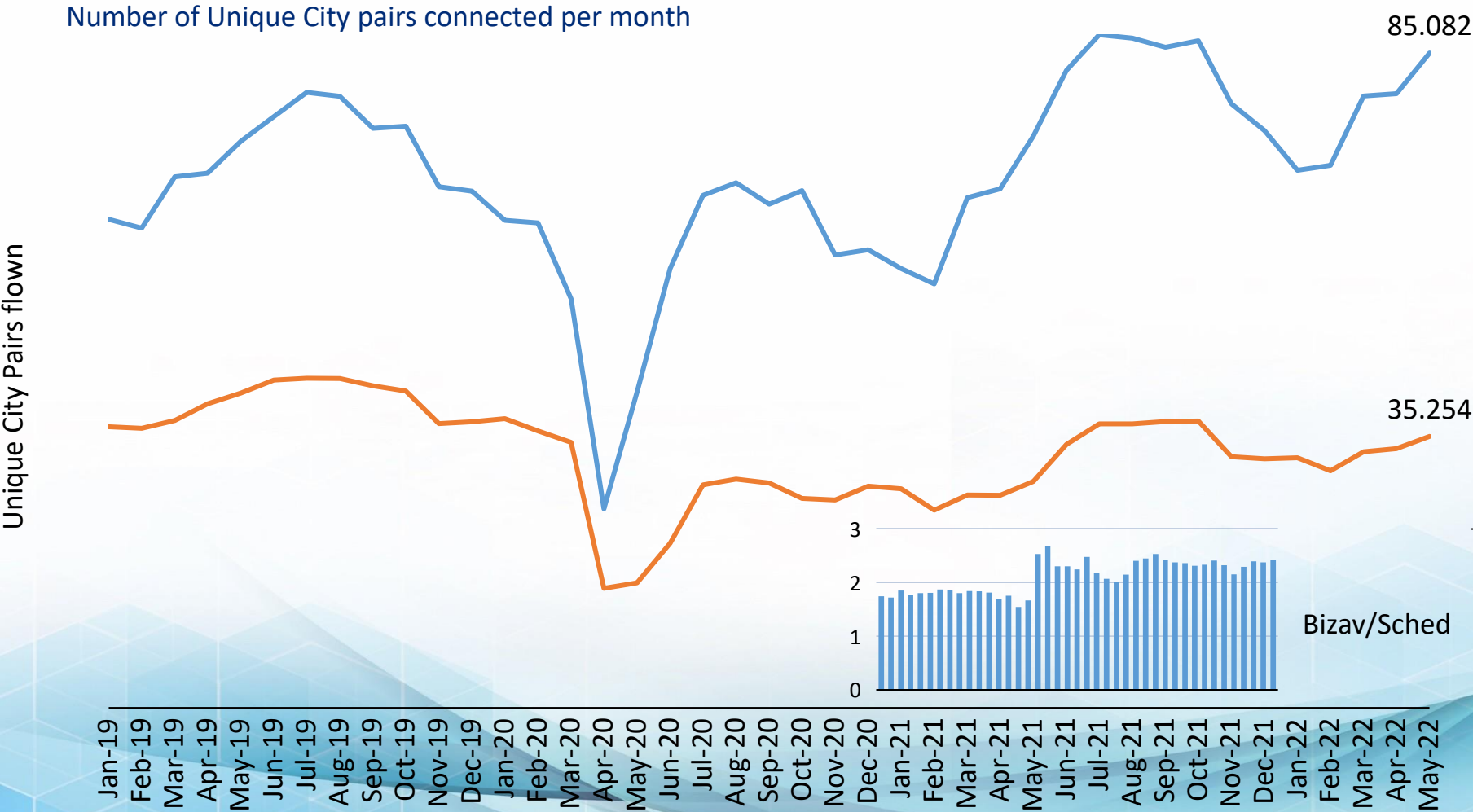
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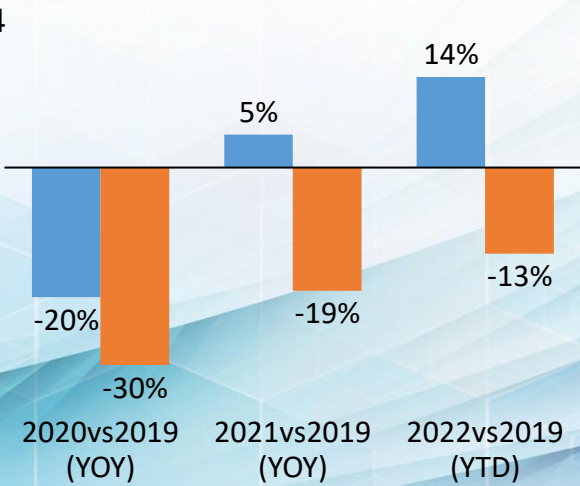
# Looking out for any signs of slowdown?...



# Primary driver: the airlines are still broken

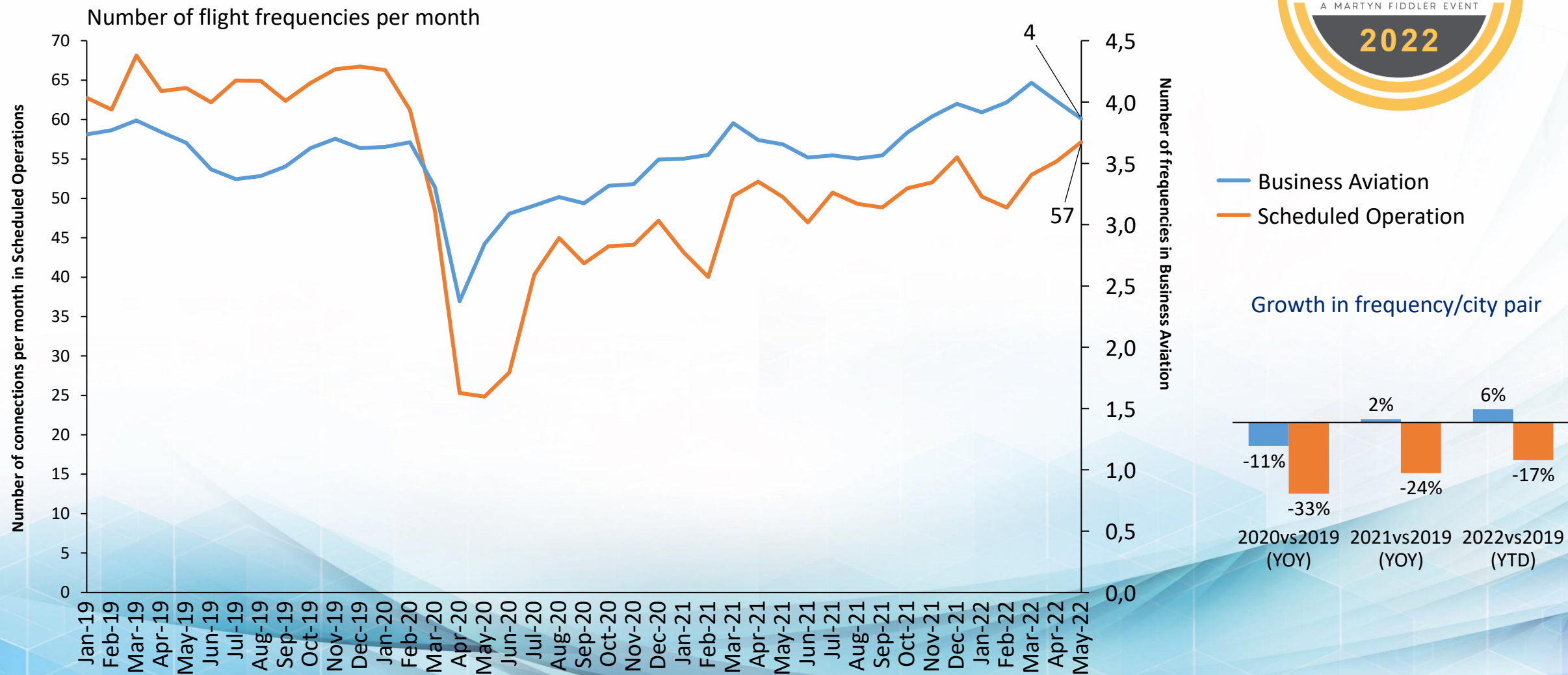


Growth in unique city pairs



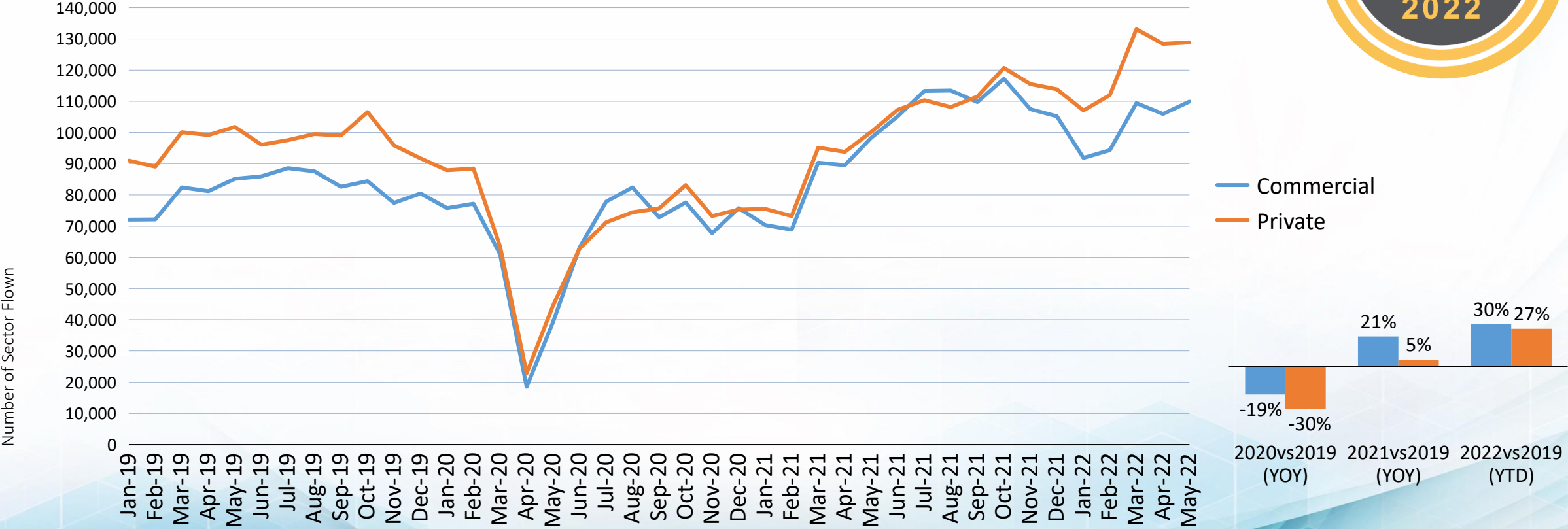


Not just # connections, but frequency on connections





# Private jet owners or charter customers?



\*Commercial = Aircraft Tailsign registered on the Part135/91K/AOC database and/or certified for commercial usage in Europe

Source: WINGX, ATC, ADSB

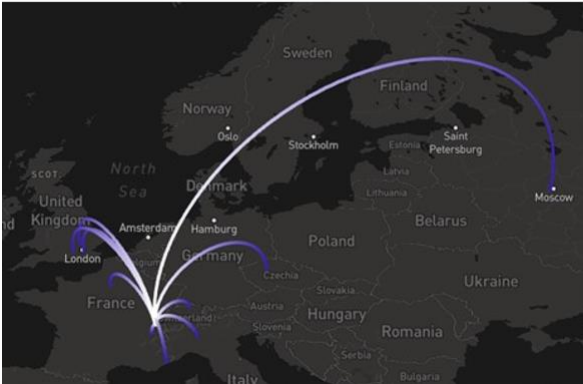
# Geneva example – business aviation largely replaces airlines to Venice, Milan, Rome



Arrival City	Business Aviation		
	Flights	Flights: Growth vs 3 yrs ago	Operated Airport Pairs
London (GB)	775	20.3%	9
Paris (FR)	649	17.4%	7
Nice	229	4.1%	1
Zurich	205	34.0%	2
Milan (IT)	123	-21.2%	3
Moscow (RU)	120	-21.6%	3
Madrid (ES)	85	77.1%	3
Chambéry/Aix-les-Bains	77	40.0%	1
Brussels (BE)	74	12.1%	2
Venice (IT)	68	78.9%	2
Barcelona (ES)	66	50.0%	1
Athens (GR)	65	97.0%	1
Amsterdam (NL)	62	72.2%	2
Dubai	62	121.4%	3
Cannes/Mandelieu	62	-10.1%	1
Rome (IT)	61	69.4%	2
Lisbon (PT)	60	93.5%	2
Málaga (ES)	60	130.8%	1
Slon	59	15.7%	1
Mallorca	58	141.7%	1
Grand Total	5,892	17.2%	515

Scheduled Operation		
Flights	Flights: Growth vs 3 yrs ago	Operated Airport Pairs
3,323	-34.8%	5
1,266	-22.9%	3
488	2.7%	1
611	-45.8%	1
2	-99.1%	1
84	-79.2%	2
693	-11.4%	1
		0
719	-32.0%	2
	-100.0%	0
529	-33.9%	1
231	-13.5%	1
960	-14.7%	1
142	-39.6%	1
		0
171	-70.6%	1
744	-10.3%	1
163	-6.3%	1
		0
129	-15.7%	1
20,299	-28.3%	136

Top 10 Outbound Fractional & Branded Charter airports



Top 10 Outbound Scheduled Airline airports

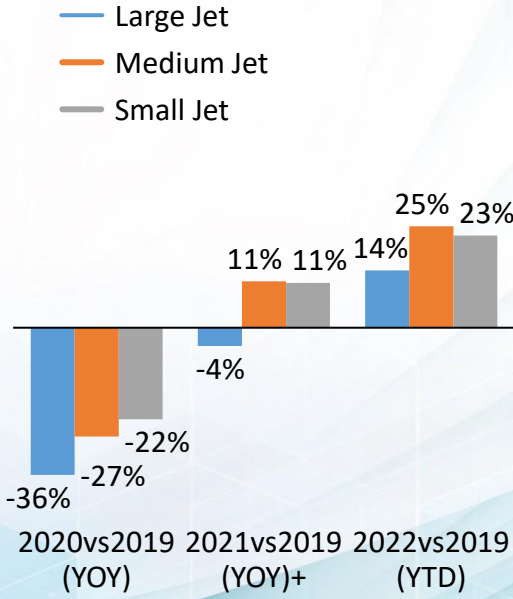
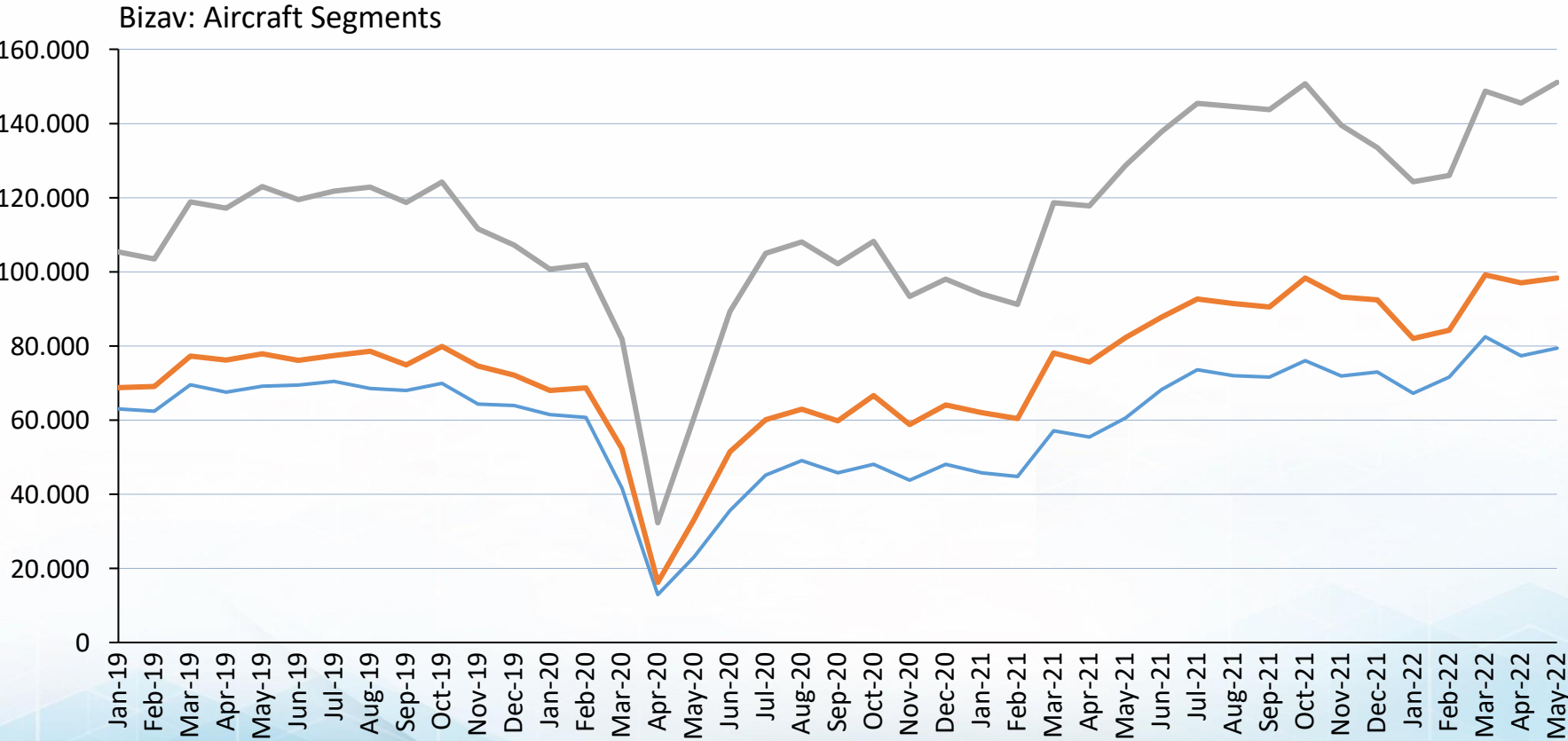


17%

-28%

Business jets and props  
For Jan-May 2022 vs same 2019

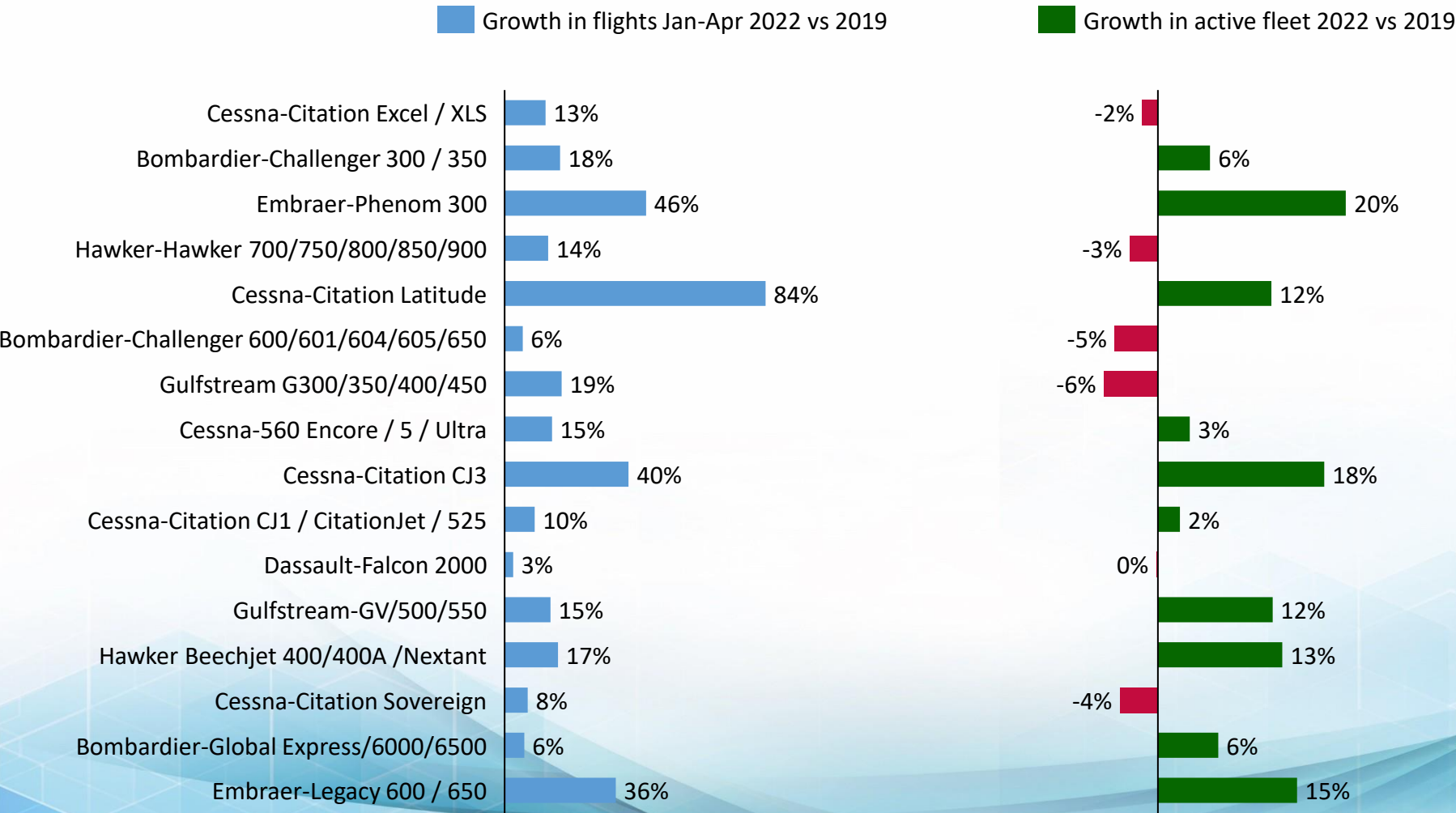
# Initially small and midsize jets, now also larger jets recovering pre-pandemic trend



Source: WINGX, ATC, ADSB



# Phenom 300 and Latitude. Also older aircraft: Hawker, Excel, Gulfstream G400



Source: WINGX, ATC, ADSB



# Characterised by short hauls: sweet-spot 1.5-3H. International still recovering

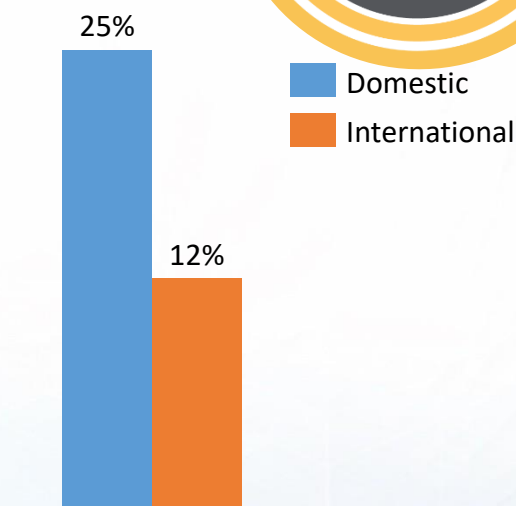


## Global (US dominant)

Sector Length	PTD: Departures	% of total	PTD vs 1 yr ago (Deps)	PTD vs 2 yrs ago (Deps)	PTD vs 3 yrs ago (Deps)
Regional: Less than 1.5 ...	780,678	56%	31.5%	83.0%	15.7%
Short haul: 1.5 hours – ...	454,704	33%	31.6%	93.8%	32.2%
Medium haul: 3 – 6 ho...	142,078	10%	36.7%	81.4%	23.3%
Long haul: 6 -12 hours	19,821	1%	82.5%	62.7%	-1.8%
Ultra Long haul:12+ ho...	835	0%	271.1%	135.2%	3.6%
Grand Total	1,398,116	100%	32.6%	85.9%	21.0%

## European

Sector Length	PTD: Departures	% of total	PTD vs 1 yr ago (Deps)	PTD vs 2 yrs ago (Deps)	PTD vs 3 yrs ago (Deps)
Regional: Less than 1.5 ...	125,418	63%	48.6%	76.1%	13.5%
Short haul: 1.5 hours – ...	53,194	27%	47.1%	82.7%	24.1%
Medium haul: 3 – 6 ho...	14,651	7%	19.9%	45.0%	3.3%
Long haul: 6 -12 hours	6,428	3%	92.8%	62.5%	10.5%
Ultra Long haul:12+ ho...	110	0%	129.2%	107.5%	74.6%
Grand Total	199,801	100%	46.7%	74.6%	15.2%



Sectors flown 2022 YTD vs 2019 YTD

Source: WINGX, ATC, ADSB

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# Getaway resorts have seen dramatic growth, cities less so



2022  
vs  
2019

Jackson Hole  
+65%

Toronto  
-15%

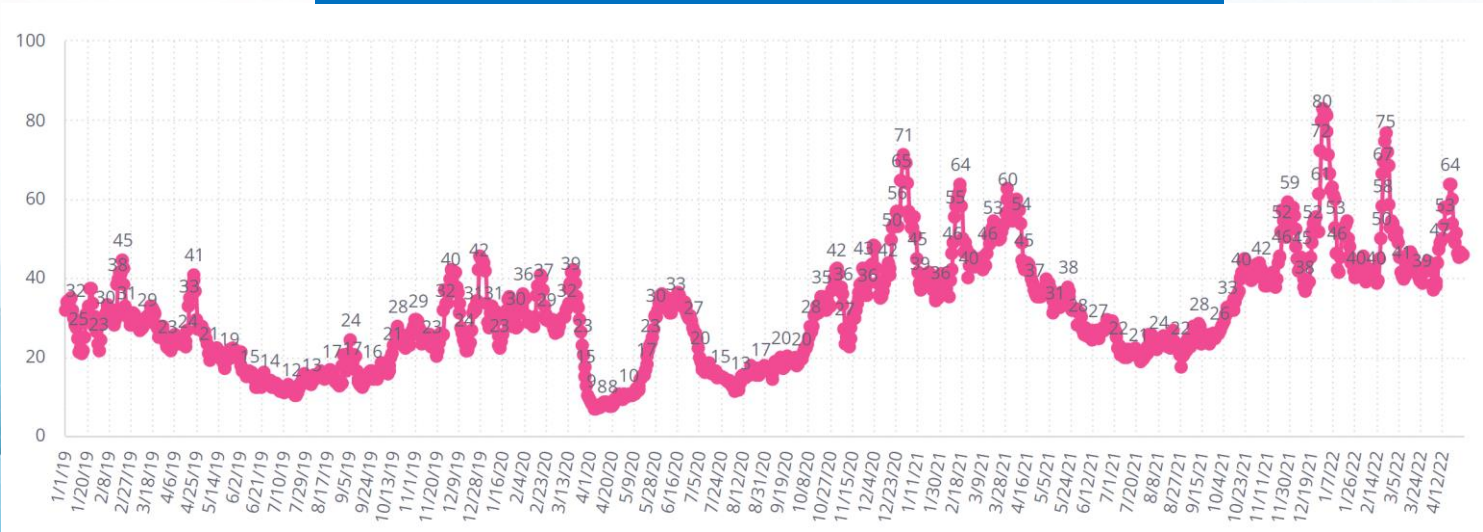
Stuttgart  
-5%

Sion  
+53%

Ibiza  
+125%

Hong Kong  
-54%

New York – Florida = 65% growth in 22 vs 19



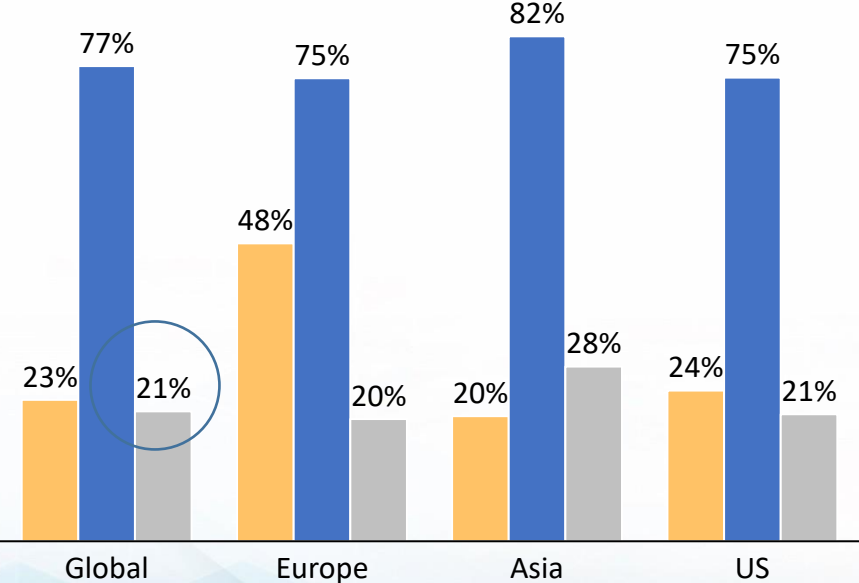
Source: WINGX, ATC, ADSB

# Day-day travel preferences indicate leisure/lifestyle demand is dominant



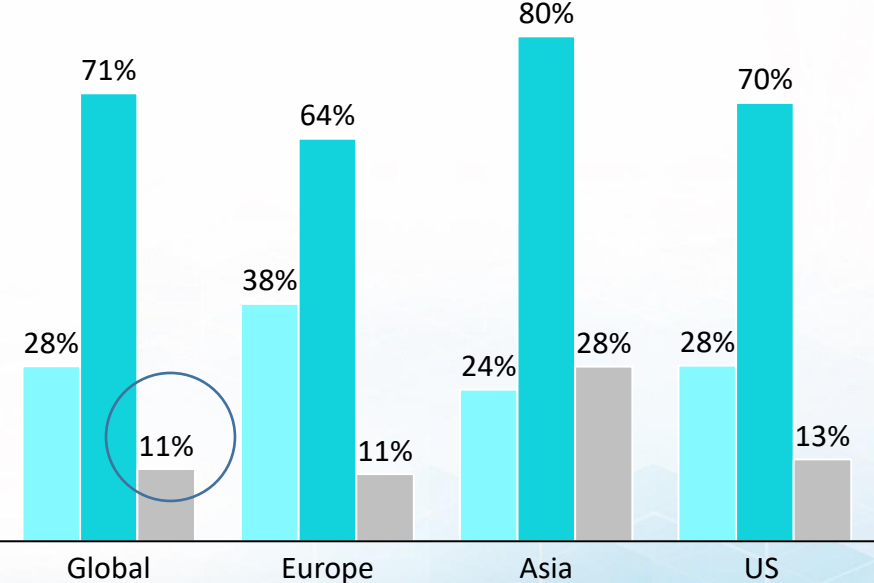
Weekends

- 2022 vs 2021 Weekends
- 2022 vs 2020 Weekends
- 2022 vs 2019 Weekends



Weekdays

- 2022 vs 2021
- 2022 vs 2020 Weekdays
- 2022 vs 2019 Weekdays



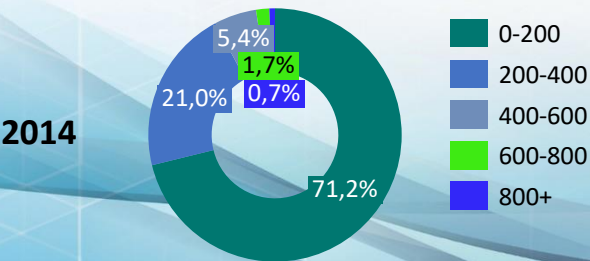
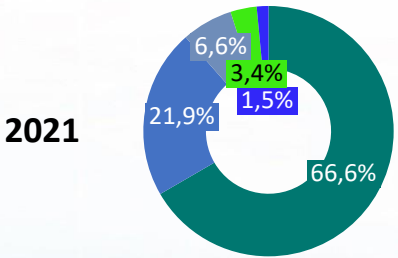
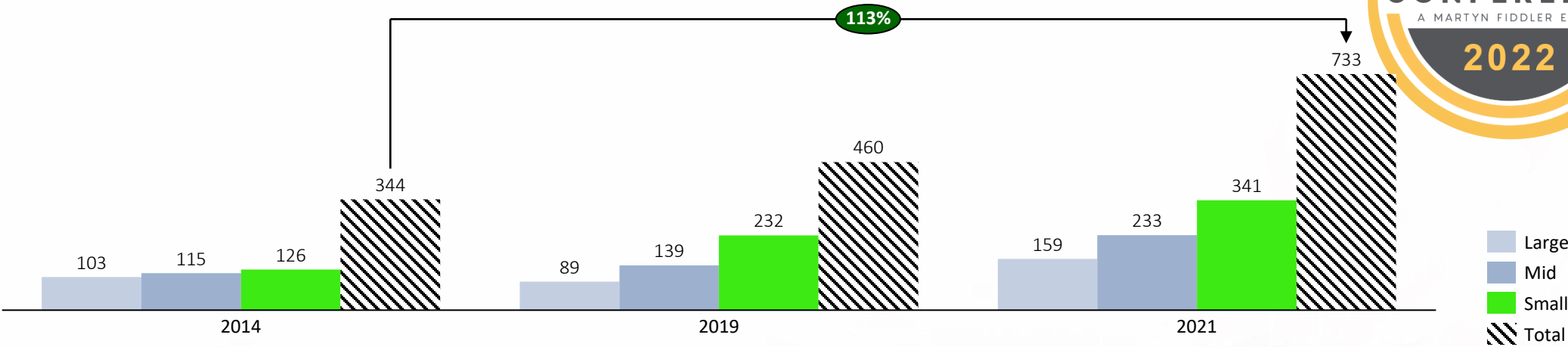
Weekends = Friday, Saturday, Sunday  
Weekdays = Monday through Thursday  
Period covered = Jan 1<sup>st</sup> through May 30<sup>th</sup> 2022  
Types: Bizjets & Turboprops

Source: WINGX, ATC, ADSB

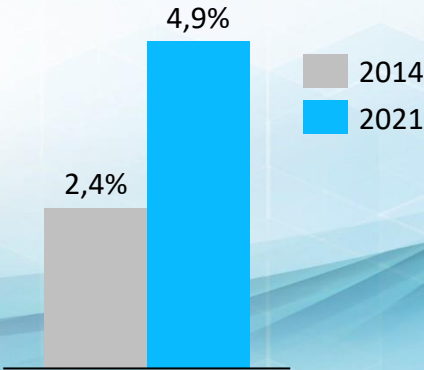
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[www.sli.do](http://www.sli.do)

A small but growing proportion of the bizjet fleet are flying >700 hours per year per aircraft.



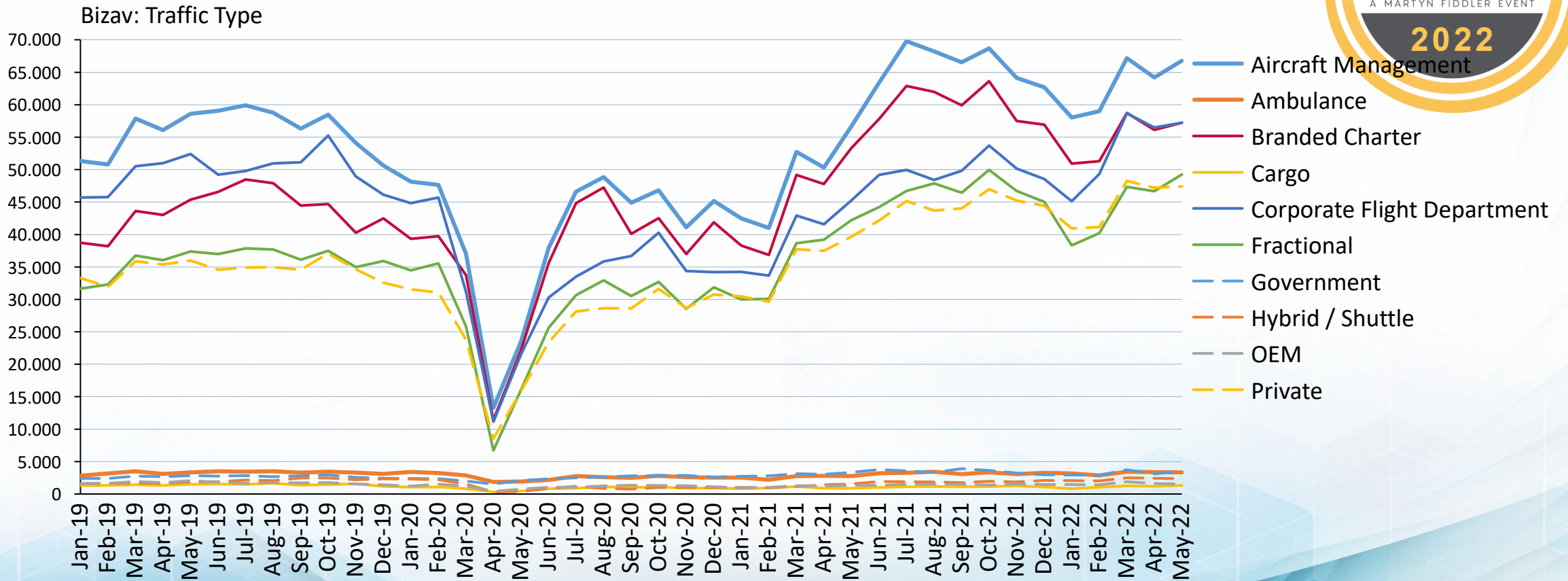
Growth in tails in 600h+ category



Source: WINGX, ATC, ADSB  
Data analysis based on North America fleet



# All operator types except Corporate Flight Departments recovered by end of 2021

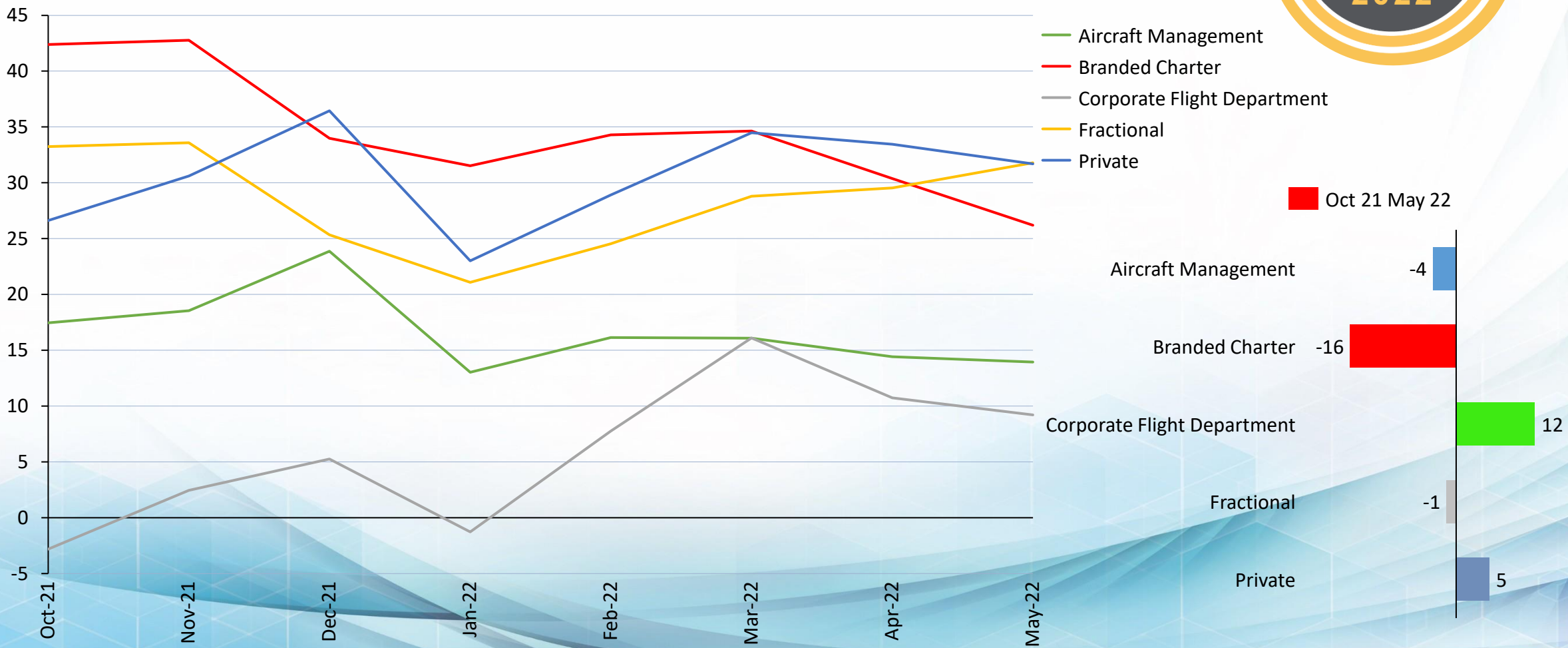


Source: WINGX, ATC, ADSB

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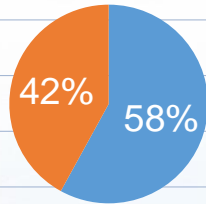
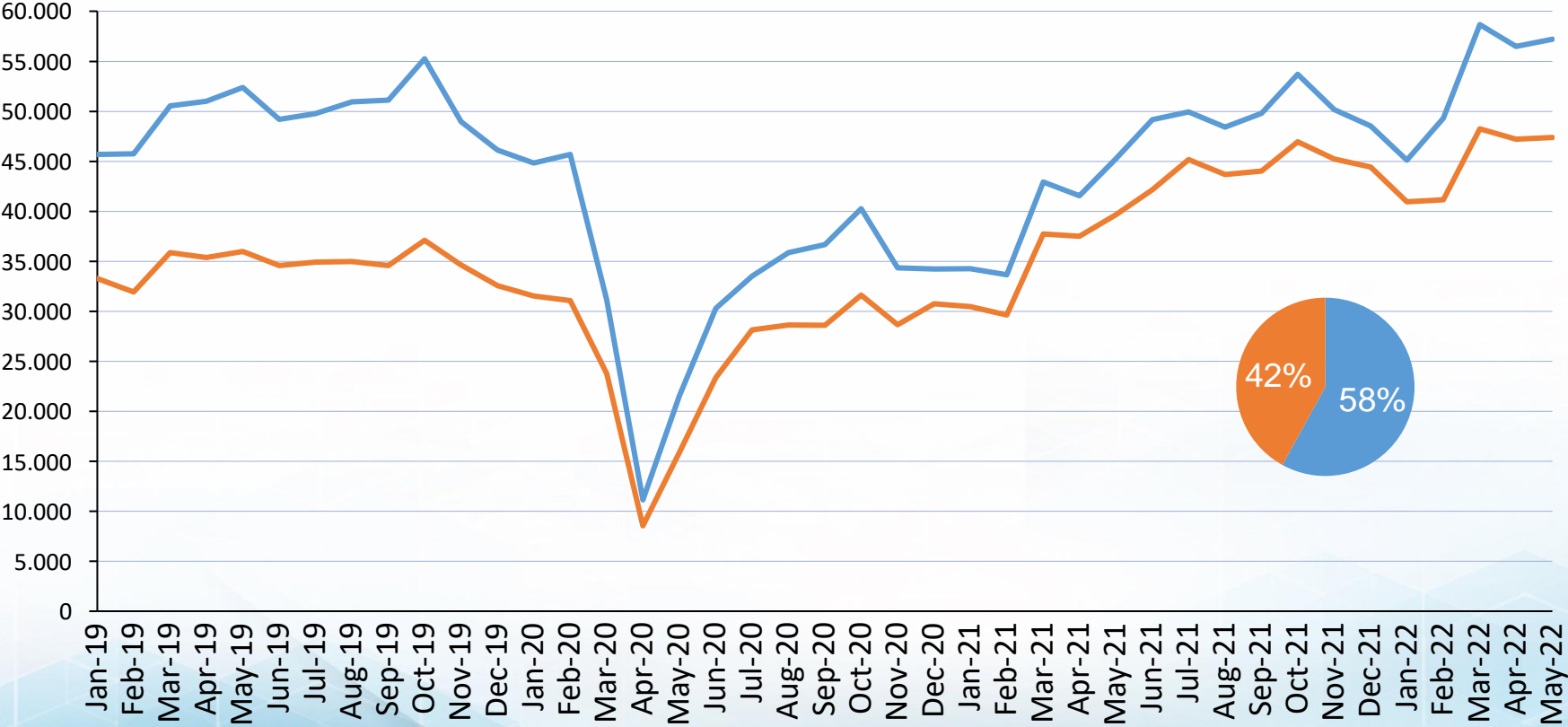
■ [www.sli.do](http://www.sli.do)

# Signs of overheating? Charter is tapering... under-supply or waning demand?

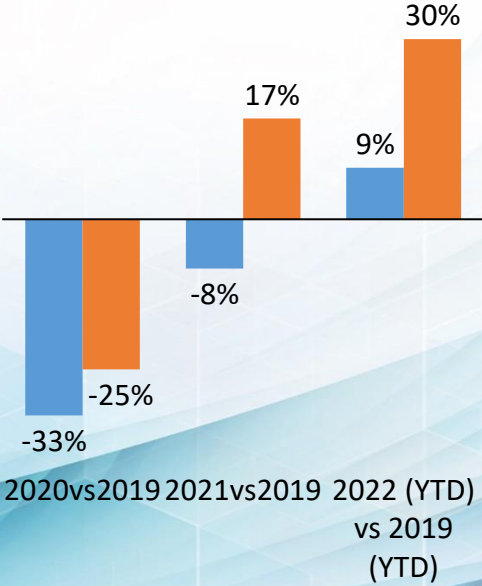


Source: WINGX, ATC, ADSB

# Shortage of charter inventory due to more owner flying – corporates included...



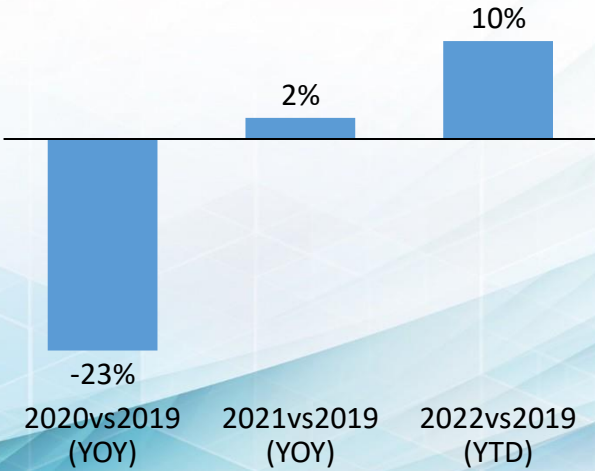
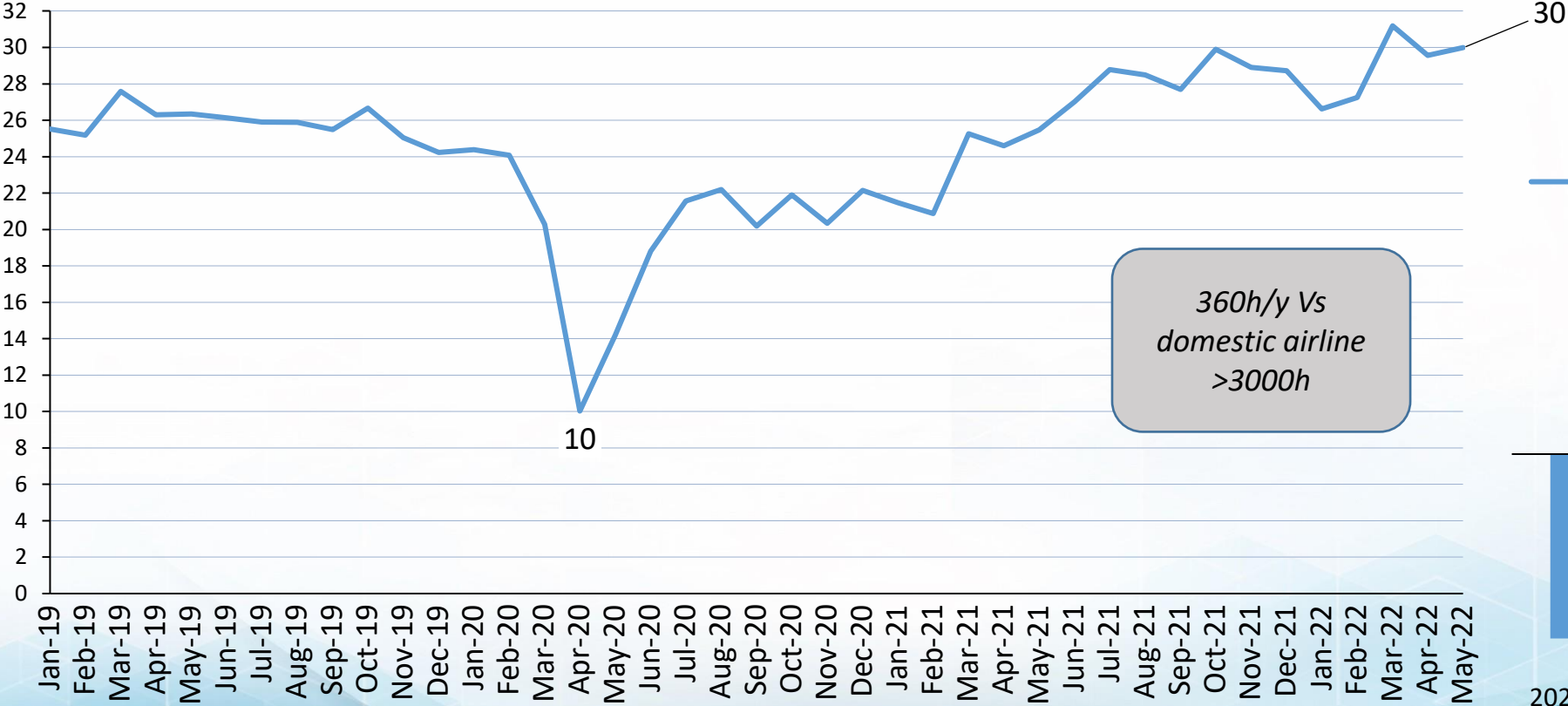
Corporate Flight Department  
Private Flight Department



Source: WINGX, ATC, ADSB

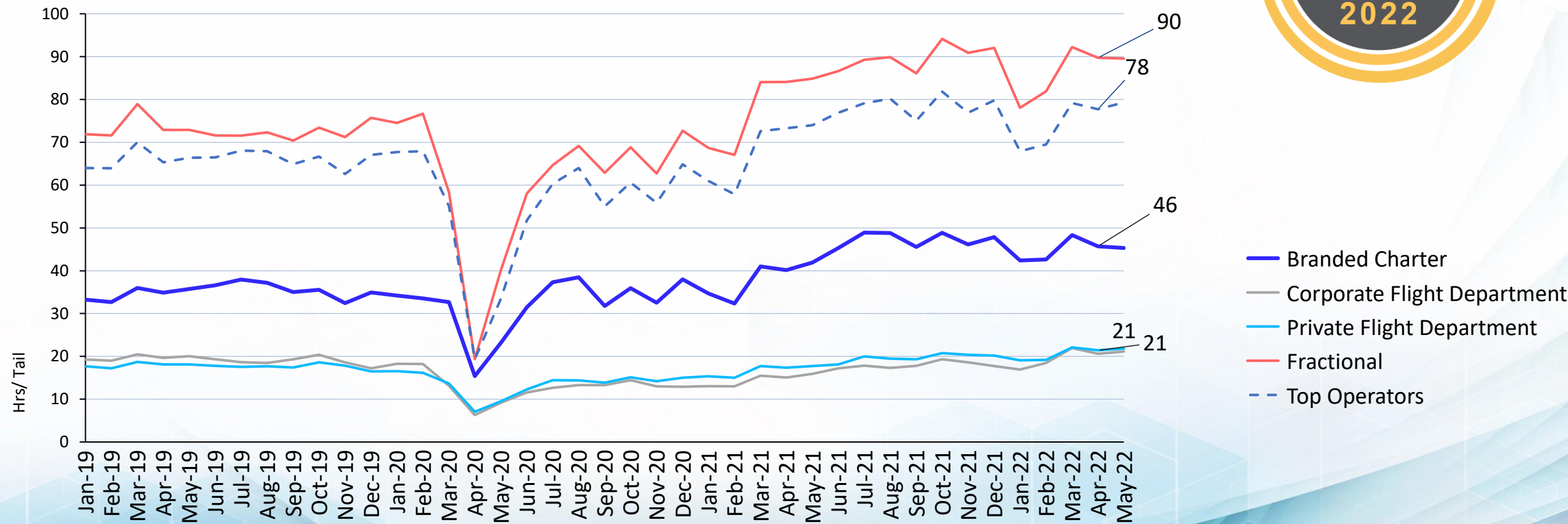


# Hours per tail per month, from pre-pandemic 25, to low point 10, to high point of 30



Source: WINGX, ATC, ADSB

Utilisation has increased 25% in Fractional (>1000h/y), +33% in Charter (720h/y)



Source: WINGX, ATC, ADSB

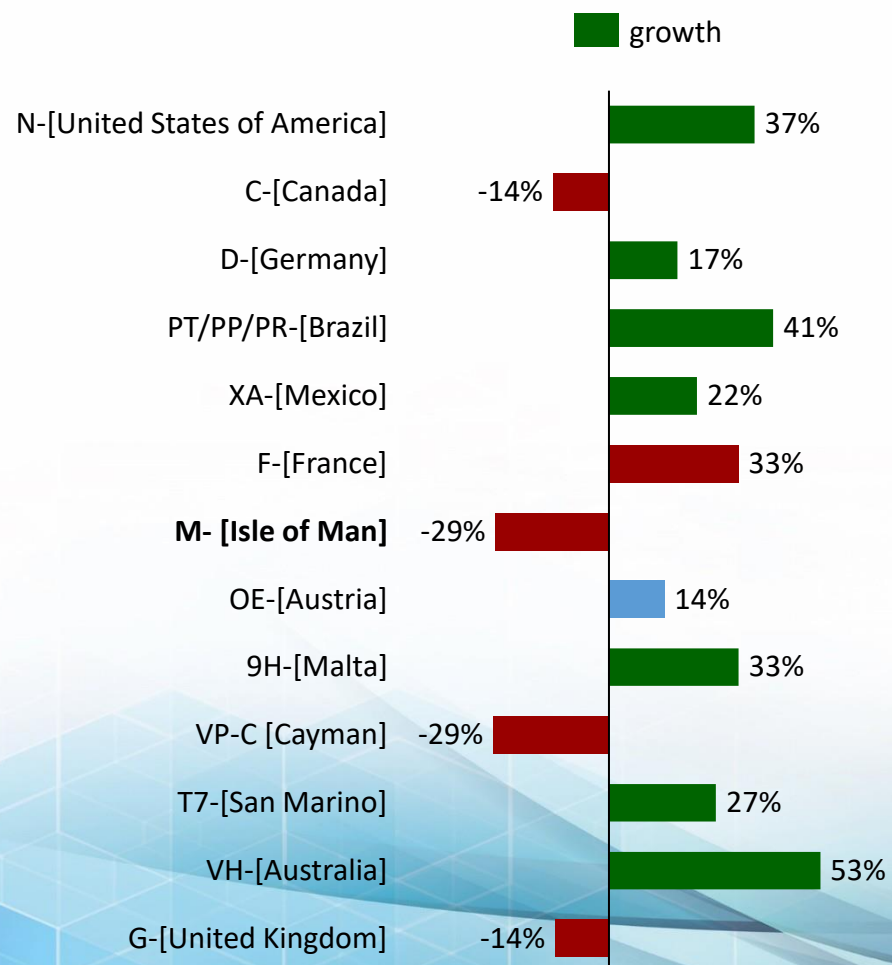
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# Register fleet changes, in active fleet and activity

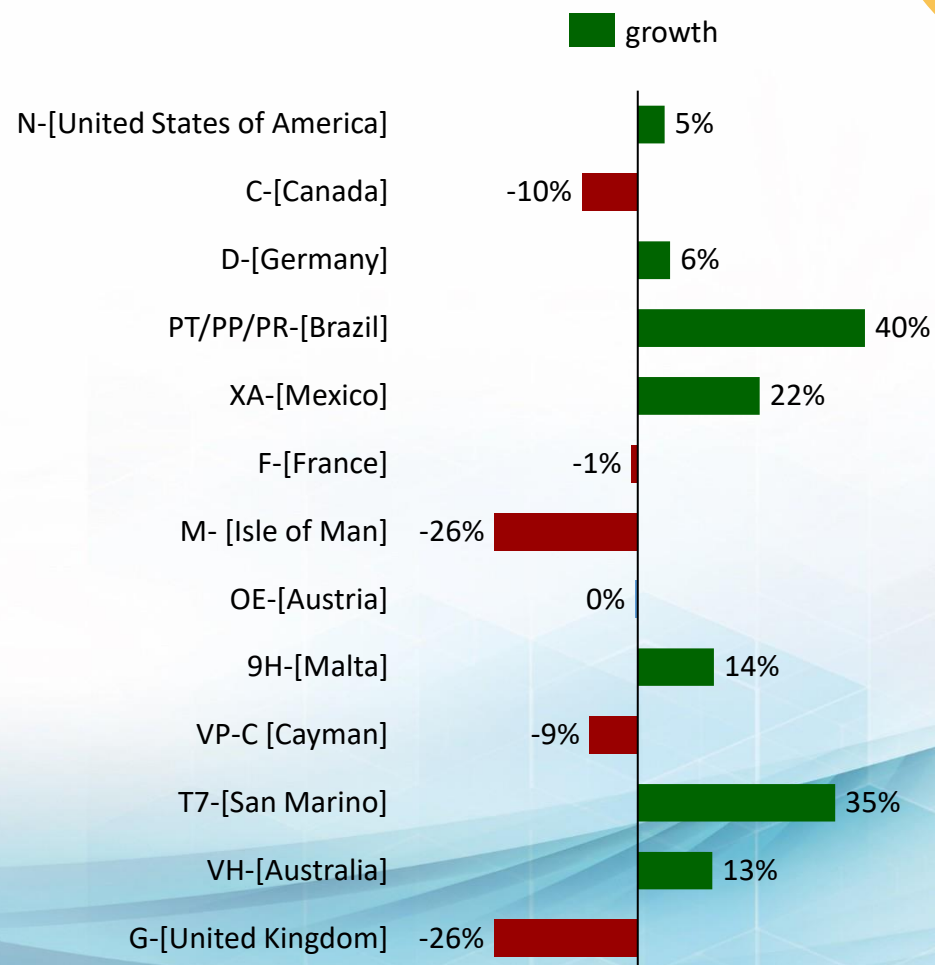


Number of active business jets May-YTD 22 vs 2019



Source: WINGX, ATC, ADSB

Sectors flown May-YTD 22 vs 2019



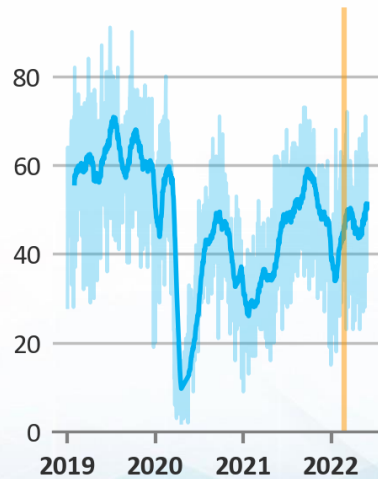
# M Register Peer Group: active fleet per day



Number of daily active tails per Aircraft Register with 30 Days average and **Feb-24 highlighted**

## M - Isle of Man

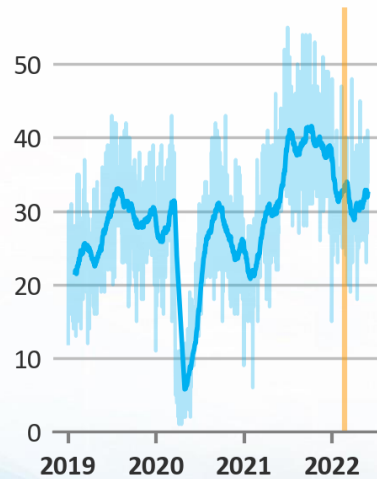
from 55 active tails in Jan-19  
to 51 active tails in May-22.



-7%

## T7 - San Marino

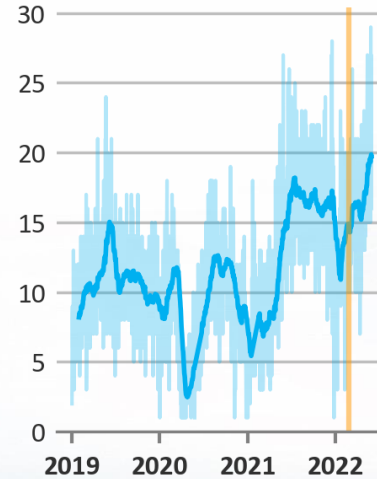
from 21 active tails in Jan-19  
to 32 active tails in May-22.



52%

## 2 - Guernsey

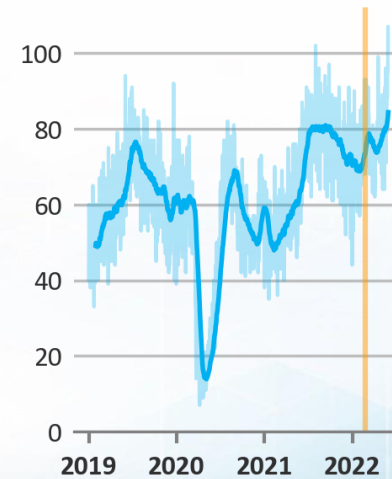
from 8 active tails in Jan-19  
to 19 active tails in May-22.



137%

## 9H - Malta

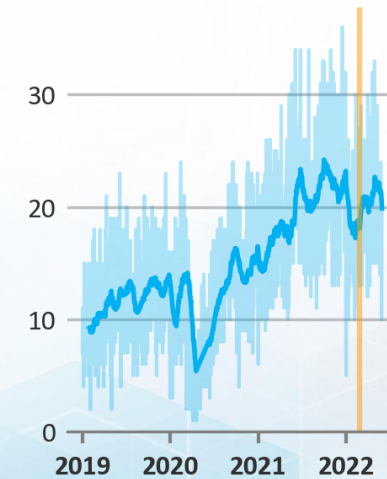
from 49 active tails in Jan-19  
to 84 active tails in May-22.



115%

## RA - Russia

from 9 active tails in Jan-19  
to 19 active tails in May-22.



111%

Comparing Jan-19 to May-22

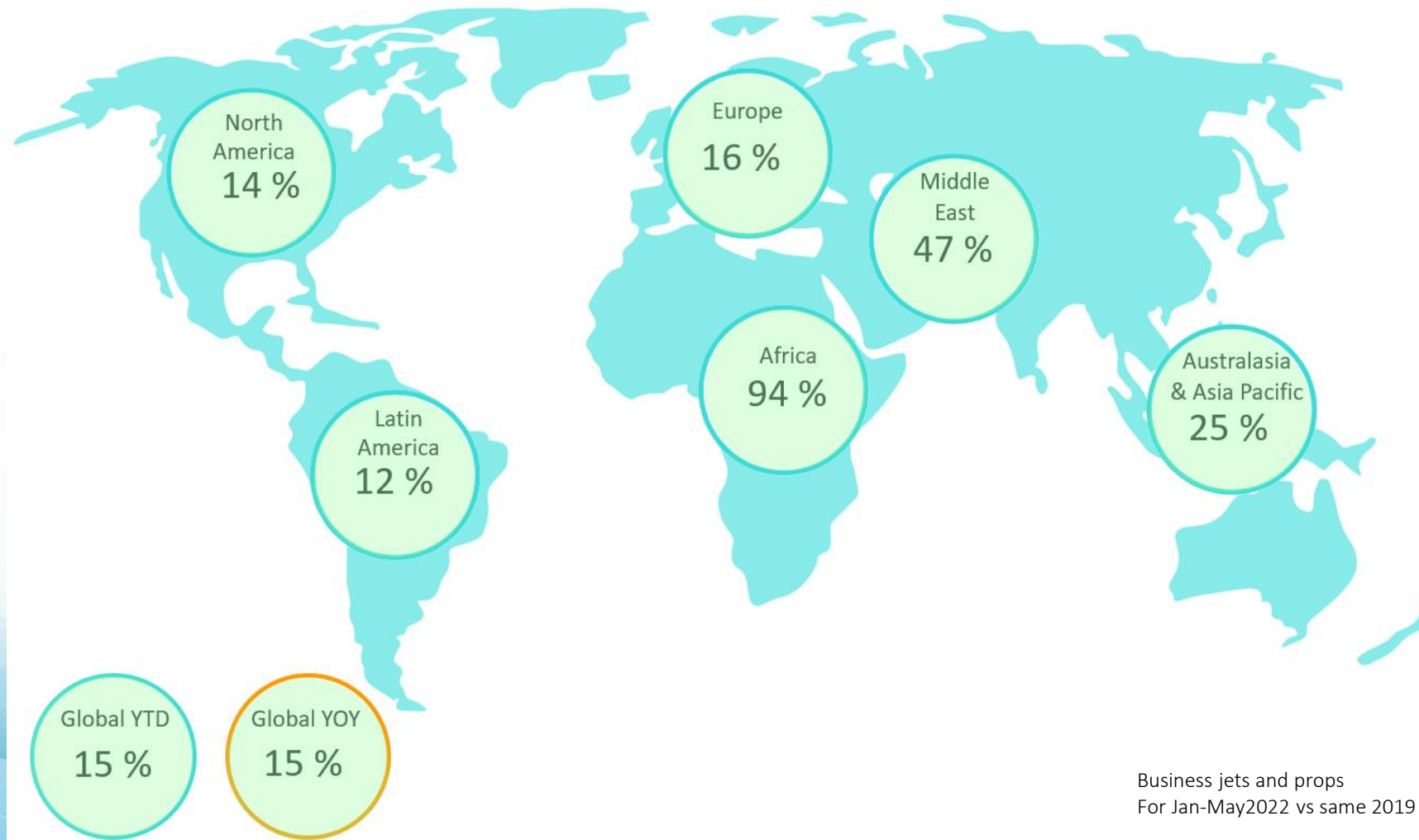
Source: WINGX, ATC, ADSB

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## Very strong growth in various global regions in May-YTD 2022 vs 2019

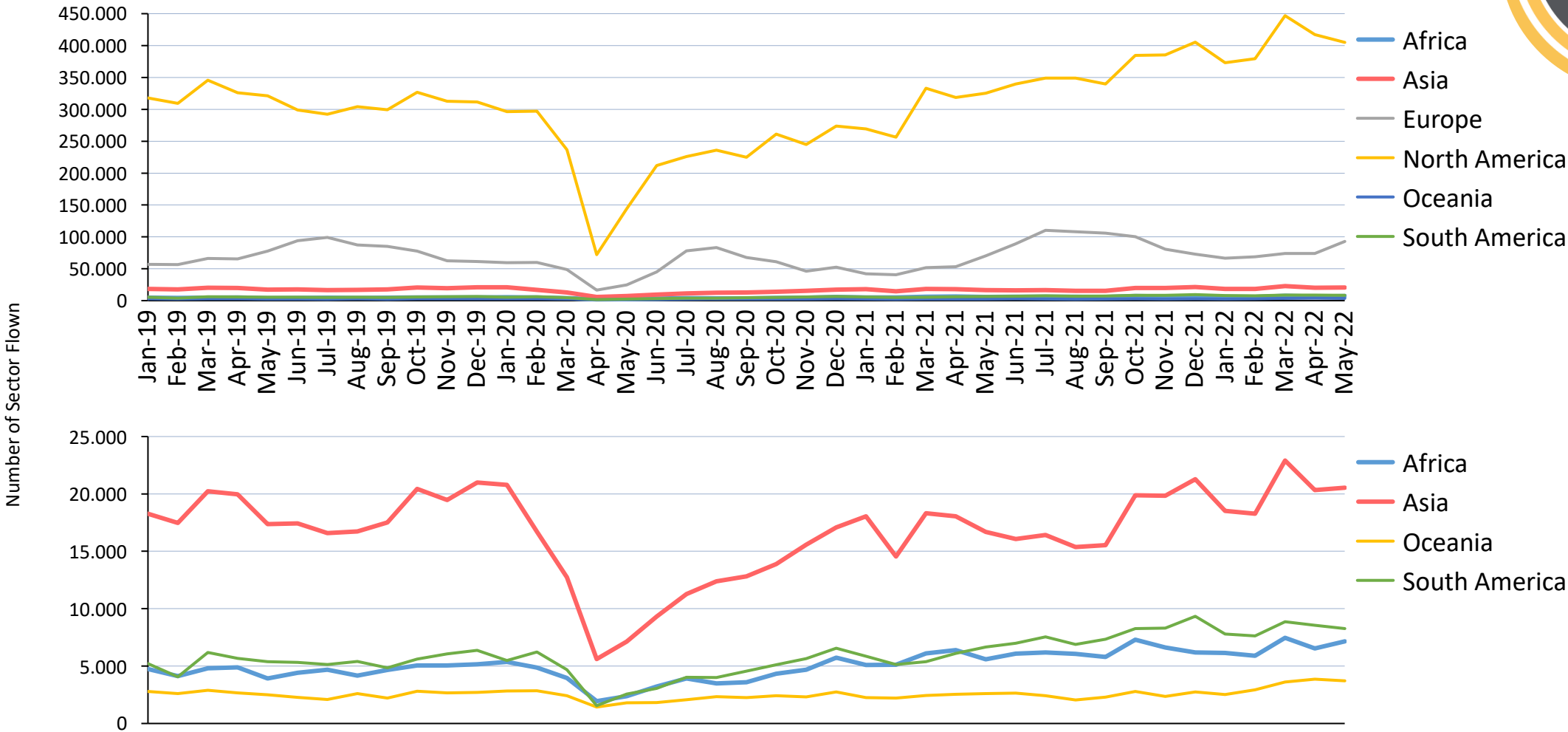


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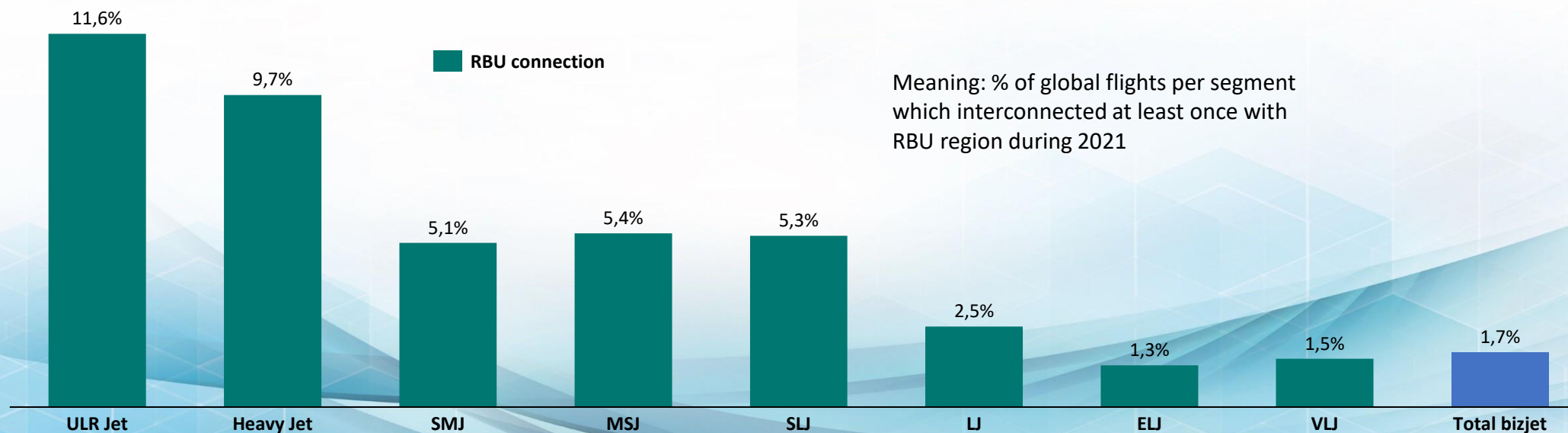
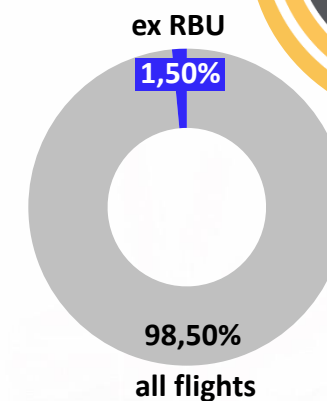
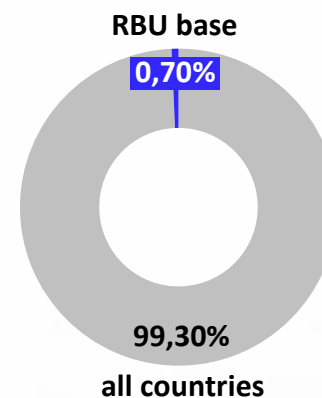
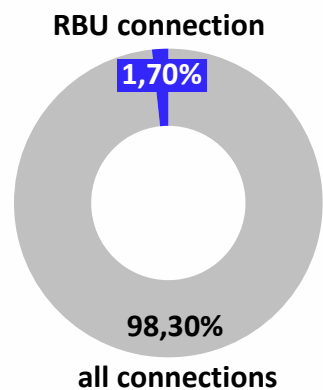
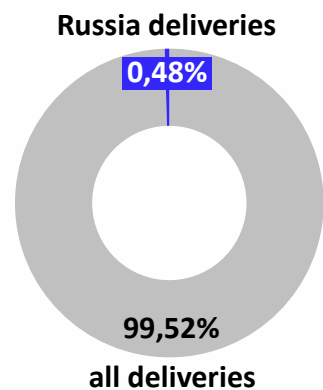
■ [www.sli.do](http://www.sli.do)

# Comparative size of regional markets: North America and Europe are dominant



Source: WINGX, ATC, ADSB

# The next black swan: war in Europe; how exposed is bizav in terms of activity & fleet?

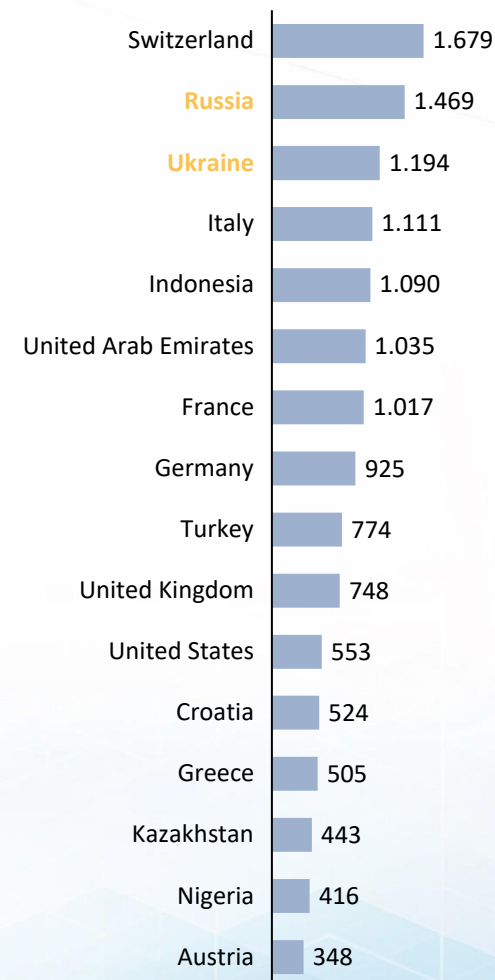
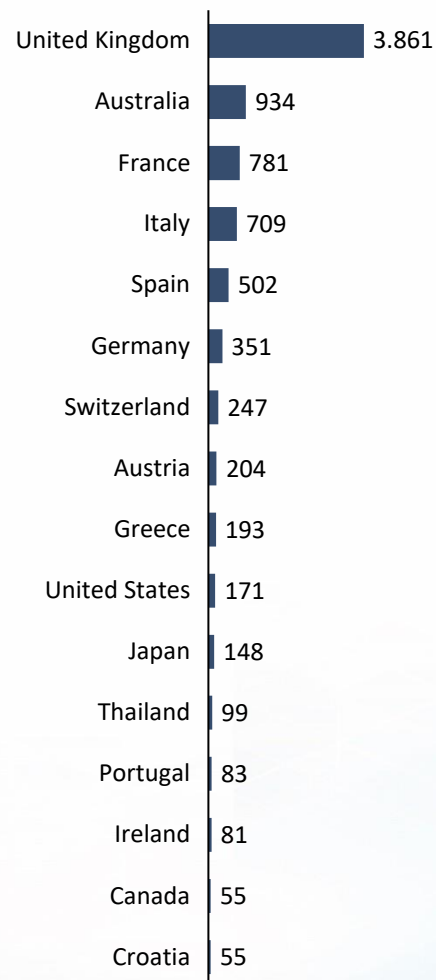
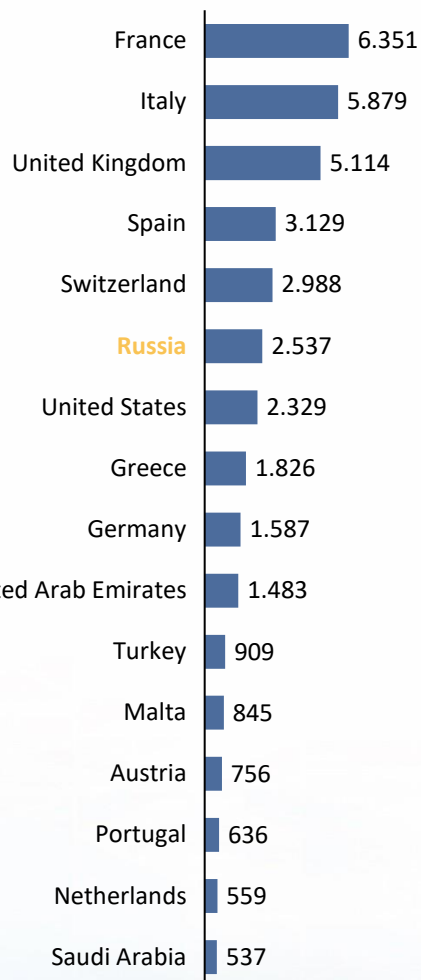
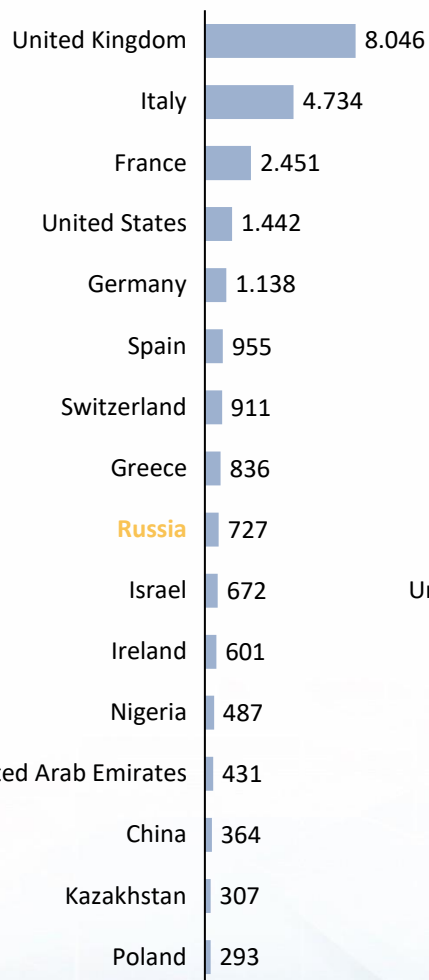


Source: WINGX, ATC, ADSB

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# Top Arrival countries in the Last 12 Month\*: Russia-Ukraine impact?



\* From Jun-21 to May-22



# Oligarchs not flying, ex-RBU sharp decline, “SO” slowing, but Register UP

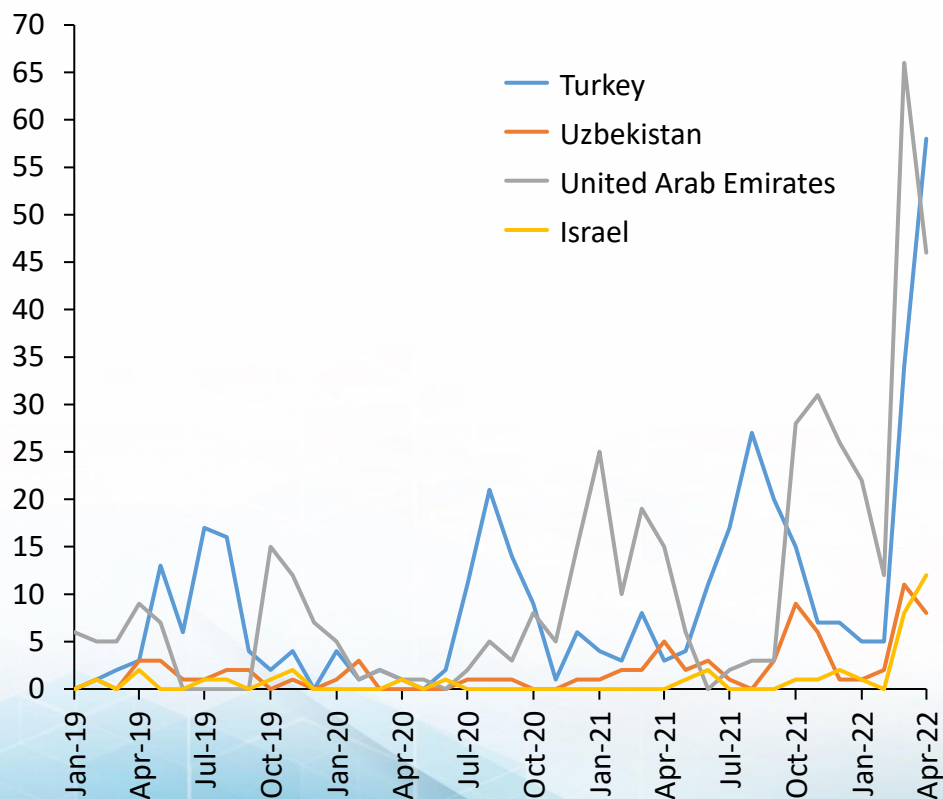


Source: WINGX, ATC, ADSB

# Business jet flight departures from RBU: RA Register jets are relocating



## Russia Register jets



Source: WINGX, ATC, ADSB

## All bizjets departing RBU

Country Flow	Dep...	vs. 3 years ago	Last 7 days growth	share
Russia - Russia	1,732	7.9%	-51.1%	61.7%
Russia - Turkey	221	25.6%	-48.3%	7.9%
Russia - United Ar...	215	36.9%	-50.7%	7.7%
Russia - Azerbaijan	88	41.9%	-48.3%	3.1%
Russia - Kazakhstan	71	121.9%	-49.2%	2.5%
Russia - Armenia	63	293.8%	-40.0%	2.2%
Russia - Israel	42	-23.6%	-47.4%	1.5%
Russia - Uzbekistan	39	14.7%	-45.2%	1.4%
Russia - Switzerland	29	-87.0%	-45.1%	1.0%
Belarus - Russia	27	-34.1%	-50.8%	1.0%
Russia - France	27	-94.8%	-42.9%	1.0%
Russia - Belarus	22	-43.6%	-43.8%	0.8%
Belarus - Serbia	16	45.5%	-41.5%	0.6%
Russia - Cyprus	16	-88.7%	-33.3%	0.6%
Russia - Finland	16	-79.2%	-50.9%	0.6%
Grand Total	2,806	-58.8%	-53.8%	100.0%

# Context?



Tailwinds

Headwinds

CYCLICAL

Inventory record lows

Inflation unleashed

New OEM models

Rising interest rates

Rebound in spending

End decade quant easing

Business travel re-set

Geopolitical conflict

Covid effect

Re-evaluation of bizav value

WFH eroding corporate travel

Digitalization, Consolidation

Environmental question mark

Introduction of AAM

De-globalization / CW2

New user demographic

Resource availability

STRUCTURAL

# Signs of the times?



## MACRO

8% growth in UHNWI in 2021 (220K)

Record volumes of dry powder to invest

Pandemic recovery still early stages

Can central bankers do it again?

China's GDP forecast <5%

Q1 US corporate profits 2Y fall; May inflation 9%

Swiss 15Y interest rate rise -0.75/-0.25 (inflation 2.9%!)

Look at SPACs: Q122 vs Q121 -98% SPAC IPO \$\*

## INDUSTRY

Industry sentiment still ++

Ukraine war not game changer

Inventory very low levels

OEM backlogs impressive

Business jet transaction market looking frothy

Wheels UP Q1 record rev but almost 100M net loss

Charter market running short of steam

EVTOL boom is tailing off (Surf?)

*\$98bn to \$2bn: 98% drop in capital raised; 299 to 18 registrations; JetNet surveys pre covid max 55%, since Q221 62, 69, 61, 57*



## Good news...2022 will be

- Busiest every year for business aviation flight activity
- Aircraft manufacturers are well set for several years
- Business jets are no longer toxic, for now...

## Less good news...2022 will be

- The high point for growth; the market already peaked
- Over exuberance blatant, and there will be casualties
- Bizav cannot defy the macro economy



## WINGX ADVANCE GMBH

Lilienstrasse 11 20095 | 22095 HAMBURG | GERMANY  
PHONE +49-40-32 84 69 78

E-MAIL [OFFICE@WINGX-ADVANCE.COM](mailto:OFFICE@WINGX-ADVANCE.COM)  
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# The reality of sustained business aviation activity – boom vs bust?

<b>Andrew Hodgson</b>	Commercial Director, ACASS
<b>Chay White</b>	Commercial Director, Luxaviation Group
<b>Katie Bancroft</b>	Associate, Jaffa & Co
<b>Matt Potts</b>	General Counsel – EMEA, Jetcraft

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# IOMAR – Why the Isle of Man is still just as relevant 15 years later

Simon Williams

Director of Civil Aviation, Isle of Man Aircraft Registry

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MARTYN FIDDLER AVIATION

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# Why M Reg?

- *'Safety with Service'*
- High Safety Regulatory Standards
- Award Winning Customer Service
- Helping Solve Client Problems
- A Quality Register
- Substance Not Gimmicks
- An Aviation Centre of Excellence



# Legislation Programme

- **Completed and in force:**
  - Accidents and Incidents
  - Occurrence Reporting
  - Dangerous Goods
  - Small Unmanned Aircraft
  - Air Traffic Services
  - Rules of the Air
- **Effective 1 August 2022:**
  - Aircraft Registration and Marking
  - Aerodromes
- **Yet to come:**
  - Operation of Aircraft
  - Airworthiness of Aircraft
  - General Provisions
  - Insurance
  - Mortgaging
  - Environmental



# Registration & Marking Order (1)



- Effective 1 August 2022
- New stand alone Order – part of incremental replacement of Air Navigation Order with suite of new Orders
- See IOMAR website for full details of changes, link from home page:
- <https://www.iomaircraftregistry.com/legislation/new-aircraft-registration-and-marking-legislation/>
- Previously issued Certificates of Registration remain valid!





# Registration & Marking Order (2)



- Updated definition of “Commercial Air Transport”
- “Aerial work” now relates to “specialised services” rather than “valuable consideration”
- The provisions for disregard of valuable consideration are significantly updated and enhanced
- For aircraft with a Certificate of Registration issued prior to 1 August 2022 – the old definitions of commercial air transport / aerial work and the old provisions for disregard of valuable consideration continue to apply
- Owners may apply for a new Certificate of Registration if they wish to take advantage of the new rules!





# Guidance Material & Forms

- Significant refresh to a number of our Registry Publications (RP) and Forms underway
- Aim to give better guidance and easier forms
- New RP on aircraft insurance to be issued
- Updates to RPs on registrations, qualified ownership, aircraft markings, changes, export CoA and deregistration
- Updates to Forms for aircraft registration / deregistration / changes



# Cyber Security

- Incorporating further security layer of Two Factor Authentication (“2FA”) for access to our online customer portal (“ARDIS”)
- 2FA verifies your identity using a secondary login method – either a code or a login confirmation via an App on a mobile device.
- Prevents anyone but ***you*** from logging in, even if they know your password
- An instance of customer account previously being hacked & a false invoice generated
- 2FA will significantly enhance account security for all



# Ukraine

- Legal prohibition of flight by 'M' Reg aircraft in the territory/airspace of Russia & Belarus
- Acted proportionately, reasonably, legally & decisively in the Public Interest on aircraft:
  - where clear connections between aircraft registration...
  - And sanctioned individuals
  - And persons resident or companies established in Russia/Belarus





## *The Isle of Man is highly relevant 15 years later...*

- High Safety Regulatory Standards
- Award Winning Customer Service
- Helping Solve Client Problems
- A Quality Register
- Substance Not Gimmicks
- An Aviation Centre of Excellence





# Aviation Centre of Excellence

Thank you for your attention

*Any Questions?*



# Welcome to the 2022 Isle of Man Aviation Conference

Coffee break 10:30 – 11:00

Pastries by Wild Thyme

Sponsored by  JSSI



# The Art of Governance

Heather Gordon

Legal Director, Martyn Fiddler Aviation

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# What is governance?



*“Corporate governance is the system by which companies are directed and controlled.”*

**UK Cadbury Report, 1992**



# Why is Governance important?



1. Creates a system of accountability for leaders
2. Stakeholder confidence: from investor to employee
3. Seeing the future
4. Fake news and Social Media

# Owning the Narrative: Fake News at Davos



**Jim Lewis** 💰🔨💰  
@Galactic\_Trader



This is the parking lot at the Davos Climate Change Conference this year ...

Narratives are important ...



11:30 PM · May 23, 2022



♡ 1.4K    💬 Reply    🔗 Copy link

[Read 55 replies](#)



# Case Study: Boeing



Got a question? Ask us on Slido! Enter the code **'1881404'** to join.

■ [www.sli.do](https://www.sli.do)



# 3 Tenets of Good Governance



- Accountability
- Integrity
- Transparency





# Governance: Let's Start the Conversation

Got a question? Ask us on Slido! Enter the code '**1881404**' to join.

■ [www.sli.do](https://www.sli.do)



# Transparency – when is enough, enough?

**Helen Stone-Ward** Associate, The Air Law Firm

**James Moreton** Client Executive Director, Hayward Aviation

**Phil Morris** Director, KPMG Tax

**Steven Quayle** Director, Cains

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# How has your business & governance changed over the last 4 years?

**Andrew Blundell** Managing Director, Close Brothers  
**Diego Garrigues** Owner, DG Aviation Law  
**Gwen Edwards** Partner, CMS  
**Nic Arnold** UK Head of JTC Private Office, JTC Group

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# Welcome to the 2022 Isle of Man Aviation Conference

## Lunch break 12:30 – 14:00

Food by Wild Thyme

Lunch sponsored by



DIEGO GARRIGUES  
AVIATION LAW

and luxaviation ✕

Dessert sponsored by



**JETAVIATION**  
A GENERAL DYNAMICS COMPANY





# Flight plan to sustainability

Ryan Hogg  
District Manager, Avfuel

Organised by



Supported by





## Flight Plan to Sustainability

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June 22, 2022

Ryan Hogg | District Manager



**650+**

Branded FBOs

**3,000+**

Global Contract Fuel Locations

Full suit of aviation solutions

2012: Formed Avfuel Technology  
Initiatives Corporation

Strategic partnership with leading  
SAF producers

## Logistics

SAF deliveries into complex airports

Got a question? Ask us on Slido! Enter the code '1881404' to join.

■ [www.sli.do](http://www.sli.do)



## Flight Plan to Sustainability

Sustainability/SAF Overview

Avfuel's SAF Progress

Carbon Offsetting

Resources

Q&A





# Sustainability/ SAF Overview

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The Facts and the Market

Got a question? Ask us on Slido! Enter the code '1881404' to join.

■ [www.sli.do](https://www.sli.do)

# Business Aviation & SAF

In 2009, global bizav community issued a multi-goal plan to reduce carbon emissions: Business Aviation Commitment on Climate Change (BACCC).



## Specific goals

- Short Term: 2% annual fuel efficiency improvement 2010-2020
- Medium Term: Carbon-neutral growth from 2020 onward
- Long Term: Halving emissions by 2050 to 2005 levels

Aviation is the only industry to develop internationally-agreed carbon emission reduction standards through the UN's ICAO.

# Business Aviation & SAF



- Aviation contributes 2% of global Green House Gas (GHG) Emissions and Business Aviation contributes 2% of this global amount
- The largest potential reduction in emissions is adopting SAF
- SAF (pre-blend) meets requirements of ASTM D 7566
- When blended with refined jet, meets ASTM D-1655 (Jet A or Jet A-1)
- Seven different pathways are approved (more pending) to convert different feedstocks into SAF to blend on a “drop in basis” with refined Jet/Jet A-1





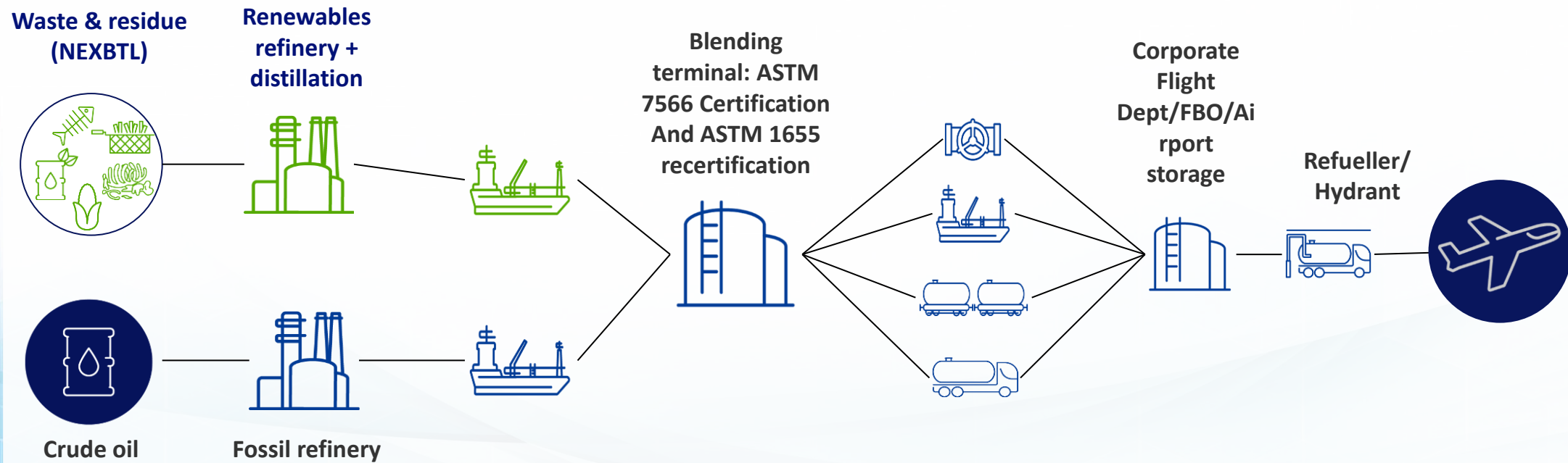
# Business Aviation & SAF



- SAF is approved for use in turbine aircraft as a drop-in fuel
- It is recommended by the FAA, the European Aviation Safety Agency and other international aviation agencies and approved for use by ASTM
- GAMA, NATA, NBAA, IBAC, IATA, A4A, CAAFI, IATA and ICAO are supportive of SAF and its adoption
- 500,000 flights have flown using a component of SAF
- GAMA spearheaded, in association with NATA and NBAA, the writing of an SAF guide that was released at EBACE 2018 and updated and re released in August 2020
- Business Aviation Professionals and Airport Executives should review this guide and be familiar with the Q & A section. Fuel suppliers participated actively in developing the guide



# SAF is a Drop-in Solution to the Existing Fuel Supply Chain & Infrastructure



# SAF Benefits



## Smaller carbon footprint and lower emissions

Up to 80% less GHG  
emissions over the lifecycle

Harmful particulate matter,  
SOx reductions

## Powerful performance

Free of Sulphur, oxygen and  
aromatics + high energy  
content = clean burning

Freeze point down to -49 °C or  
even lower

Better thermal stability

## Long storage time

Oxidation stability remains  
the same for many years in  
neat form

## Engine and infrastructure compatibility

Can be used in existing  
infrastructure and without any  
modifications to engines

Normal maintenance costs

ASTM D7566 Annex A2 certified



# Avfuel's SAF Progress

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Got a question? Ask us on Slido! Enter the code '1881404' to join.



# Key Milestones

- 2021: Avfuel partners with Neste
- 2020: Avfuel launched its Carbon Offset Program
- 2019: Avfuel provides demonstrative SAF loads
- 2018: Avfuel and Gevo enter into SAF agreement
- 2012: Avfuel Technology Initiatives Corporation founded



# Continuous Supply Locations To Date

## FBOs/Airports

- Monterey Jet Center (KMRY)
- Telluride Regional Airport Authority (KTEX)
- Sonoma Jet Center (KSTS)
- Truckee Tahoe Airport District (KTRK)
- Atlantic Aviation Aspen (KASE)
- Million Air Burbank (KBUR)
- Del Monte Aviation (KMRY)
- Ross Aviation (KTRM)
- ACI Jet (KSNA)

## OEMs

- Textron Aviation, Wichita
- Bell Textron, Fort Worth
- Embraer, Melbourne
- Bombardier





A circular inset image on the left side of the slide shows a low-angle view looking up at a tree trunk and its canopy. The trunk is thick and textured, and the canopy is filled with vibrant green leaves.

# Carbon Offsetting

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Got a question? Ask us on Slido! Enter the code '1881404' to join.



A detailed illustration of a jet engine, showing the compressor and turbine sections. The engine is depicted with a blue and white color scheme, and it is overlaid with several white diagonal lines that create a sense of motion or a stylized effect.

## Avfuel's Carbon Offset Program

Simple, right now solution

Doesn't REDUCE emissions, OFFSETS emissions

Purchase credits to fund projects

1 credit offsets 100 gallons of fuel

JSSI partnership

CBL - Xpansiv selected as vendor

[Avfuel.com/offset](https://Avfuel.com/offset)





# Resources

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Got a question? Ask us on Slido! Enter the code '1881404' to join.

## Resources

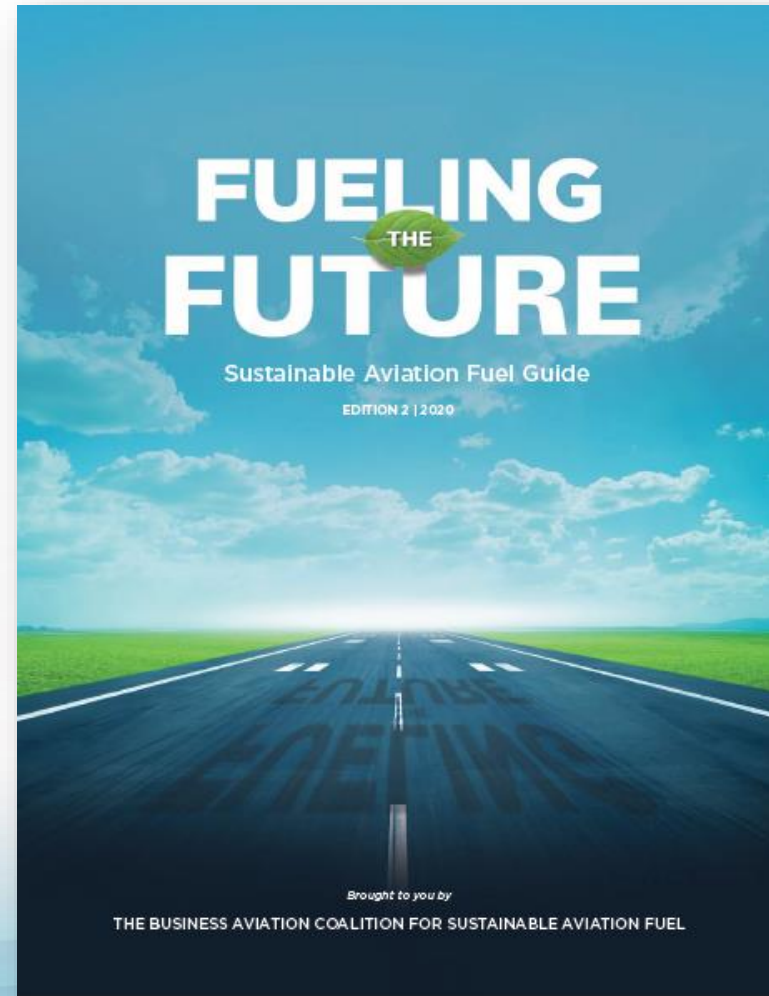
Information, Brochures,  
Blogs, Recordings and  
News at ...

[Avfuel.com/Sustainability](https://avfuel.com/Sustainability)

[Avfuel.com/SAF](https://avfuel.com/SAF)

[Avfuel.com/Offset](https://avfuel.com/Offset)

[Avfuel.com/NoLead](https://avfuel.com/NoLead)







# Connect With Us



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Keith Sawyer, Manager Alternative Fuels  
ksawyer@avfuel.com | Avfuel.com/sustainability  
O: 734.663.6466 | M: 925-989-0479  
Facebook.com/Avfuel | Twitter.com/Avfuel



# Q&A

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Got a question? Ask us on Slido! Enter the code **'1881404'** to join.



# Sustainability within Air Charter

Chris Mace  
CEO, MaceAero Ltd

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# SUSTAINABILITY WITHIN AIR CHARTER



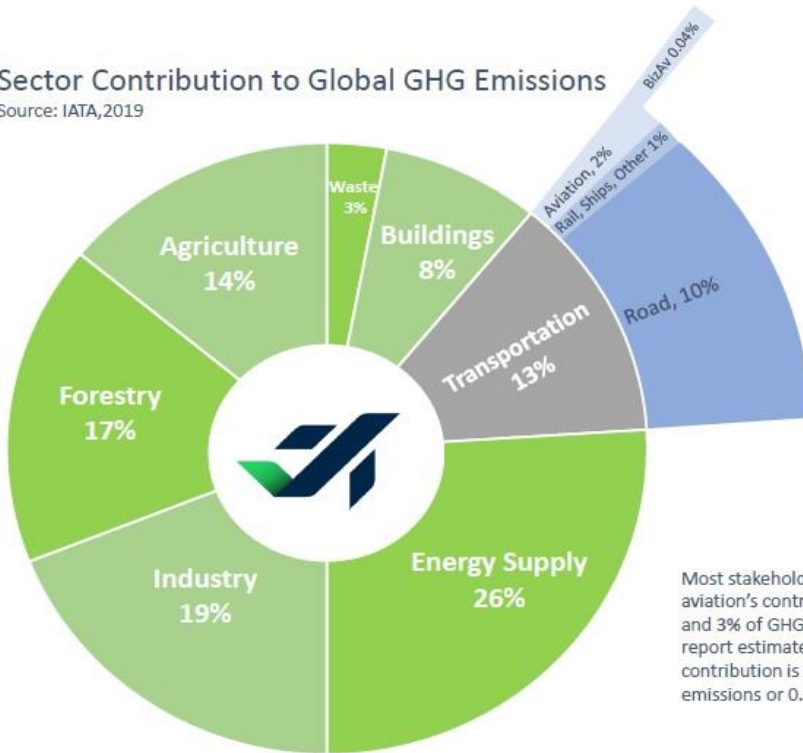
Chris Mace  
June 2022

- Private Aviation Advisory
- Aircraft Sales / Acquisition
- Charter / Leasing / Hours
- Aircraft Management

- 300+ Member Companies
- Brokers / Operators / Suppliers
- 58 Worldwide Countries
- Setting Standards / Training

## Sector Contribution to Global GHG Emissions

Source: IATA, 2019



Most stakeholders acknowledge civil aviation's contribution of 2% of global CO2 and 3% of GHG emissions, as per the IPCC report estimates. The business aviation contribution is estimated at 2% of aviation emissions or 0.04% of global emissions.

**2.1%** The global aviation industry produces around **2.1%** of all human-induced carbon dioxide (CO2) emissions.

**12%** Aviation is responsible for **12%** of CO2 emissions from all transports sources, compared to 74% from road transport.

**35%** While air transport carries around 1% of the volume of world trade shipments, it is over **35%** by value – meaning that goods shipped by air are very high value commodities, often times perishable or time-sensitive.

Deliveries of fresh produce from Africa to the UK alone supports the livelihoods of **1.5 million** people, while producing less CO2 than similar produce grown in the UK, despite the energy used in transport.

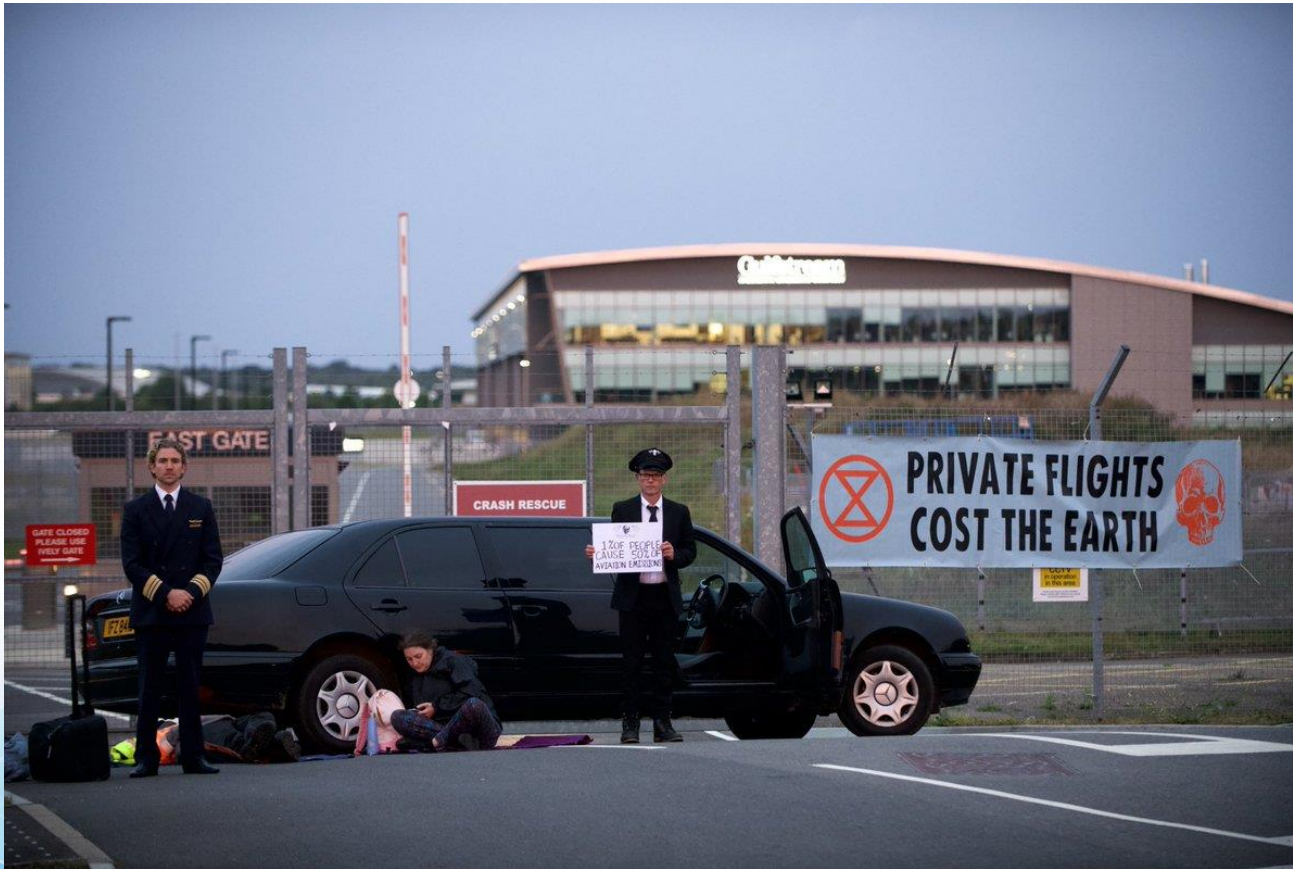
**80%** Jet aircraft in service today are well over **80% more** fuel efficient per seat kilometre than the first jets in the 1960s.

**80%** Alternative fuels, particularly sustainable aviation fuels (SAF), have been identified as excellent candidates for helping achieve the industry climate targets. SAF derived sources such as algae, jatropha, or waste by-products have been shown to reduce the carbon footprint of aviation fuel by up to **80%** over their full lifecycle.

**80%** Around **80%** of aviation CO2 emissions are emitted from flights of over 1,500 kilometres, for which there is no practical alternative mode of transport.

**83%** Globally, the average occupancy of aircraft is almost **83%**, greater than other forms of transport.

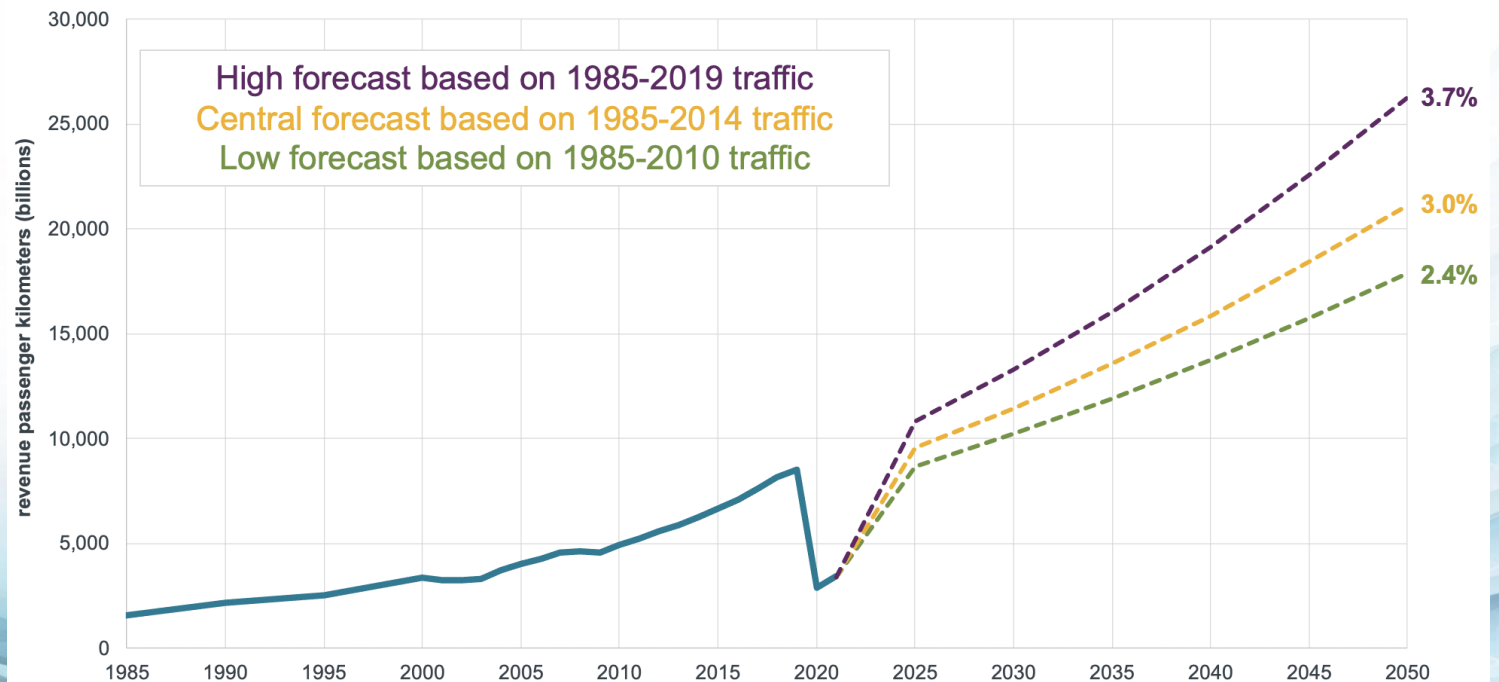
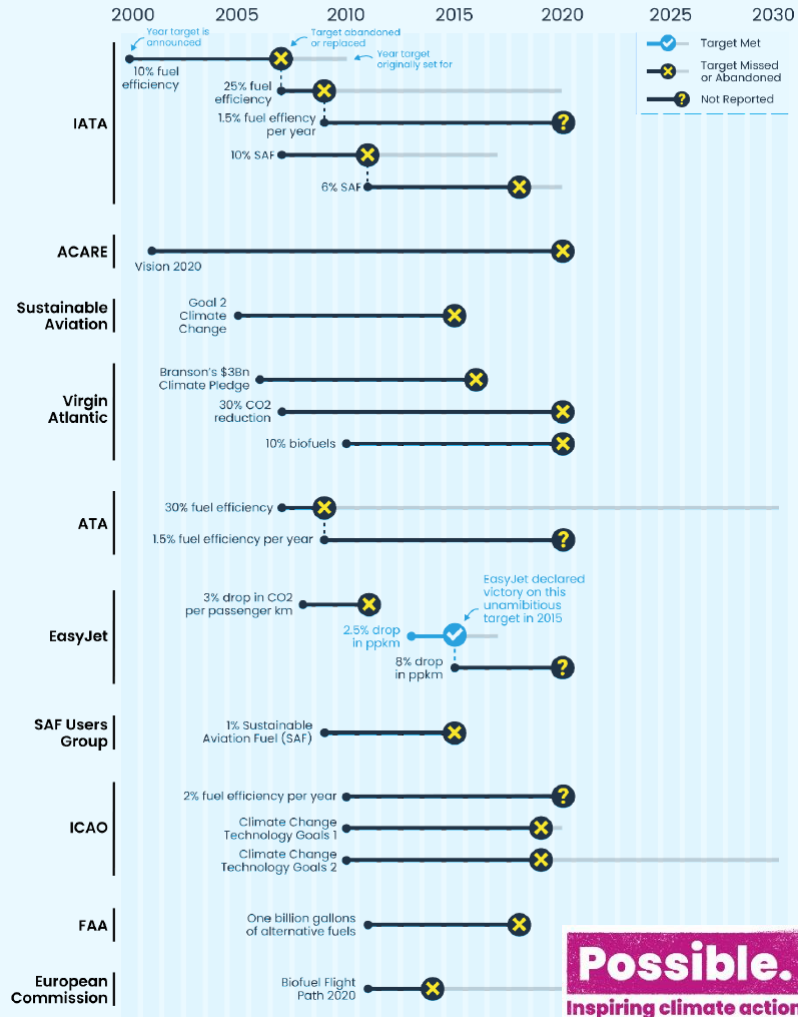






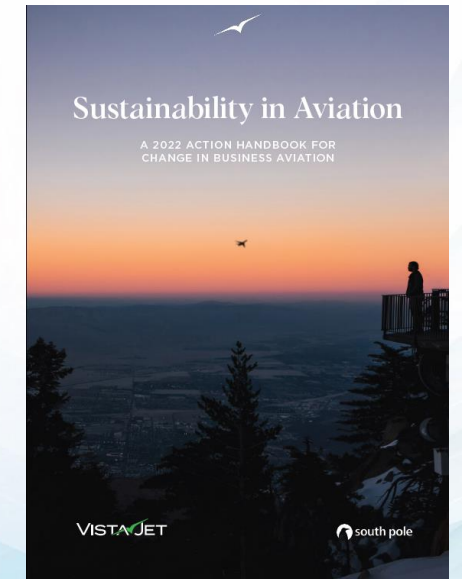
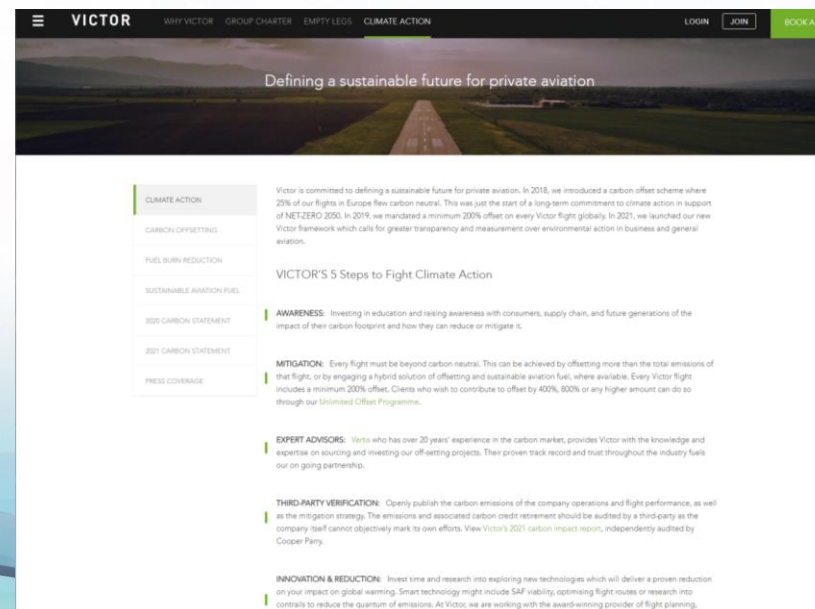
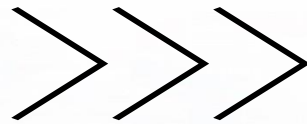


## Two Decades of Missed and Abandoned Aviation Industry Sustainability Targets





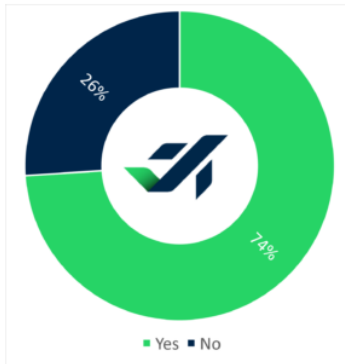
## What is the Air Charter Industry actually doing right now?





## The Air Charter Association Sustainability Consultation

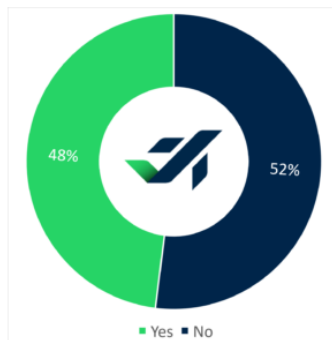
Do you feel that aviation targets of NET Zero by 2050 are achievable?



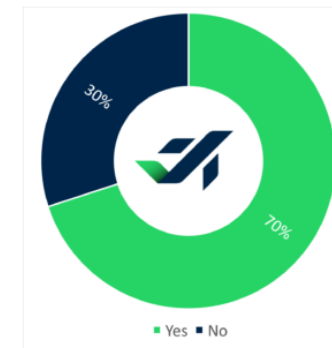
When do you plan for your business to be NET Zero emissions?



Do you offer clients the ability to offset emissions?

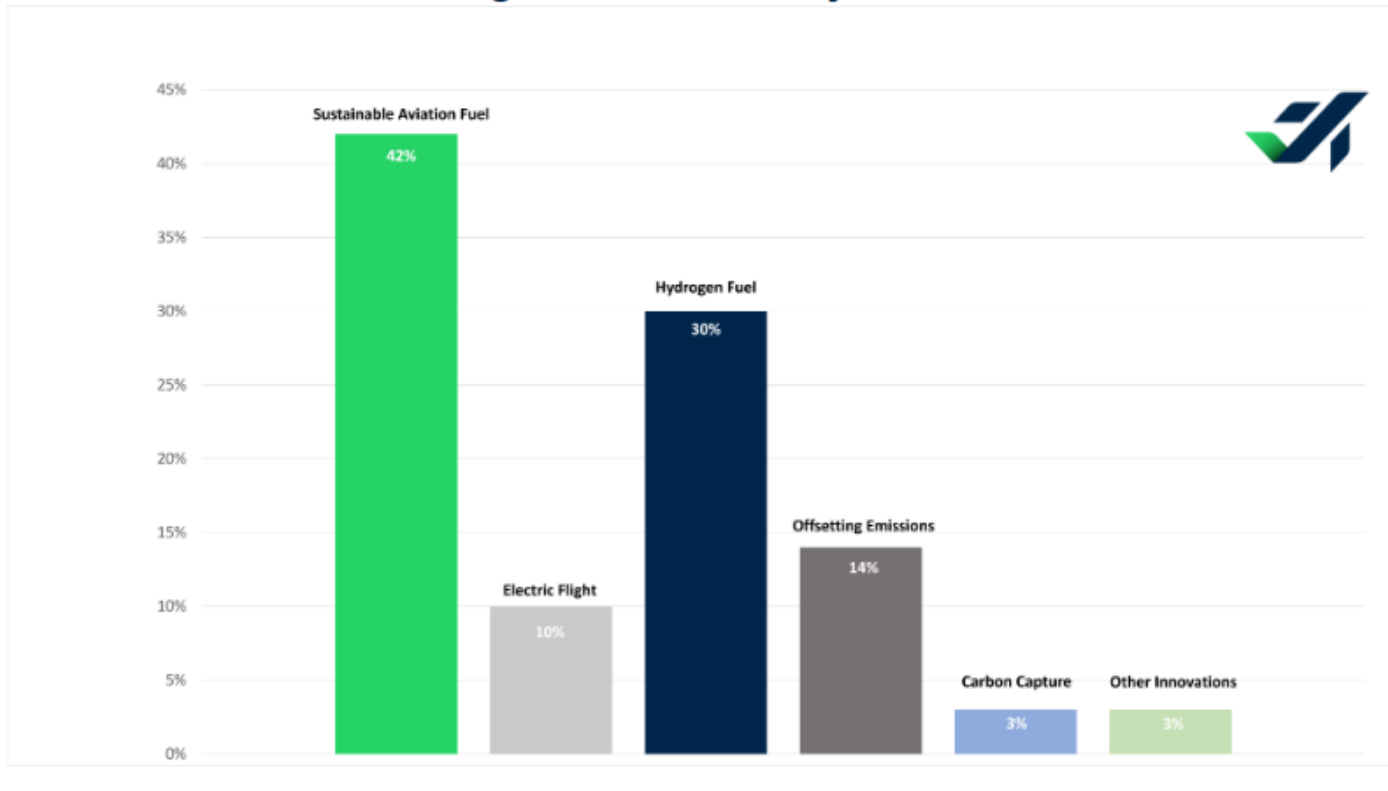


Are your emissions offsets optional with Client 'opt-in'?

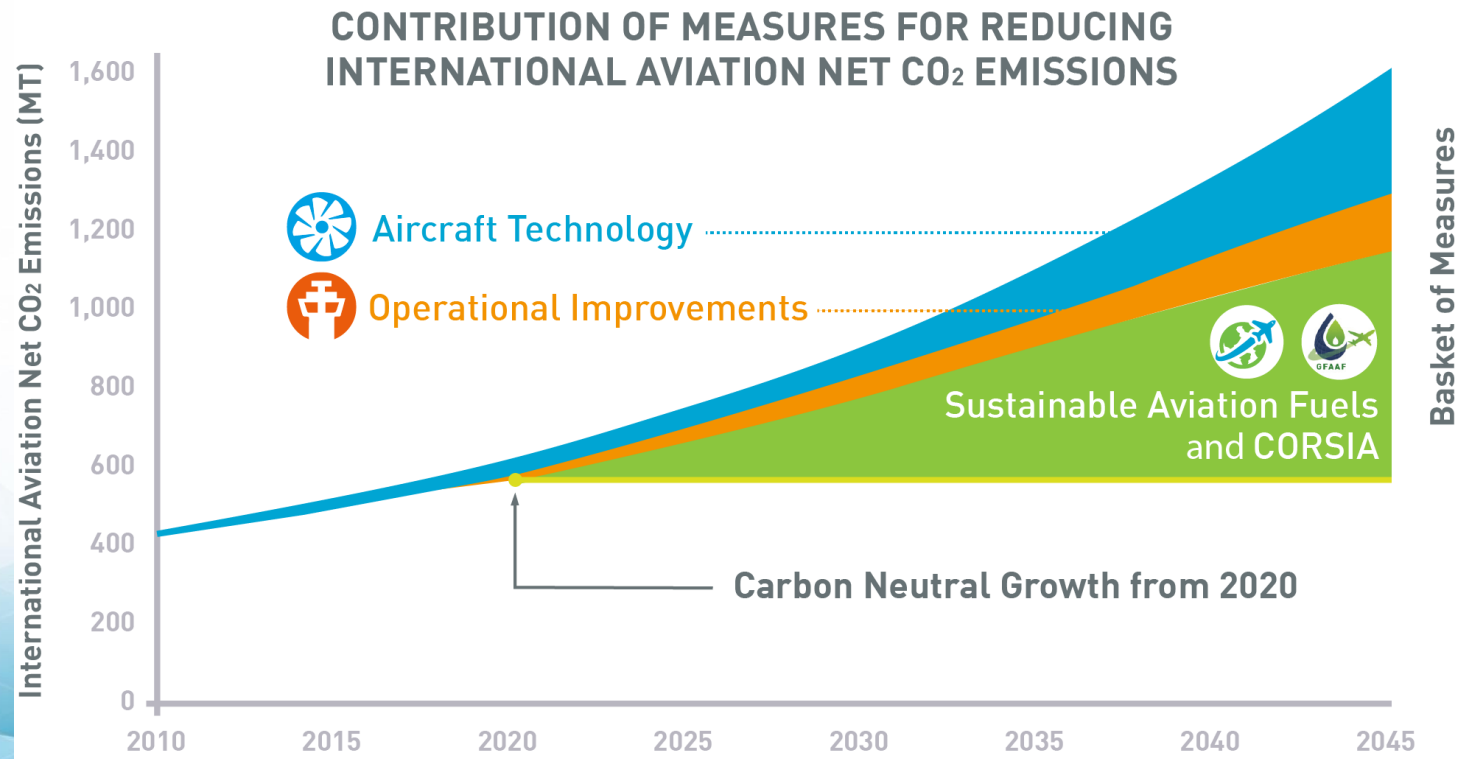


## The Air Charter Association Sustainability Consultation

Which of the following will be the most significant in aviation reaching its targets of NET Zero by 2050?



There is no single solution to eliminating aviation's impact on the environment





**Non-CO2 emissions (CO2e) account for 2/3rds of aviation's total climate impact**



2005 baseline study showed aviation (\*)

CO2 = 1.6% of global 'radiative forcing'

But net 'radiative forcing' = 4.9%

NOx = Nitrogen Oxide

There is no single solution to eliminating aviation's impact on the environment

	CARBON DIOXIDE (CO <sub>2</sub> )	OTHER EMISSIONS NO <sub>x</sub> , Water vapour, Sulphates, Soot, Contrails, etc. (CO <sub>2</sub> e)	TECHNICAL COMPLEXITY	COMMERCIAL CHALLENGES
EMISSION OFFSETTING	NET reduction	Not widely adopted but with NET reduction only	LOW	LOW
AIRCRAFT, AIRPORT, AIRSPACE & OPERATIONAL EFFICIENCIES	Some reduction	Some reduction	LOW	LOW
SUSTAINABLE AVIATION FUEL (SAF)	NET reduction	Some reduction	MEDIUM	HIGH
HYDROGEN	Full reduction	Significant reduction	HIGH	HIGH
ELECTRIC PROPULSION (HYBRID ELECTRIC)	Significant reduction	Some reduction	MEDIUM / HIGH	MEDIUM / HIGH
ELECTRIC PROPULSION (BATTERY ELECTRIC)	Significant reduction	Significant reduction	HIGH	HIGH

## Emissions offsetting – PROCEED WITH CAUTION!



- Calculation ————— Standardisation in calculating emissions



- Schemes can differ, be clear ————— CO<sub>2</sub>, CO<sub>2</sub>e or CO<sub>2</sub>e ++



- Who is making money? ————— Profit or non-profit organisations



- Double counting? ————— Operator/Broker or Company/Government



- Additionality ————— Be project specific



- Projects complete or set-up? ————— Is it scientifically measured, or will it be completed?



- Carbon credits ————— Direct to a project ? Carbon trading brokers take %



## Summary



- There is no single solution to eliminating aviation's impact on the environment



- Targets are ambitious and require heavy investment to achieve



- It's a global problem and needs to be tackled worldwide & with government support



- Be clear, sensible and accurate in your claims & ambitions to sustainability



- We all need to play our part, make changes to our businesses & throughout supply chains



- It goes beyond Air Charter, Business Aviation and the wider Aviation sector. It relates to every industry, sector and business



**The challenges we face now  
may be great, but the challenges  
of inaction will be far greater**



**MACEAERO**  
GLOBAL PRIVATE AVIATION



Thank you



# Sustainability Q&A

**Chris Mace** CEO, MaceAero Ltd  
**Ryan Hogg** District Manager, Avfuel

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# Welcome to the 2022 Isle of Man Aviation Conference

Coffee and ice-cream break 15:00 – 15:30

Sponsored by  **Close Brothers**  
Aviation and Marine



# Transformative Technology

## Reaching the Skies of the Future

Mary Caitlin-Ray

Counsel, Crowell & Moring LLP

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# The Skies of the Future

- New Entrants
- Increased Sustainability
- Aviation Mobility and Revenue
- Diversity, Equity and Inclusion



Volocopter #Blog: VoloDrone and DB Schenker Open up New Logistics Era – Volocopter



# Aviation Mobility and Regulation

- FAA and EASA regulation of new entrants
  - Aircraft certification and maintenance framework (Part 135!)
  - Operator certification and operating rules
- Development considerations
  - What's new, if we're using the existing regulatory framework?



# What's the Buzz?

- Business Aviation Community as Operators:
  - Opportunities to grow flight departments
- Business Aviation Community as Customers and Investors
  - Growing ability to complete last mile deliveries in certain communities
  - Continued interest in investment in the drones and eVTOLs
  - Transform the role of the Flight Department
- Safety First!
  - Counter UAS
  - Privacy concerns

# What's Holding Us Back?

- Regulation
- Public Acceptance
- Infrastructure
- Technology







# Eye on the (Future) Sky

- Sustainability
- Diversity, Equity & Inclusion
- Aviation Mobility
- New Revenue Models
- Safety
- Technology

Thank you.

## Mary-Caitlin Ray

Counsel  
Aviation  
mray@crowell.com

Washington, DC





# Transformative technology

**Chris Bigwood** Senior Connected Aircraft Solutions  
Architect, Honeywell Aerospace

**Dave Edwards** CEO, The Royal Aeronautical Society

**Mary Caitlin-Ray** Crowell & Moring LLP

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# Summary, conference highlights and closing remarks

Graham Williamson (Conference chair)

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